United Nations Guidelines for Producing Statistics on Asset Ownership from a Gender Perspective

Preface

This publication of *United Nations Guidelines for Producing Statistics on Asset Ownership from a Gender Perspective* (hereinafter referred to as the *Guidelines*) provides national statistical agencies and policymakers with guidance on collecting, processing, analysing and disseminating individual-level data on asset ownership to inform three broad sets of policy issues: fostering the empowerment of women; reducing poverty and vulnerability; and understanding livelihoods. The *Guidelines* introduce the concepts, definitions and data requirements for measuring asset ownership from a gender perspective in household surveys and provide guidance on planning, organizing and implementing a household survey, appending a module, or adding a minimum set of questions on asset ownership to a nationally representative household survey. Countries may choose a particular modality for the implementation of the recommendations, depending on their own needs and capabilities, including the needs of data users and the availability of data from other sources, such as administrative records.

The *Guidelines* present a framework for measuring asset ownership from a gender perspective in which ownership is conceptualized as a bundle of ownership rights, including reported and documented ownership and the rights to sell and bequeath an asset. The extent to which these ownership rights are vested in one individual varies across and within countries, depending on their legal frameworks and social norms. The *Guidelines* further outline key recommendations, including the list of assets for data collection, highlighting priority and additional assets; the issue of valuing assets; the rationale for self-reported or self-declared data collection rather than proxy data, because collecting proxy data from the head or another member of the household, as is standard in many countries, is likely to underestimate both women's and men's ownership of assets; data collection strategies; recommended approaches for sample design, focusing on within-household selection; and suggested data analysis and indicators, relevant for gender analysis of asset ownership and control.

Acknowledgements

The *United Nations Guidelines for Producing Statistics on Asset Ownership from a Gender Perspective* were prepared under the Evidence and Data for Gender Equality (EDGE) project, which is aimed at accelerating existing efforts to improve the capacity of countries to produce relevant and high-quality gender statistics. Building on the work of the Inter-Agency and Expert Group on Gender Statistics, the six-year project (2013–2018), a joint initiative of the Statistics Division and the United Nations Entity for Gender Equality and the Empowerment of Women (UN-Women), was carried out in collaboration with the Asian Development Bank (ADB), the Food and Agriculture Organization of the United Nations (FAO), the International Labour Organization (ILO), the Organization for Economic Cooperation and Development (OECD) and the World Bank. The project was funded by the Governments of Australia, Canada, Germany, Ireland, the Republic of Korea and the United States of America.

The *Guidelines* are the result of extensive consultations with national and international statistical and gender experts and are based on the results of testing and piloting different methods in seven countries (Georgia, Maldives, Mexico, Mongolia, the Philippines, Uganda and South Africa). In particular, the *Guidelines* benefited greatly from the many comments and suggestions made by national statistical offices and other experts, through a number of technical meetings and discussions, including during the forty-eighth session of the Statistical Commission, when the *Guidelines* were presented in their draft version. Furthermore, lessons learned from the national statistical offices of the seven countries that piloted the EDGE methodology were critical in shaping the final recommendations included in the *Guidelines*.

To ensure that the *Guidelines* were methodologically robust and sustainable, the EDGE project worked in partnership with the national statistical agencies of seven countries (see above) and with ADB and the World Bank to pilot the methodologies. The pilot studies provided an opportunity to test and refine key aspects of the methodologies, including conceptual and measurement issues related to questionnaire design, respondent selection interview protocols and indicator constructs. In 2014, EDGE collaborated with the World Bank Living Standards Measurement Study team in Uganda to conduct a methodological survey experiment assessing the relative effects of interviewing different household members about individual-level asset ownership and control, the findings of which informed the EDGE pilot studies implemented over the next two years. In 2015, with funding from the National Institute of Statistics and Geography, Mexico appended a module on the ownership of a core set of assets to its national household survey. Also in 2015, Georgia, Mongolia and the Philippines implemented stand-alone surveys on the full range of financial and physical assets, with funding and technical support from ADB. In 2016, with funding and technical support from EDGE, Maldives appended a module on the core set of assets to its household, income and expenditure survey, while South Africa piloted a stand-alone survey on the full set of assets.

The *Guidelines* were prepared by a team from the Social and Gender Statistics Section of the United Nations Statistics Division, comprising Ionica Berevoescu, Haoyi Chen, Francesca Grum, Lauren Pandolfelli and Gulab Singh. The report was produced under the direction and overall substantive guidance of Francesca Grum, Chief of Section.

Special gratitude is owed to Chiara Brunelli of FAO, who has contributed to the development of the recommended methods since the inception of the EDGE project and who drafted some parts of the *Guidelines*, and to Kaushal Joshi and his team at ADB for their overall contribution to the EDGE project over the years and for his leadership in the pilot testing of the recommended methods in three countries funded by the Bank (Georgia, Mongolia and the Philippines). Lastly, the *Guidelines* benefited extensively from the collaboration between EDGE and the World Bank, in particular through the results of the Methodological Experiment on Measuring Asset Ownership from a Gender Perspective (MEXA), carried out under the supervision of Talip Kilic of the World Bank Living Standards Measurement Study programme, in collaboration with the Uganda Bureau of Statistics.

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Contents

Introduction

Purpose of the Guidelines and key recommendations

1. The present publication provides national statistical agencies and policymakers with guidance on collecting, processing, analysing and disseminating individual-level data on asset ownership for the production of gender statistics related to three objectives: measuring the gender asset gap, or the differential prevalence of women's and men's asset ownership; measuring the gender wealth gap, or the differential total wealth held by women and men; and, in households where more than one member is interviewed, understanding how asset ownership and wealth are distributed by sex within households.

2. Although agricultural surveys and administrative data sources are briefly considered, the focus of the *Guidelines* is on household surveys for two key reasons.[1] First, household surveys are the most flexible instrument for data collection. They can accommodate almost any population-based social or economic subject in great detail and provide statistics that serve the needs of a wide range of users. Second, within existing national programmes of data collection, household surveys are the most developed and frequent source of data. Thus, collecting individual-level data on asset ownership through household surveys may prove to be more immediate and less resource-intensive than through other sources. Consequently, the methodology presented in these *Guidelines* for measuring asset ownership and control from a gender perspective has been tested in the context of household surveys in select pilot countries.

3. The *Guidelines* introduce the concepts, definitions and data requirements for measuring asset ownership and control from a gender perspective and provide guidance on planning, organizing and implementing a household survey, or appending a module or a set of questions on asset ownership to a nationally representative household survey. Countries may choose a particular modality for implementation of the recommendations, depending upon their own needs and capabilities, including the needs of data users and the availability of data from other statistical and administrative sources. Guidance on data analysis and dissemination is also provided.

4. These *Guidelines* provide detailed information on the key decisions to make for producing statistics on asset ownership from a gender perspective through household surveys, including the following:

- Asset ownership should be conceptualized as a bundle of ownership rights, including documented ownership, reported ownership and the rights to sell and bequeath an asset. To capture gender differences in the ownership and control of assets, many countries will need to measure ownership as a combination of some, or all, of these rights.
- The priority set of assets on which countries should collect information are the following: principal dwellings, agricultural land, other real estate, including non-agricultural land, and financial assets. Countries may also wish to collect data on non-

[1] See part two of these *Guidelines* for a discussion about the advantages and limitations of household surveys in collecting data on asset ownership from a gender perspective in comparison with other data sources.

agricultural enterprises, livestock, agricultural equipment, valuables, and liabilities and consumer durables based on their policy needs and the prevalence of each asset within the country.

- To estimate wealth, each asset should be valued, item by item, at its current market price.
- Individual-level data on asset ownership should be reported by self rather than proxy, owing to large discrepancies between proxy and self-responses and the assignment of ownership by proxy to persons who do not consider themselves owners.
- Within-household selection of respondents should be determined by survey objectives, data-collection strategies and sample size.

5. Each of these key points is explained in detail throughout the publication.

Relevance of the Guidelines

6. The international guidelines presented in this publication contribute to the development of gender statistics. Gender statistics are instrumental in building an evidence base of the driving forces and consequences of gender inequality and in informing the necessary policy approaches for fostering gender equality and other development outcomes. Conversely, the lack of adequate gender data is a major impediment to informed and effective policies.

7. The importance of gender statistics has long been emphasized in global partnerships. In 1995, in the Beijing Declaration and Platform for Action, 12 critical areas of concern to women and girls were identified, and Governments were urged to regularly collect statistics related to each of these areas, to serve as a basis for monitoring progress and evaluating the impact of policies. While considerable progress has been made in producing gender statistics, basic gender data in some areas of critical interest for policymakers are still non-existent, insufficient or lacking comparability across countries. Recognizing this data gap, in 2011, the Busan Partnership for Effective Development Cooperation called for renewed and accelerated efforts to collect harmonized data, disaggregated by sex, for informing policy decisions and guiding investments. Asset ownership was identified as one critical area with a large gender data gap.

8. More recently, the 2030 Agenda for Sustainable Development, adopted in 2015 by the General Assembly of the United Nations, has raised the profile and importance of gender statistics and the need for better data disaggregation. Sustainable Development Goal 5 of the 2030 Agenda is dedicated to achieving gender equality and empowering all women and girls, and 80 of the global indicators have been identified by the Inter-Agency and Expert Group on Gender Statistics as relevant for gender analysis.[2] An overview of the relevant target under the Sustainable Development Goals is set out in box 1 below.

9. Assets serve multiple functions. In their productive capacity, they generate income and facilitate access to capital and credit. They also strengthen a household's capacity to cope with and

[2] Report of the Secretary-General on social statistics submitted to the Statistical Commission at its forty-eighth session (E/CN.3/2017/11), available at https://unstats.un.org/unsd/statcom/48th-session/documents/2017-11-SocialStats-E.pdf.

respond to shocks by enhancing its ability to diversify income and ease liquidity constraints. Moreover, assets comprise a store of wealth that can be liquidated or passed on to future generations. Finally, assets may provide status and security to individuals or households.

10. Despite substantial empirical evidence that household members do not fully pool their resources, most official data on assets are collected at the household level, typically by asking a proxy respondent whether anyone in the household owns land, housing or other key assets. Yet this approach provides only a partial – and potentially misleading – picture of how asset ownership influences individual and household welfare. Indeed, prior research[3] has found that most assets are owned by individuals, either solely or jointly, thus making individual-level data more revealing than household-level data for informing evidence-based policies and programmes. Added to this, individual-level data enable gender analysis and also analysis along numerous other dimensions, such as age or marital status, that are important for understanding a range of policy issues. For example, while widows and single mothers are recognized as particularly vulnerable groups, relatively little evidence is available to understand their asset portfolios.

11. Collecting asset data at the individual level, by asking respondents about their ownership status, provides insights into three broad sets of policy issues: fostering the empowerment of women; reducing poverty and vulnerability; and understanding livelihoods.

Empowerment of women

12. The importance of women's ownership and control of assets has long been recognized as a key element of the empowerment of women. A call to strengthen women's access to assets, in particular land and financial assets, was made in both the Convention on the Elimination of All Forms of Violence against Women, in 1979, and the Beijing Declaration and Platform for Action, in 1995. Ensuring women's ownership and control of land and other resources is also a key target of the 2030 Agenda. Still, relatively limited data exist on women's ownership of assets, in particular data derived from nationally representative surveys.

13. The available evidence does find that women's ownership of assets is positively associated with a number of important development outcomes for the household, including food security, child nutrition and education. For example, mothers' ownership of assets is related to the increased educational attainment of daughters in Ethiopia and of sons in Indonesia.[4] In Bangladesh, a higher share of women's assets is associated with better health outcomes for girls.[5] And in Nepal, mothers who own land are less likely to have malnourished children.[6]

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[3] Cheryl Doss and others, "The gender asset and wealth gaps", *Development*, vol. 57, Nos. 3–4 (December 2014), pp. 400–409. Available at http://doi.org/10.1057/dev.2015.10.

[4] Agnes Quisumbing and John Maluccio, "Resources at marriage and intrahousehold allocation: evidence from Bangladesh, Ethiopia, Indonesia, and South Africa", *Oxford Bulletin of Economics and Statistics*, vol. 65, No. 3 (July 2003), pp. 283–327.

[5] Kelly Hallman, "Mother-father resource control, marriage payments, and girl-boy health in rural Bangladesh", Food Consumption and Nutrition Division Discussion Paper 93 (Washington, D.C., International Food Policy Research Institute, 2000).

[6] Keera Allendorf, "Do women's land rights promote empowerment and child health in Nepal?" *World Development*, vol. 35, No. 11 (November 2007), pp. 1975–1988.

Box 1

Measuring women's ownership of assets in the 2030 Agenda

In 2015, the General Assembly of the United Nations adopted a set of goals to end poverty, protect the planet and ensure prosperity for all. Building upon the achievements of the Millennium Development Goals, the 2030 Agenda for Sustainable Development comprises 17 goals and 169 targets. From a gender perspective, the Sustainable Development Goals represent a significant step forward from the Millennium Development Goals, covering for the first time all core areas of the women empowerment's agenda.

Recognizing that gender equality is critical to achieving the vision set out in the 2030 Agenda, and indeed an objective in its own right, Goal 5 is dedicated to achieving gender equality and empowering all women and girls. Under Goal 5, target 5.a directs countries to "undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws". FAO is the custodian agency of target 5.a, which is monitored by two indicators, a de facto indicator on women's land tenure rights over agricultural land, indicator 5.a.1, and a de jure indicator on women's land rights in the legal framework, indicator 5.a.2.

The two indicators under target 5.a focus on land because this is a key economic resource inextricably linked to the access, use and control of other economic and productive resources. Ownership or, at least, control of land is critical for poverty reduction, food security, inclusiveness and overall sustainable development objectives, in many countries. In terms of gender equality, an increase in women's rights to land is closely connected to the empowerment of women. Indeed, owning or bearing rights to land[a] reduces women's reliance on male partners and relatives, increases their bargaining power within the household,[b] improves their chances of obtaining extension services and credit and encourages them to undertake and expand their investments and join producer organizations.

Indicator 5.a.1 is divided into two sub-indicators, formulated as follows:

(a) Proportion of total agricultural population with ownership or secure rights over agricultural land, by sex;

(b) Share of women among owners or rights bearers of agricultural land, by type of tenure.

While sub-indicator (a) measures the prevalence of people in the agricultural population with ownership or tenure rights over agricultural land (disaggregated by sex), sub-indicator (b) focuses on gender parity, measuring the extent to which women are disadvantaged in ownership and tenure rights over agricultural land.

Indicator 5.a.1 focuses on agricultural land, which, in compliance with the classification provided by the World Census of Agriculture 2020, includes "land under temporary crops", "land under temporary meadows and pastures", "land temporarily fallow", "land under permanent crops" and "land under permanent meadows and pastures". All the forms of land that are not considered agricultural are excluded from the indicator. According to the World Census of Agriculture 2020 guidelines, the greenhouses and land in family gardens are included in the land under temporary crops or land under permanent crops.

Indicator 5.a.1 uses "agricultural population" as the reference population (denominator), instead of the total population, because tenure rights over agricultural land are relevant in particular for individuals whose livelihood relies on agriculture. Although there is no official definition of "agricultural population", an operational definition of this term has been proposed by FAO for the scope of indicator 5.a.1. FAO suggests that the term "agricultural population" should be interpreted as equivalent to "agricultural households" – in other words, households which operated land for agricultural purposes or raised or tended livestock in the past 12 months, regardless of the final destination of the production. Accordingly, individuals are part of the reference population if they are adult and form part of an agricultural household. The adoption of a household perspective is particularly important from the gender viewpoint, because, in many agricultural households, women often consider themselves as not being involved in agriculture, while they provide substantive support to the household's agricultural activities.

Based on the recommendations from the seven EDGE field tests, three proxies have been identified to measure ownership or land tenure rights:

- Having own name on a legally recognized document
- Having the right to sell
- Having the right to bequeath

Individuals are considered as owners or holders of land tenure rights over agricultural land if they present at least one of the three proxies. Since individuals may have the right to sell or bequeath land even in the absence of legal documents, the indicator combines legal documentation with alienation rights, in order to render it comparable across countries. The EDGE pilots show

that these three proxies offer the most robust measure of land tenure rights, ensuring comparability across countries with a diverse prevalence of documentation.

Considering the recommendations above, the two 5.a.1 sub-indicators can be expressed through the following mathematical formulas:

Sub-indicator (a)

$$\frac{\textit{Number of adult individuals in agricultural households with legally recognized document on agricultural land OR the right to sell it OR the right to bequeath it}}{\textit{Total adult individuals in agricultural households}} \textit{*100, by sex}$$

Sub-indicator (b)

$$\frac{\textit{Number of adult women in agricultural households with legally recognized document on agricultural land OR the right to sell it OR the right to bequeath it}}{\textit{Number of people in agricultural households with legally recognized document on agricultural land OR the right to sell it OR the right to bequeath it}} \textit{*100}$$

The appropriate data sources for monitoring indicator 5.a.1 are agricultural surveys or multi-topic household surveys. If multi-topic household surveys are used, it is necessary to identify agricultural households, which are the reference population of indicator 5.a.1. In addition, pre-screening and oversampling may be needed, especially in countries or regions with a low proportion of households engaged in agricultural production. Administrative data are not recommended for monitoring indicator 5.a.1, mainly because they do not allow focusing on the reference population – namely, adults living in agricultural households.[c]

While indicator 5.a.1 focuses on gender parity in ownership and tenure rights over agricultural land, other Sustainable Development Goal indicators recognize the importance of strengthening secure tenure rights for all. Indicator 1.4.2, for instance, measures the "proportion of total adult population with secure tenure rights to land, with legally recognized documentation and who perceive their rights to land as secure, by sex and by type of tenure". Indicators 5.a.1 and 1.4.2 show similarities and differences. While both relate to individual rights and promote sex-disaggregated data, indicator 1.4.2 speaks about "any land" and refers to the total adult population, indicator 5.a.1 focuses on agricultural land and refers to the adult agricultural population. FAO, the United Nations Human Settlements Programme (UN-Habitat) and the World Bank are collaborating to align concepts, definitions and data-collection tools, to assist countries in the collection and generation of these indicators. In particular, a joint land tenure module has been designed to generate the data for calculating both indicators 5.a.1 and 1.4.2.

[a] According to Deere and Leon, there is a "growing body of case study evidence from Latin America demonstrating that if one compares peasant women landowners with those who are landless, women landowners have a much greater choice of marriage partners and strike a stronger marriage bargain. Within marriage women landowners play a greater role in both household and farm decision-making, including productive decisions and those governing the disposition of what is produced and how income so generated is used" (Carmen Diana Deere and Magdalena Leon, "The gender asset gap: land in Latin America", *World Development*, vol. 31, No. 6 (2003), pp. 925–947).

[b] For instance, evidence for this was found in South Asia; see Bina Agarwal, *A Field of One's Own: Gender and Land Rights in South Asia* (Cambridge, Cambridge University Press, 1994).

[c] Additional information on the calculation of indicator 5.a.1 may be found at www.fao.org/sustainable-development-goals/indicators/5.a.1/en/ and www.fao.org/elearning/#/elc/en/course/SDG5A1.

14. Women's ownership of assets is also associated with improvements in their own well-being. Analysis of data collected in Ecuador and Ghana under the Gender Asset Gap project[7] finds that indicators of women's asset ownership are correlated with more egalitarian decision-making.[8] Securing women's property and inheritance rights to land can promote women's economic security

[7] Detailed information on the Gender Asset Gap project, including survey instruments and publications, is available at: https://sites.google.com/view/genderassetgap/home.

[8] Carmen Diana Deere, Gina Alvarado and Jennifer Twyman, "Gender inequality in asset ownership in Latin America: female owners vs. household heads", *Development and Change*, vol. 43, No. 2 (2012), pp. 505–530.

and thus reduce their vulnerability to unsafe sex and other AIDS-related risk factors.[9] While the evidence on the relationship between asset ownership and spousal violence is mixed, several studies also indicate that asset ownership can protect against spousal violence.[10]

15. Thus, by measuring asset ownership at the individual level, national statistical agencies better equip policymakers to understand the empowerment of women and their well-being; their economic vulnerability, in particular in the event of household dissolution through death, divorce, separation or abandonment; and their bargaining power within the household.

Reducing poverty and vulnerability

16. Traditional poverty studies measure poverty as flows of income, consumption or expenditure deprivation, but this approach is typically conducted at the household level and often fails to capture the wide range of vulnerabilities experienced by individuals. Because stocks of assets are accumulated by individuals over time, an asset-based approach to the study of poverty can provide better insights into how people manage their vulnerability to poverty than those produced by traditional poverty studies. Research in this vein identifies households with few to no assets that are trapped in poverty, households vulnerable to losing their assets and becoming trapped in poverty and households that are temporarily poor but that will be able to acquire additional assets and move out of poverty.[11] While the results of these studies vary across countries in respect of the presence of asset poverty traps, it is important to note that all of them examine assets at the household level. Collecting data on asset ownership and control at the individual level would provide a more rigorous basis for an analysis of how poverty affects different household members.

Understanding livelihoods

17. Women's lack of access to important productive resources for agriculture – in particular land, agricultural equipment and livestock – hinders their agricultural productivity. Women's lack of productive assets also inhibits their ability to become entrepreneurs, generate income and earn livelihoods. Individual-level data on asset ownership and control can facilitate a better understanding of the conditions under which women's and men's ownership of assets and the interlinkages of those assets contribute to diverse livelihood activities. These data can provide the basis for integrated policy packages designed to boost agricultural productivity and entrepreneurship.

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[9] Pradeep Panda and others, *Property Ownership and Inheritance Right of Women for Social Protection – the South Asia Experience*, (Washington, D.C., International Center for Research on Women, 2006); Stuart Gillespie and Suneetha Kadiyala, "HIV/AIDS and food and nutrition security: interactions and response", *American Journal of Agricultural Economics*, vol. 87, No. 5 (2005), pp. 1282–1288.

[10] Manasi Bhattacharyya, Arjun Bedi and Amrita Chhachhi, "Marital violence and women's employment and property status: evidence from North Indian villages", *World Development*, vol. 39, No. 9 (2011), pp. 1676–1689; Pradeep Panda and Bina Agarwal, "Marital violence, human development and women's property status in India", *World Development*, vol. 33, No. 5 (2005), pp. 823–850; Shelly Grabe, "Promoting gender equality: the role of ideology, power, and control in the link between land ownership and violence in Nicaragua", *Analyses of Social Issues and Public Policy*, vol. 10, No. 1 (2010), pp. 146–170.

[11] See Michael Carter and Christopher Barrett, "The economics of poverty traps and persistent poverty: an asset-based approach", *Journal of Development Studies*, vol. 42, No. 2 (2006), pp. 178–199.

Key objectives of data collection, policy questions and measures

18. A sound and gender-informed evidence base is essential for the development of policies and programmes aimed at promoting gender equality and overall development. When collecting individual-level data on asset ownership, a range of statistics can be generated to answer key policy questions relating to three objectives: measuring the gender asset gap, or the differential prevalence of women's and men's asset ownership; measuring the gender wealth gap, or the difference in total wealth held by women and men; and, in households where more than one member is interviewed, understanding how asset ownership and wealth are distributed among couples or by sex within households. The following are examples of policy questions that may be asked under each objective:

(a) Gender asset gap:

- What is the prevalence of asset ownership among women and men, by type of asset?
- What is the share of women among asset owners, by type of asset?
- Are women and men more likely to own certain assets exclusively or jointly? Which assets?
- Does joint ownership confer equal rights over the asset on co-owners?
- Do men and women acquire assets differently? If so, in which ways?
- Which individual characteristics are associated with asset ownership and do these characteristics differ for women and men?

(b) Gender wealth gap:

- Do women and men possess similar levels of wealth?
- Is women's wealth concentrated in the same types of assets as men's wealth?
- How does the composition of wealth vary by sex among wealth quintiles?
- Are women overrepresented in the poorest wealth quintiles?

(c) Intrahousehold analysis:

- How are assets owned by household members or by members of couples? What are the ownership dynamics?
- How is asset wealth distributed among household members, by sex?
- What share of couples' total wealth is owned by women?
- Which individual and household characteristics are associated with agreement among spouses about their ownership status of key assets?
- Are women's asset ownership and share of household wealth associated with greater decision-making in the household (or other proxies of empowerment or well-being depending on the additional topics included in the survey)?

19. To answer the above questions, three main types of measures can be generated. The first, prevalence gaps, compare the proportion of the total population, by sex, who are owners of a particular type of asset, such as dwellings or land. The second measure, the share of owners, indicates which proportion of the people who own a particular type of asset are women or men. Both of these measures are useful for comparisons between men's and women's asset ownership over time, within

and across countries, but are limited in that they do not indicate whether the quality and quantity of assets owned vary among male and female owners. The third measure, gender wealth gaps, which require data on the value of assets, account for quantity and quality of the assets owned by men and women. Part four, section 2, of these guidelines presents a full list of indicators for monitoring men's and women's ownership of assets at the global and national levels, whereas part four, section 4, illustrates how data analysis can be used to answer policy questions.

Development of the Guidelines

20. The present publication is the culmination of a multi-year, multi-stakeholder initiative led by the EDGE project to develop methodological guidance on measuring asset ownership from a gender perspective. (For an overview of the EDGE project, see box 2 below). The importance of measuring asset ownership at the individual level to facilitate analysis of women's and men's well-being is increasingly recognized by the international community as essential for devising evidence-based policies and programmes that promote gender equality and other key development outcomes. The World Bank survey project Living Standards Measurement Study-Integrated Surveys on Agriculture, the Demographic and Health Surveys programme, the agricultural censuses supported by FAO, the Gender Asset Gap project and the Women's Empowerment in Agriculture Index all collect some individual-level data on the ownership and control of assets. Building upon the conceptual and operational foundations of this work, and in collaboration with a wide range of national, regional and global partners, the EDGE project developed the present *Guidelines* for national statistical agencies, with a view to the regular production of individual-level data on asset ownership and control.

Box 2

EDGE project

The Evidence and Data for Gender Equality (EDGE) initiative seeks to improve the integration of gender issues into the regular production of official statistics, with a view to informing better evidence-based policies. Building on the work of the Inter-Agency and Expert Group on Gender Statistics, this multi-year initiative is jointly executed by the United Nations Statistics Division and UN-Women, in collaboration with national statistical offices, ADB, FAO, ILO, OECD and the World Bank. The project is guided by a steering committee composed of members of the donor community, members of the Inter-Agency and Expert Group on Gender Statistics, regional commissions and regional development banks. EDGE received funding from the Governments of Australia, Canada, Germany, Ireland, the Republic of Korea and the United States of America.

From 2013 to 2018, EDGE aimed, specifically, to accelerate existing efforts to generate internationally comparable gender indicators on health, education, employment, entrepreneurship and asset ownership through two main activities: by contributing to the development of the Minimum Set of Gender Indicators, available online at genderstats.un.org, disseminating gender-relevant data and metadata on education, employment, health, public life and decision-making, and human rights; and by developing methodological guidelines on measuring asset ownership and entrepreneurship from a gender perspective.

To develop methodological guidelines on measuring asset ownership and entrepreneurship from a gender perspective, the EDGE project consolidated technical inputs over a multi-year process from a wide range of stakeholders, including national statistical offices, regional and international agencies, and researchers with expertise in gender analysis, asset ownership and entrepreneurship. The project then tested the proposed methodology in seven pilot countries – Georgia, Maldives, Mexico, Mongolia, the Philippines, Uganda and South Africa – and refined the methodology based on the lessons learned from the pilots. The *Guidelines* were presented to the United Nations Statistical Commission in 2017.

By developing and testing methodologies to collect data on assets and entrepreneurship, the EDGE project has provided national statistical offices with the necessary tools to include the collection of assets data in their regular statistical programmes and has contributed to the advancement of research on measuring entrepreneurship data from a gender perspective.

Consistent with a clear imperative for evidence-based policymaking, the ultimate aim of the EDGE initiative was to build a cost-effective and sustainable model for integrating gender issues into regular statistical production while strengthening countries' capacities to produce gender data in all policy areas.

21. To ensure that the guidelines presented in this publication are robust, feasible and sustainable, the EDGE project worked in partnership with the national statistical agencies of seven countries – Georgia, Maldives, Mexico, Mongolia, the Philippines, Uganda and South Africa – to pilot the methodology. An overview of the EDGE pilots may be seen in table 1 below. The selection of pilot countries was based on three criteria: first, given the limited scope of the project, countries had to possess adequate statistical capacity to contribute to the development of a new methodology; second, countries had to have plans in place to conduct a survey that could accommodate a module on asset ownership and control or be willing to implement a stand-alone survey during the project time frame; and third, countries had to express interest in producing better gender statistics, including on asset ownership and control. The selected seven countries offered a variety of contexts that could influence asset ownership at the individual level, including in terms of economies, gender norms, legal frameworks and rights to property.

22. Key partners provided financial and additional technical support: ADB supported the pilots in Georgia, Mongolia and the Philippines and the World Bank provided technical support for the pilot in Uganda. Funding and additional technical support for the pilot in Mexico were provided by the National Institute of Statistics and Geography. Funding and technical assistance for the pilots in Maldives, Uganda and South Africa were provided by the EDGE project.

23. The seven pilot studies provided an opportunity to test and refine key aspects of the methodology on measuring asset ownership from a gender perspective, including conceptual and measurement issues related to questionnaire design, respondent selection interview protocols and indicator constructs. In Uganda, in 2014, the EDGE project worked in partnership with the World Bank Living Standards Measurement Study team to conduct a methodological survey experiment[12] assessing the relative effects of interviewing different household members about individual-level asset ownership and control, the findings of which informed the EDGE pilots implemented over the next

[12] For additional information, see box 3 in part one of the *Guidelines*.

two years. In 2015, Mexico appended a module on a core set of assets to a national household survey, and Georgia, Mongolia and the Philippines implemented stand-alone surveys on the full range of financial and physical assets. In 2016, Maldives also appended a module on a core set of assets to a national household survey and South Africa piloted a stand-alone survey.

24. Throughout this process, the EDGE project held a series of technical meetings, a midterm review meeting and side events during the forty-fifth, forty-sixth, forty-seventh and forty-eighth sessions of the United Nations Statistical Commission to solicit input on the methodology from its stakeholders, including national statistical agencies, ADB, FAO, ILO, the United States Agency for International Development, the World Bank and subject-matter and sampling experts from the Indian Institute of Management Bangalore, the University of Oxford, the University of KwaZulu-Natal and the University of Michigan.

25. The final methodology presented in this publication, including the recommendation of key indicators for global and national monitoring, is informed by the technical input of the EDGE project stakeholders as well as both quantitative and qualitative analysis of the pilot data and lessons learned from implementing the pilot studies.

Table 1

Overview of EDGE pilots

Country	Dates of data collection	Data collection strategy	Asset coverage	Sample size	Within-household respondent selection
Uganda (MEXA)[a]	June–August 2014	Stand-alone survey	Principal dwelling, agricultural land, livestock, agricultural equipment, non-farm enterprises, other real estate, consumer durables, financial assets and liabilities, valuables	2,720 households	5 interview settings were tested: 1. Self-identified most knowledgeable household member, interviewed alone, asked about assets owned, exclusively or jointly, by any household member; 2. Randomly selected member of the principal couple – interviewed alone, asked about assets owned, exclusively or jointly, by any household member; 3. Principal couple – interviewed together, asked about assets owned, exclusively or jointly, by any household member; 4. Adult (18+) household members – interviewed alone and simultaneously, asked about assets owned, exclusively or jointly, by any household member; 5. Adult (18+) household members – interviewed alone and simultaneously, asked about assets owned, exclusively or jointly, by individual respondent.
Mexico	June–October 2015	Modules appended to national household survey (ENH)	Principal dwelling, agricultural land, livestock. agricultural equipment, non-farm enterprises, other real estate, financial assets and liabilities	An ENH subsample of 8,204 households	Principal couple; self-reported and proxy data collection. In households without couples, the household member most knowledgeable about the assets belonging to the household and a household member of the opposite sex were interviewed.
Georgia	September–October 2015	Stand-alone survey	Principal dwelling, agricultural land, livestock, large agricultural equipment, non-farm enterprises, other real estate, consumer durables, financial assets and liabilities, valuables	2,783 households, nationally representative	Principal couple plus a third randomly selected household member; self-reported and proxy data collection. In households without couples, the household member most knowledgeable about the assets belonging to the household and two randomly selected respondents were interviewed.
Philippines	September–October 2015	Stand-alone survey	Principal dwelling, agricultural land, livestock, agricultural equipment, non-farm enterprises, other real estate, consumer durables, financial assets and liabilities, valuables	1,536 households, representative for Cavite province	Principal couple plus a third randomly selected household member; self-reported and proxy data collection. In households without couples, the household member most knowledgeable about the assets belonging to the household and two randomly selected respondents were interviewed.

Country	Dates of data collection	Data collection strategy	Asset coverage	Sample size	Within-household respondent selection
Mongolia	September–November 2015	Stand-alone survey	Principal dwelling, agricultural land, livestock, agricultural equipment, non-farm enterprises, other real estate, consumer durables, financial assets and liabilities, valuables	2,983 households, nationally representative	Principal couple plus a third randomly selected household member; self-reported and proxy data collection. In households without couples, the household member most knowledgeable about the assets belonging to the household and two randomly selected respondents were interviewed.
Maldives	May 2016	Module appended to Household, Income and Expenditure Survey (HIES)	Principal dwelling, agricultural land, aquaculture, enterprises, other real estate, financial assets and liabilities	An HIES subsample of 272 households on 3 islands	1 randomly selected adult household member; self-reported data collection
South Africa	August–September 2016	Stand-alone survey	Principal dwelling, agricultural land, livestock, agricultural equipment, non-farm enterprises, other real estate, consumer durables, financial assets and liabilities, household decision-making module	1,568 households in KwaZulu-Natal province	In half of the sample, 1 randomly-selected adult household member; self-reported data collection. In the other half of the sample, 1 randomly-selected adult household member and his/her spouse/partner; self-reported data collection.

Note: Principal couple consisted of the person in the household most knowledgeable about assets owned by household members and that person's spouse or partner.

[a] For additional information on MEXA, see box 3 in part one of the *Guidelines*.

Relationship with existing international standards and other global guidelines

26. This publication presents the first United Nations guidelines on measuring asset ownership and control from a gender perspective. As such, careful attention was given to ensuring consistency with existing internationally agreed standards, including concepts and definitions, classifications and recommendations for data collection. The methodological publications most relevant from this perspective include the 2008 *System of National Accounts*; the third revision of the *Principles and Recommendations for Population and Housing Censuses*; the *OECD Guidelines for Micro Statistics on Household Wealth*; and the *FAO guidelines on the World Programme for the Census of Agriculture*.

27. Differences between the present *Guidelines* and the publications referenced above do exist, however. For example, differences relating to the coverage of assets and definitions of ownership reflect the focus of the present *Guidelines* on the individual-level measurement of asset ownership and a strong gender perspective supported by prior empirical research on gender and property rights. In addition, the present *Guidelines* differ from the *OECD Guidelines for Micro Statistics on Household Wealth* in that they aim to provide guidance to a wider set of countries, both developing and developed, and to emphasize the operational aspects of collecting the required data through household surveys. All these differences are explained in the relevant sections of the *Guidelines*.

Users of the guidelines

28. The present publication is targeted primarily at national statistics offices aiming to produce statistics on asset ownership from a gender perspective using household surveys. It considers conceptual and definitional aspects of measuring asset ownership at the individual level, the practicalities of planning and implementing data collection in the field, and hands-on approaches to data analysis and dissemination. The guidelines are prescriptive in terms of the conceptual framework that should guide the measurement of asset ownership, but offer a menu of options for data collection and analysis that could fit a range of objectives and resources. They provide a common platform for the range of specialists typically involved in a data-collection project, including specialists in gender statistics, household surveys, sampling, national accounts and agricultural land, data managers, specialists in field operations, and data analysts. Lastly, the guidelines are designed to be applicable in countries at different stages of statistical development and with different levels of experience in conducting household surveys. Aspects specific to the production of asset ownership statistics are emphasized across all sections, while indicating where these specific aspects fit within the typical stages of the statistical production in a country.

29. The guidelines are also relevant to users of data. Data on individual-level asset ownership and control are important for a variety of users, including governments, civil society, researchers and the general public. The guidelines are designed to improve users' understanding of how to interpret the available data, including by taking into account conceptual and measurement issues. They can also improve the dialogue between users and producers of data, including by creating a more precise and efficient communication and showcasing targeted statistical products that are designed to respond to specific users' needs.

Organization of the publication

30. The *United Nations Guidelines for Producing Statistics on Asset Ownership from a Gender Perspective* comprise four parts, as follows:

- Part one presents a conceptual framework for measuring asset ownership and control from a gender perspective. It conceptualizes ownership as a bundle of ownership rights and discusses the importance of collecting data on individual-level asset ownership by self-report rather than proxy. Part one also presents a definition of assets consistent with the System of National Accounts, discusses terms and definitions related to specific types of physical and financial assets and presents recommendations for valuing assets. Part one concludes with a discussion of the different units of observation that can be used to collect data in a survey on individual-level asset ownership and the different measures that can be generated.

- Part two discusses the role of household surveys and other data sources, including agricultural censuses and surveys and administrative sources, in collecting individual-level information on the ownership and control of assets.

- Part three provides guidance on planning, organizing and implementing the collection of individual-level data on asset ownership. It reviews data collection strategies and modes of data collection, provides sampling guidance on within-household respondent selection and presents a set of questions on asset ownership that countries are encouraged to adapt for their

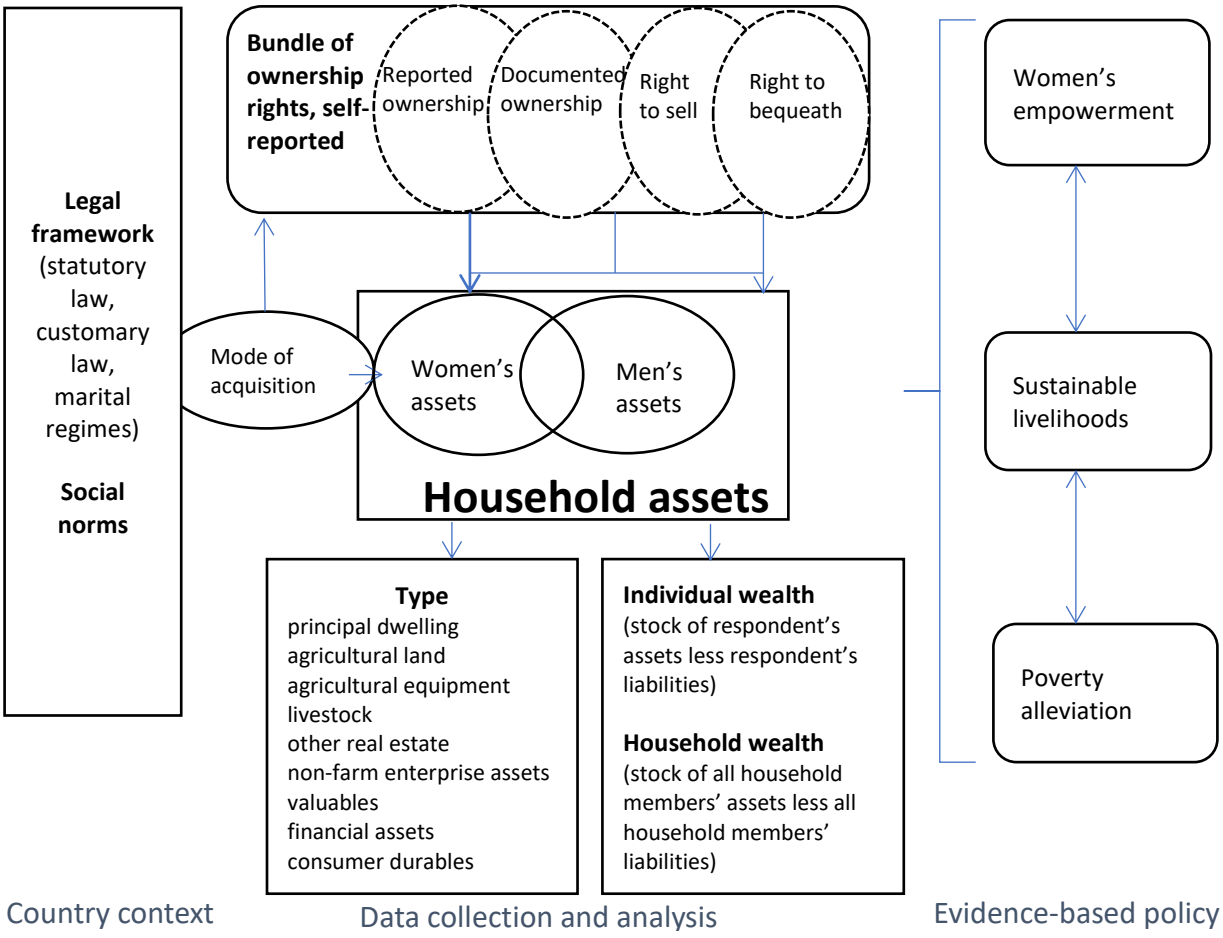
data collections. The part concludes with a discussion of field operations, including the organizing of field work, the training of field staff and the management of field operations.

- Part four discusses data processing, tabulation, analysis and the dissemination of results. It provides guidance on how to structure a household survey data set on individual-level asset ownership and how to weight the data to adjust for the unequal probability of selection and unit non-response. Part four also presents a set of indicators for monitoring women's and men's ownership and control of physical and financial assets at the global and national levels. Lastly, part four illustrates how data analysis can be employed to answer policy-relevant questions on asset ownership and discusses the dissemination of findings.

Part one.
Conceptual framework for measuring asset ownership from a gender perspective

31. This part presents a conceptual framework for measuring asset ownership from a gender perspective. To ensure consistency with existing international standards, the concepts and definitions presented below are anchored in the System of National Accounts, the internationally agreed conceptual and accounting framework for recording economic activities for the purpose of analysing and evaluating the performance of an economy. To ensure that the framework orients data collection on asset ownership from a gender perspective, the concepts also build upon prior empirical research on gender and property rights.

Figure 1. Conceptual framework for measuring asset ownership and control from a gender perspective



32. As illustrated in figure 1, the conceptual framework for measuring asset ownership from a gender perspective is concerned with assets held by households, including adult female and male household members. As defined in the 2008 *System of National Accounts*, an asset is "a store of value representing a benefit or series of benefits accruing to the economic owner by holding or using the

entity over a period of time".[13] In the conceptual framework on measuring asset ownership from a gender perspective, household assets may be owned exclusively by one household member or jointly by two or more household members or household members and non-household members. The form of ownership, whether exclusive or joint, is represented by the overlapping circles in figure 1 labelled "women's assets" and "men's assets". The type of ownership may consist of one or more components of the bundle of ownership rights – reported ownership, documented ownership, the right to sell and the right to bequeath – depicted by the overlapping ovals at the top of figure 1. Both the type and the form of women's and men's ownership of assets are influenced by the country context, including the legal framework and social norms governing property rights, and also the modes by which the assets were acquired.

33. The collection of individual-level data on a range of financial and non-financial assets is recommended, including those listed in figure 1 in the square labelled "type": principal dwellings, agricultural land, agricultural equipment, livestock, other real estate (including non-agricultural land), non-farm enterprise assets, financial assets, valuables and consumer durables. This is because individual-level data on women's and men's ownership of these assets can provide important insights for the design of evidence-based policies and programmes, including those on the empowerment of women, sustainable livelihoods and poverty alleviation. In addition, countries are encouraged to collect information on the value of assets to reflect additional attributes of the assets – such as size, quality or location – that are not revealed by a simple count of women's and men's asset holdings, including for the purposes of understanding differentials in the individual wealth held by women and men.

34. In the following sections, each of these key concepts is discussed in detail.

1. Defining asset ownership

35. Deriving an internationally comparable and locally relevant definition of asset ownership is complicated by the myriad legal frameworks and social norms governing individuals' rights to property in different contexts, and also by the challenge of deriving a definition of ownership that is applicable across a range of physical and financial assets. For example, tenure rights, or the rules stipulating how property is allocated within a country, may not accord legal ownership of assets to individuals, such as in Ethiopia and the United Republic of Tanzania, where the State maintains nominal ownership of land, complicating both the notion of ownership and the comparability of ownership rights across countries. In addition, while documented ownership may be applicable for assets with high economic value, such as land and housing, it is not applicable for some smaller assets with less economic value, such as small agricultural equipment and consumer durables. Thus, the present *Guidelines* conceptualize ownership as a "bundle" of ownership rights, comprising some or all of the following components: documented ownership, reported ownership and the rights to alienate the asset through sale or bequest.

[13] European Commission, International Monetary Fund, Organization for Economic Cooperation and Development, United Nations and World Bank, *System of National Accounts 2008* (New York, 2009).

36. The present section discusses the components of asset ownership in detail, along with the additional information that countries are encouraged to collect with a view to gaining an understanding of asset ownership from a gender perspective, including whether assets are owned exclusively or jointly and the modes by which they are acquired.

1.1. Bundle of ownership rights

37. As illustrated in figure 1, the present *Guidelines* conceptualize ownership as a bundle of ownership rights mediated by the legal framework and social norms governing an individual's rights to property in a given context. As such, ownership may comprise some or all of the following components:

- **Documented ownership**: Documented ownership refers to the existence of any document recognized by the Government that an individual can use to claim ownership rights in law[14] over an asset by virtue of the individual's name being listed as an owner on the document. For key assets, such as land and housing, the type of documentation conferring ownership, and the rights accorded under that ownership, will vary according to the tenure rights in a given country. Formal documentation may, however, include one or more of the following:[15]
    - Title deed, or a written or printed instrument that effects a legal disposition
    - Certificate of occupancy or land certificate, or a certified copy of an entry in a land title system that provides proof of the ownership and encumbrances on the land
    - Legally recognized purchase agreement, or contract between a seller and buyer to dispose of the asset in question
    - Legally recognized will or certificate of hereditary acquisition, or a certificate that provides proof of the land having been received through inheritance
    - Certificate of customary tenure, or an official State document recognizing a particular person as a rightful owner or holder of the land on the basis of customary law which can be used as proof of legal right over the land. These certificates include, among others, certificates of customary ownership and customary use
    - Certificate of perpetual or long-term lease from the State, or a contractual agreement between the State and the individual for the tenancy of land. A lease or tenancy agreement is the contractual document used to create a leasehold interest or tenancy
    - Certificate issued for adverse possession or prescription, or a certificate indicating that the adverse possessor (a trespasser or squatter) acquires the land after a prescribed statutory period

[14] For agricultural land, documented ownership may refer to ownership or use rights, given that in some countries freehold tenure does not exist.

[15] Based on FAO, *Multilingual Thesaurus on Land Tenure* (Rome, 2003). See also www.fao.org/fileadmin/user_upload/sustainable_development_goals/docs/Metadata_5a1__14022018.pdf.

In many contexts, documented ownership may provide owners of land and housing with better tenure security. For example, households with documented ownership of land may be better able to withstand large-scale land acquisitions by the private sector than households with no documented land ownership. Furthermore, women are more likely to retain ownership of land that is documented in their name in the event of household dissolution due to divorce or the death of a spouse.[16]

In other contexts, documented ownership may not confer greater tenure security, in particular when the institutional frameworks meant to enforce property rights are weak and landowners have little understanding of their rights.[17]

- **Reported ownership**: Reported ownership refers to the persons who consider themselves to be owners of the asset in question, irrespective of whether they possess legal, or documented, ownership of the asset. For example, a respondent may consider herself to own the principal dwelling even though only her husband is listed as an owner on the deed to the dwelling or she may consider herself an owner of agricultural land that in fact is owned by the State but to which she has long-term use rights. Because reported ownership measures people's self-perceptions about their ownership status, it need not – and cannot – be objectively verified. It is a key concept for understanding the empowerment effects of asset ownership from a gender perspective, since we expect the benefits and behaviour related to asset ownership to be influenced by people's perceptions of what they believe themselves to own.[18] Reported ownership can also illuminate important gaps between legislation granting women property rights and their implementation on the ground. Lastly, in contexts in which the prevalence of documented ownership for applicable assets remains low, such as in most of sub-Saharan Africa, reported ownership, along with the alienation rights described below, may be the best available proxies of a person's ownership status.

- **Right to sell**: The right to sell an asset refers to the ability of an individual to transfer the asset in question permanently, in return for cash or in-kind benefits. This right may be held jointly with one or more individuals. The right to sell an asset is the right most commonly associated with ownership, but the concept is not applicable in areas where laws or social norms preclude the sale of assets, such as land. In such contexts, information on the right to rent out an asset may be collected. This right refers to the ability of individuals to bestow

[16] Cheryl Doss and others, *Gender Inequalities in Ownership and Control of Land in Africa: Myth versus Reality* (Washington, D.C., Poverty, Health, and Nutrition Division, International Food Policy Research Institute, 2013).

[17] Ruth Meinzen-Dick and others, "The gender asset gap and its implications for agricultural and rural development", in Agnes Quisumbing and others (eds.), *Gender in Agriculture: Closing the Knowledge Gap*, (Rome, FAO; Dordrecht, Netherlands, Springer Science and Business Media B.V., 2014).

[18] Cheryl Doss, Ruth Meinzen-Dick and Allan Bomuhangi, "Who owns the land? Perspectives from rural Ugandans and implications for large-scale land acquisitions", *Feminist Economics*, vol. 20, No. 1 (2013), pp. 76–100. Available at http://doi.org/10.1080/13545701.2013.855320.

the use rights of the asset in question to other persons for a specific period of time, in return for cash or in-kind benefits.

- **Right to bequeath**: The right to bequeath an asset refers to the ability of individuals to give the asset in question, by oral or written will, to other persons after their death. This right may be held jointly with one or more individuals. The right to bequeath is also an alienation right, one that may be more universal than the right to sell, since in many contexts owners can bequeath assets to their children or other persons even if they are prohibited from selling them.[19]

38. The conceptualization of ownership as a bundle of ownership rights is aligned with the concept of legal ownership employed in the 2008 System of National Accounts,[20] but posits that, for two key reasons, legal ownership alone is not sufficient for understanding the complexity of individual rights to assets from a gender perspective. First, in many countries, the prevalence of ownership documents, which confer upon the owner the ability to claim the asset under the law, remains low. In the absence of any documentation, the legal owner of a given asset is not easily identified and may be determined only if an external claim to the asset is made. Second, even when ownership documents exist, claims of legal ownership are complicated by legal pluralism – namely, the coexistence of multiple types of (often contradictory) law governing individuals' rights to property, including both statutory and customary laws.[21] For example, constitutional or national laws, such as in South Africa and Uganda, may guarantee women equal rights to land ownership, while customary laws or practices, such as religious law or long-standing traditions, may prohibit women's ownership of land and grant them access only through husbands, fathers, brothers or other male relatives.[22] When conflict arises between different types of laws, local law often prevails over statutory law, according fewer property rights to women.[23] In this way, a woman may be a legal owner, nominally, of a given asset but possess few or none of the rights or benefits associated with legal ownership.

39. For the accounting focus of its macro statistics framework, the System of National Accounts also recognizes economic owners, defined as the institutional units entitled to claim the benefits associated with the use of the asset in question in the course of an economic activity by virtue of accepting the associated risks. From a gender perspective, however, the ability of individuals to claim the benefits associated with the use of an asset cannot be assumed by virtue of their accepting the risks

[19] Under some legal systems, people do not have the right to choose who will receive the bequest – spouses or children may be guaranteed some portion of a person's inheritance. See Carmen Diana Deere and Cheryl Doss, "The gender asset gap: what do we know and why does it matter?" *Feminist Economics*, vol. 12, Nos. 1–2 (January–April 2006), pp. 1–50. Available at http://doi.org/10.1080/13545700500508056.

[20] The legal owner is defined in paragraph 10.5 of the *System of National Accounts 2008* as the institutional unit entitled in law and sustainable under the law to claim the benefits associated with the asset.

[21] Ruth Meinzen-Dick and Rajendra Pradhan, "Legal pluralism and property rights", CAPRi Working Paper (Washington, D.C., International Food Policy Research Institute, 2002).

[22] Krista Jacobs and Aslihan Kes, "The ambiguity of joint asset ownership: cautionary tales from Uganda and South Africa", *Feminist Economics*, vol. 21, No. 3 (2015), pp. 23–55.

[23] Allan Bomuhangi, Cheryl Doss and Ruth Meinzen-Dick, "Who owns the land? Perspectives from rural Ugandans and implications for land acquisitions", International Food Policy Research Institute Discussion Paper 01136 (2011).

if prevailing gender norms allow husbands or male relatives to assume command of women's assets at their discretion. For example, a woman may assume the risks associated with growing crops or rearing livestock, while a male relative retains the economic proceeds from the sale of the produce or animal products. Countries which want to further tease out the extent to which asset owners retain the right to claim the benefits of an asset may consider measuring a series of rights to the asset.

40. Central to the conceptualization of ownership as a bundle of rights are two key notions. First, whether the full set of ownership rights is held in a given country, in particular with regard to land, will depend on the tenure systems recognized within that country. Generally, in countries where land markets are well developed and ownership is conveyed through individual title, such as in much of Latin America, North America and Europe, ownership comprises the full bundle of rights. In contrast, in sub-Saharan Africa and parts of Asia, where much of the land is not registered, individuals may not possess formal documentation conferring ownership but consider themselves owners of the land and may even be able to alienate it. In other contexts, individuals may possess documented ownership of customary land but not be able to sell it, owing to legal restrictions prohibiting its sale, whereas in countries in which land is vested in the State, individuals cannot legally own land but can be accorded documented use rights and may be able to alienate the land through sale or bequest.

41. Second, even when the full set of ownership rights exists in a given context, the rights may not all be vested in one individual. For example, a woman may consider herself to be an owner of the dwelling in which she resides, and her husband may agree, but her name may not be listed as an owner on the deed for the dwelling. Alternatively, her name may appear as an owner on the deed, but she may lack de facto authority to sell the dwelling owing to local norms mediating her rights to the asset.

42. While variations in the overlap of ownership rights will be observed across countries, analysis of the data from six of the EDGE pilot studies finds that female owners, on average, possess fewer of the ownership rights systematically. This holds true across all types of applicable assets, irrespective of the type of ownership (documented or reported) or form of ownership (exclusive or joint). For example, in Uganda 76 per cent of men who consider themselves owners of a principal dwelling also report the right to sell the dwelling, whereas only 46 per cent of women who report themselves as owning the dwelling also report the right to sell it. Similarly, 90 per cent of men reporting ownership of agricultural land report the right to bequeath it, while only 62 per cent of women reporting ownership of agricultural land also report this right. In the KwaZulu-Natal province of South Africa, 75 per cent of males who reported owning agricultural land also report having the right to bequeath the land, versus 67 per cent of female reported owners.

43. In Georgia, Mexico, Mongolia and Cavite province in the Philippines, the overlap between reported ownership and the rights to sell and bequeath assets is greater for both men and women, but the differences between men and women in the degree of overlap are still statistically significant. For example, in Georgia, 90 per cent of male reported dwelling owners possess the right to sell the dwelling, compared with 80 per cent of female reported dwelling owners, while in Mongolia, 97 per cent of male reported owners of dwellings have the right to sell them, compared with 90 per cent of female reported owners. In Cavite province, the corresponding figures are 93 and 88 per cent for male and female reported dwelling owners, respectively. Finally, in Mexico, 97 per cent of male spouses or

partners who report owning agricultural land also report the right to sell the land, compared with 89 per cent of female spouses or partners.

44. Documented ownership confers a higher share of alienation rights than reported ownership on both men and women in the pilot studies. While in almost all cases the share of documented female owners with the rights to sell or bequeath a given asset is still lower than the share of documented male owners with these rights, the overlap is 90 per cent or greater for both men and women in all pilot countries except Uganda and the KwaZulu-Natal province of South Africa, and the magnitude of the differences between men and women is smaller for documented ownership than reported ownership in all countries except Uganda. For example, in Georgia, 97 per cent of male documented dwelling owners possess the right to sell the dwelling, versus 93 per cent of female self-reported dwelling owners, whereas in Mexico 98 per cent of male documented agricultural owners report the right to bequeath the land, versus 92 per cent of female documented owners. In KwaZulu-Natal, 96 and 88 per cent of male and female documented land owners, respectively, report the right to sell the land. In Uganda, however, only about 60 per cent of female documented dwelling owners have the right to sell or bequeath the dwelling, compared with 95 per cent of male owners.

45. Two key implications for countries measuring asset ownership from a gender perspective emerge from the analyses of the EDGE pilot data. First, the extent to which the bundle of ownership rights is vested in one individual (graphically, the extent to which the dotted ovals representing the bundle of ownership rights will overlap in figure 1 above) can vary considerably across and within countries. Second, to capture gender differences in asset ownership, many countries will have to measure a combination of ownership rights. This is particularly true in countries with a low prevalence of documented ownership, such as those of sub-Saharan Africa, where multiple land tenure systems complicate the ownership of land and housing.

46. Accordingly, these *Guidelines* recommend that, for comparability at the international level, individuals should be considered asset owners if they have documented ownership of the asset or the ability to alienate the asset through sale or bequest. At the national level, and as detailed in part three of these *Guidelines*, national statistical agencies will need to develop a thorough understanding of the country context prior to collecting individual-level data on asset ownership, including an understanding of the statutory and customary laws governing property rights and the social norms mediating those rights, as represented by the rectangle labelled “country context” in figure 1. Equipped with such knowledge, national statistical agencies can thus define ownership at the national level as the strongest bundle of rights available in that country and may indeed wish to measure the full bundle of ownership rights depending on the country’s policy objectives.

1.2. Forms of ownership

47. An asset may be owned exclusively by one person or jointly by two or more persons. While joint ownership between spouses or couples is often the most common form of joint ownership, other patterns of joint ownership are also possible, such as joint ownership between siblings or between parents and their adult children.

48. Measuring the form of ownership, whether exclusive or joint, is important because the rights and benefits associated with ownership may differ if a person owns an asset exclusively or jointly.

Further, while joint ownership typically confers some rights on the owners, the joint owners may not have equal rights to, or benefit equally from, the asset in question. To fully understand whether women may benefit more from exclusive or joint ownership of assets, data are needed on both forms of ownership and the rights held under exclusive and joint ownership.

49. Countries are also advised to develop an understanding of the laws regarding property ownership within marriage since they influence exclusive and joint ownership among couples. Broadly speaking, marital regimes may be classified into three types. In a common property regime, all property owned by either member of a couple is joint property. In a partial community property regime, assets brought to marriage or inherited during marriage remain individual exclusive property, while all property acquired during marriage is joint property. Finally, in a separation of property regime, marriage does not confer any rights to the property of the spouse.

50. In many countries, there is a default regime, but a couple may choose a different marital regime at the time of marriage. In addition, there may be different marital systems with different marital property regimes within the same country; a couple may choose to marry under civil law, customary law or religious law, and each may have different property arrangements. Collecting information on which regime applies to a specific couple can assist the interpretation of data on asset ownership among couples, for example, in assessing which types of marital systems are associated with women's ownership of key assets, such as land and housing.[24]

1.3. Acquisition of assets

51. In order to develop policies and programmes that promote women's and men's accumulation of assets, data are needed to understand how women and men acquire assets and whether their modes of acquisition differ. The means of acquiring an asset may also determine the ownership rights that are associated with it. For example, in some contexts individuals who inherit land or acquire it from the State in perpetuity may not be able to sell the land or transfer it to non-family members, while individuals who purchase land may be able to exercise the full range of ownership rights.

52. While countries will need to customize the modes of acquisition according to their specific contexts, as discussed in more detail in part three, there are a few modes of acquisition that all countries should consider including in their data collection. These include allocation through marriage, with a view to ascertaining whether women's ownership of key assets is conditional upon their husband's ownership, and allocation through inheritance, purchase and government programmes, with a view to assessing whether these channels can be used to strengthen women's ownership of assets. For example, in some countries daughters and sons may have equal rights to inherit land but in practice parents may bequeath more land to their sons, suggesting that additional research may be needed to understand parental preferences and whether programmatic opportunities exist to influence social norms around inheritance.

[24] Information on marital regimes was not collected in the EDGE pilots. Countries are encouraged, however, at least to undertake a qualitative study on types of marital systems and their association with women's ownership of key assets.

53. Understanding the extent to which women acquire key assets through purchase can also provide important insights into women's access to land and housing markets. For example, research in Latin America indicates that the most prevalent means of acquisition of land for women is inheritance. This may suggest that, in Latin America, markets have more of a gender bias than inheritance regimes, since women are less likely to acquire land through purchase than through inheritance.[25]

Key points

- Asset ownership should be conceptualized as a bundle of ownership rights, including reported ownership, documented ownership and the rights to sell and bequeath an asset. To capture gender differences in the ownership and control of assets, many countries will need to measure ownership as a combination of some, or all, of these rights.
- Measuring the form of ownership, whether exclusive or joint, is important. Countries are advised to develop an understanding of the laws regarding property ownership within marriage, since they influence exclusive and joint ownership among couples.
- Collecting data on modes of acquisition helps in understanding how men and women acquire assets and whether their modes of acquisition differ and, subsequently, in developing policies and programmes that promote women's and men's accumulation of assets. The most common modes of acquisition include allocation through marriage, allocation from the Government, inheritance and purchase.

[25] Carmen Diana Deere and Magdalena León, "The gender asset gap: land in Latin America", *World Development*, vol. 31, No. 6 (2003), pp. 925–947.

2. Respondent rules for measuring asset ownership from a gender perspective

54. In the present section, the *Guidelines* recommend that information on individual-level asset ownership be self-reported rather than collected by proxy, owing to large discrepancies between proxy and self-response information, including the assignment of ownership by proxy to persons who do not consider themselves owners. Each rationale, including the implications for data collection, is explained in detail below.

2.1. Differences between proxy and self-reported estimates of women's and men's asset ownership

55. Central to collecting data at the individual level on the ownership and control of assets is the question of whether the information can be collected by proxy or should be self-reported. While some large-scale household survey programmes, such as the demographic and health surveys and labour force surveys,[26] collect self-reported data from multiple household members, many national statistical agencies that collect individual-level data from household surveys minimize costs by obtaining proxy information from the head of the household or the person most knowledgeable about the survey topic.

56. Collecting information on self-reported asset ownership has an important implication for policy and programme design in such areas as women's empowerment, livelihood strategies and poverty reduction. This is because the success of interventions is likely to be driven by people's self-perceptions of what they own rather than what other people think they own. Collecting individual-level information on asset ownership by proxy may be problematic for several reasons. First, there may be an incomplete pooling of information within households. For example, the head of household may be aware of the full stock of assets but unable accurately to identify who the owners are. Second, prevailing gender norms about asset ownership may bias proxy responses about the ownership status of household members. For instance, because assets are a store of wealth and thus enhance the status of individuals, the head (who is often male) may inflate his ownership of assets relative to his wife's or other females in the household. Third, individual household members may have different understanding about who owns a particular asset, especially in countries where ownership rights are not clearly delineated or for types of assets for which documentation of ownership is not common, such as consumer durables. Lastly, because reported ownership measures people's perceptions of whether they consider themselves to be asset owners, irrespective of documented ownership or alienation rights, it is assumed that other household members are not fully privy to individuals' thoughts about their reported ownership status.[27] As such, individual ownership of assets should be self-reported rather than by proxy, unless evidence suggests that there is no difference in ownership level and patterns collected through self-reporting or by proxy.

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[26] Proxy responses are accepted for household members unavailable for interview in labour force surveys, but ILO guidelines caution that proxy respondents may provide inaccurate information, which can bias labour force statistics (see Ralf Hussmanns, Farhad Mehran and Vijay Verma, *Surveys of Economically Active Population, Employment, Unemployment and Underemployment: An ILO Manual on Concepts and Methods* (Geneva, International Labour Office, 1990).

[27] Robert Groves, *Survey Errors and Survey Costs* (Hoboken, John Wiley and Sons, 1989).

57. Only a few studies have systematically assessed the effects of using proxy data in lieu of self-reported data. For example, in an analysis of a randomized survey experiment in the United Republic of Tanzania in which both self-reported and proxy data were collected for a labour force module, response by proxy rather than self-report has no effect on female labour force participation rates but results in a decrease of male labour force participation by about 12 percentage points. The effects on male labour force participation are attenuated (although still large) when proxy respondents are spouses, suggesting that spouses may have more accurate information on the employment status of their partners than other household members.[28] Still, proxy responses by spouses are likely to suffer from imperfect information sharing or response bias as demonstrated in an analysis of the effects of proxy versus self-reported data on household income, in which, in 66 per cent of sampled households in Malawi, husbands underestimated the earnings of their wives income by an average of 47 per cent.[29] Similarly, in a study assessing the effects of information asymmetries on farm production in Ghana, the authors find that spouses poorly estimate each other's income and expenditures.[30]

58. As no similar studies had been done in the context of individual-level asset ownership, the United Nations EDGE project working in partnership with the World Bank Living Standards Measurement Study team and the Uganda Bureau of Statistics to implement a randomized survey experiment in Uganda that tested the relative effects of interviewing different household members and collecting proxy versus self-reported data on the ownership of assets (see box 3 for an overview of the experiment, formally known as the Methodological Survey Experiment on Measuring Asset Ownership from a Gender Perspective, or MEXA). An analysis of the extent of differences between self-reports and proxy reports in MEXA finds that the collection of proxy information from the household head yields estimates of men's and women's asset ownership that differ from those obtained by asking respondents to self-report their ownership status. For example, response by self-report rather than proxy increases women's reported ownership of the principal dwelling by 14 percentage points and men's reported ownership by 11 percentage points. Response by self-report rather than proxy also increases both women's and men's reported ownership of agricultural land in Uganda, although the increase is greater for men (10 percentage points) than for women (5 percentage points).

59. Similar patterns are observed in the EDGE pilots in Georgia, Mongolia and Cavite province in the Philippines, where self-reporting also increases the probability of ownership of the principal dwelling for both women and men. For example, in Mongolia, self-reporting increases men's reported ownership of the principal dwelling by 10 percentage points and women's by 5 percentage points. In Cavite, self-reporting increases women's reported ownership of the principal dwelling by 7 percentage points and women's documented ownership by 6 percentage points. For Georgia, the increase in reported ownership in self-reporting compared to proxy-reporting is 2 percentage points for men and 5 percentage points for women. The prevalence of agricultural land ownership is estimated only in

[28] Elena Bardasi and others, "Do labor statistics depend on how and to whom the questions are asked? Results from a survey experiment in Tanzania".

[29] Monica Fisher, Jeffrey Reimer, and Edward Carr, "Who should be interviewed in surveys of household income?" *World Development*, vol. 38, No. 7 (2009), pp. 966–973.

[30] Joyce Chen and LaPorchia Collins, "Let's talk about the money: spousal communications, expenditures and farm production" *American Journal of Agricultural Economics*, vol. 96, No. 5 (October 2014), pp. 1272–1290.

Georgia, because of the low prevalence of agricultural land ownership in the Mongolia and Philippines samples. Self-reporting increases both women's and men's reported ownership of agricultural land in Georgia, by 7 and 3 percentage points, respectively.

Box 3

Overview of the methodological experiment on measuring asset ownership from a gender perspective in Uganda

In 2013, the EDGE project formally established a partnership with the World Bank Living Standards Measurement Study programme for the design, implementation and analysis of a methodological household survey experiment to test different respondent selection protocols for collecting data on asset ownership and control at the individual level. The Uganda Bureau of Statistics, an early partner of the EDGE project, was selected to implement the experiment in Uganda given its strong statistical capacity and longstanding partnership with the Living Standards Measurement Study. Formally known as the "methodological experiment on measuring asset ownership from a gender perspective", or MEXA, the survey was implemented on the World Bank Survey Solutions Computer-Assisted Personal Interviewing (CAPI) platform from May to August 2014 with in-country training, survey management, field supervision, data processing and quality control support from the Living Standards Measurement Study. The findings from MEXA and the operational challenges of implementing the experiment, both of which are discussed in these *Guidelines*, informed the six EDGE pilot studies implemented over the following two years, and also the continuing work by the Living Standards Measurement Study team. The totality of this work forms the basis for the best practices recommended in these *Guidelines*.

Questionnaire design

The MEXA questionnaire consisted of two parts: first, a household questionnaire comprising a household roster (of people, not assets) and a short module on dwelling characteristics administered to the self-identified most knowledgeable household member; and, second, an individual questionnaire comprising modules on the ownership and control of the principal dwelling, agricultural land, large and small livestock, large and small agricultural equipment, non-farm enterprises and enterprise assets, other real estate, consumer durables, financial assets, liabilities, and valuables, administered to one or more respondents through the survey treatment arm protocols (described in the section on experiment design below).

For agricultural land, other real estate, non-farm enterprises, and financial assets and liabilities, an inventory of assets belonging to the household was collected from each respondent in the individual questionnaire by asking the respondent to itemize the given assets at the start of each respective module (for example, each agricultural parcel owned by any household member). The individual questionnaire asked questions on four main topics: ownership and control of assets; acquisition of assets; valuation of assets; and hidden assets. Data were collected on a bundle of ownership rights, including reported and documented ownership and the rights to sell the asset, bequeath the asset, use the asset as collateral, make improvements to the asset and claim the economic benefits from the sale of the asset.

Experiment design

In order to assess the relative effects of respondent selection protocols on key outcome estimates of women's and men's asset ownership and control, MEXA tested the following five survey treatment arms in which different household members were interviewed:

1. Self-identified most knowledgeable household member, interviewed alone, asked about assets owned, exclusively or jointly, by any household member;
2. Randomly selected member of the principal couple – interviewed alone, asked about assets owned, exclusively or jointly, by any household member;
3. Principal couple – interviewed together, asked about assets owned, exclusively or jointly, by any household member;
4. Adult (18+) household members – interviewed alone and simultaneously, asked about assets owned, exclusively or jointly, by any household member;
5. Adult (18+) household members – interviewed alone and simultaneously, asked about assets owned, exclusively or jointly, by the individual respondent.

Sample design

A key consideration in determining the sample size for MEXA was the requirement that households allocated to treatment arms 2 and 3 had to include a couple (either married or cohabitating) among the adult household members, by virtue of the requirement that a randomly selected member of the principal couple be interviewed in treatment arm 2 and that both members of the principal couple be interviewed together in treatment arm 3. Although a full household listing was conducted prior to sample selection, information on whether a couple resided in the household was not collected, for reasons of cost and timing constraints. Instead, the sample design oversampled across all treatment arms to account for the rate of households with a couple in Uganda (being approximately 66 per cent). Factoring in a non-response rate of roughly 10 per cent at the enumeration area level in the survey programme of the Uganda Bureau of Statistics, 544 households were initially allocated to each treatment arm.

In total, the experiment attempted to cover 140 enumeration areas, with and urban-to-rural split of 84 to 56, across Uganda, selected with a probability proportional to the size of the enumeration area. The actual enumeration area coverage was 137. In each completed enumeration area, 20 households were selected, using systematic sampling with a random start, and four households were randomly allocated to each of the five treatment arms for a total sample size of 2,720 households.

In treatment arms 4 and 5, in which multiple adult household members were interviewed, the number of respondents was capped at four for each household for logistical reasons, which resulted in a negligible number of adults being missed. If a household had more than four adult members that were eligible for an interview in treatment arms 4 and 5, the teams made sure to target the household head and, where applicable, the spouse, with the rest of the respondents selected at random.

2.2. Implications of respondent rules on interviewing protocols

60. The collection of self-reported data has implications for how respondents are selected for interview within households. Respondent selection is discussed in detail in part three of these *Guidelines*, on sample design, but two conceptual issues arising from the requirement to collect self-

reported data are highlighted here. First, it is recommended that respondents are interviewed alone, owing to the sensitivity of questions about asset ownership and wealth and the potential bias introduced by the presence of other persons during the interview. The collection of information about the value of a person's assets may indeed be quite sensitive, as noted in the OECD recommended practices on measuring household wealth, known as the *Guidelines for Micro Statistics on Household Wealth*[31] and, in the presence of other household or non-household members, a respondent may be less inclined to reveal such information. For example, in the EDGE pilot in Georgia, some female respondents were afraid that their husbands, if nearby, would hear the answers that they wanted to give to the interviewers. Non-respondents may also try to intervene in the interview and provide answers for the respondent, as was the case in the EDGE pilot in Cavite province, Philippines, when wives were interviewed while their husbands were at home. This phenomenon may be more pronounced in areas with strong customary views of women's roles. For instance, in three regions of Georgia with relatively high proportions of ethnic minorities, field staff observed that husbands or other male household members insisted on sitting in during the interviews of female household members and often "corrected" them when they reported owning assets, because it is not the custom in their society for women to own assets.

61. Second, if national statistical agencies opt to interview more than one respondent per household, it is recommended that the interviews are conducted consecutively (one immediately after another) to mitigate the contamination of data that may result when household members discuss the content of the questionnaire and coordinate their answers, accordingly. For example, if given the opportunity to exchange notes between interviews, respondent 1 may inform respondent 2 that the interview will be shorter and less burdensome if she or he reports that she or he owns no, or few, assets. Or, upon finishing the interview, a respondent may instruct his or her spouse to provide the same answers to the enumerator to avoid the appearance of inconsistencies within the household. While it is difficult to quantify the effects of contamination, national statistics agencies should be aware of such contamination as a potential source of measurement error and take care to organize the field work to enable consecutive interviewing, to the extent possible.

Key points

- Data at the individual level on the ownership and control of assets should be collected on the basis of self-reported data only.
- The collection of self-reported data has implications for the way in which respondents are selected for interview within households. Respondents should be interviewed alone, in view of the sensitivity of questions about asset ownership and wealth. When more than one respondent per household are being interviewed, the interviews should be conducted consecutively (one immediately after another) to mitigate the contamination of data that may result when household members discuss the content of the questionnaire and coordinate their answers accordingly.

[31] OECD, *OECD Guidelines for Micro Statistics on Household Wealth* (Paris, 2013).

3. Definition and coverage of assets

62. The terms and definitions related to assets presented in this section are based on, and consistent with, the 2008 System of National Accounts, the internationally agreed conceptual and macroeconomic accounting framework for recording economic activities for the purpose of analysing and evaluating the performance of an economy.[32] Other global methodological publications are also used where relevant, including the United Nations *System of Environmental – Economic Accounting Central Framework*,[33] the *OECD Guidelines for Micro Statistics on Household Wealth*, and the FAO *World Programme for the Census of Agriculture 2020*.[34] Divergences from the publications mentioned above, which reflect the focus of the present *Guidelines* on the individual-level measurement of asset ownership from a gender perspective, are explained in the relevant sections.

3.1. What is an asset

63. Consistent with the *2008 System of National Accounts*, these *Guidelines* define an asset as "a store of value representing a benefit or series of benefits accruing to the economic owner by holding or using the entity over a period of time" (para. 3.30). Economic benefits include primary income and possible holding gains or losses due to changes in the prices of assets. Also consistent with the 2008 System of National Accounts, all assets covered refer to economic assets, including, for example, buildings, land, equipment, currency, securities, shares and other equity, loans and accounts receivable.

64. Owing, however, to their focus on measuring asset ownership at the individual level, these *Guidelines* cover only assets held by households, including female and male household members and the unincorporated household enterprises that they run. Assets held by other institutional units that are important from the standpoint of the System of National Accounts, including non-financial corporations, financial corporations, government units and non-profit institutions serving households, are not covered.

65. The coverage of assets in the *2008 System of National Accounts* is limited to those assets that can be used in an economic activity repeatedly (for generally one year or more) and that are subject to ownership rights. As such, resources such as human or social capital, which are sometimes described in common parlance as "assets," and also natural resources that are not owned, such as the air or the oceans, are excluded from the System of National Accounts asset boundary. Also excluded are consumer durables, because the services that they provide are produced for own use by the household's members and thus fall outside the production boundary.

66. Consistent with the *2008 System of National Accounts*, these *Guidelines* do not cover human and social capital, although their importance for women's empowerment, poverty alleviation and sustainable livelihoods is recognized. Similarly, natural resources that are not individually owned are

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[32] European Commission, International Monetary Fund, OECD, United Nations and World Bank, *System of National Accounts 2008* (New York, 2009).

[33] *System of Environmental-Economic Accounting – Central Framework* (United Nations publication, Sales No. E.12.XVII.12).

[34] FAO, *World Programme for the Census of Agriculture 2020* (Rome, 2017).

not covered. Consumer durables are included, however, in the scope of assets for the purpose of the present *Guidelines*, in view of their importance to individual and household well-being. This inconsistency with the *2008 System of National Accounts* is only partial. Indeed, the *2008 System of National Accounts* recognizes the analytical interest of information on consumer durables and suggests that it appear as a memorandum item in a country's balance sheet (para. 3.47). The coverage of consumer durables is also consistent with the *OECD Guidelines for Micro Statistics on Household Wealth*.

67. Finally, in a manner consistent with the *2008 System of National Accounts*, the present publication distinguishes between financial and non-financial assets (*2008 System of National Accounts*, para. 2.35). Non-financial assets may be produced during a process that falls within the production boundary of the System of National Accounts (and may be further classified into fixed assets, inventories, and valuables), while other non-financial assets are non-produced (and further classified into natural resources; contracts, leases and licenses; and purchased goodwill and marketing assets). Examples of non-financial assets held by households include dwellings as a produced asset and land as a non-produced asset. Most non-financial assets generally serve two purposes (ibid., para. 2.35). They are primarily objects usable in an economic activity and, at the same time, serve as stores of value.

68. Financial assets are necessarily and primarily stores of value, although they may also fulfil other functions. Some examples of financial assets held by households include bank deposits, shares, equity in unincorporated enterprises and pension fund entitlements. For almost all financial assets, there is a corresponding liability. A liability is always financial and is established when one unit (the debtor) is obliged, under specific circumstances, to provide a payment or series of payments to another unit (the creditor) (ibid., para. 3.5). Loans are one of the most common examples of liabilities at the household or individual level.

69. Consistent with the *OECD Guidelines for Micro Statistics on Household Wealth*, the present publication further classifies non-financial assets as follows: principal dwellings, agricultural land, other real estate – including non-agricultural land, non-agricultural enterprise assets, large and small agricultural equipment, livestock, valuables and consumer durables.[35] These assets were selected on the basis of their relevance for the household sector and for measuring asset ownership from a gender perspective, as explained later in the section.

70. Because the patterns of asset ownership vary across countries with differing levels of wealth,[36] each country will need to determine the assets on which information should be collected. This decision should be based upon the needs of data users, the consistency with the national System of National Accounts framework, the availability of individual-level, sex-disaggregated data from other

[35] Countries may consider additional types of assets, based on the prevalence of their ownership among women and men and their relevance for policymaking. For example, the *OECD Guidelines for Micro Statistics on Household Wealth* recommend the inclusion of intellectual property products such as computer software, databases that allow resource-effective access to and use of the data, and entertainment, literary and artistic originals. Because, however, the prevalence of ownership of intellectual property rights in the household sector is likely to be minimal, the present guidelines do not cover them.

[36] James Davies and others, "The world distribution of household wealth", in *Personal Wealth from a Global Perspective* (Oxford, Oxford University Press, 2008).

statistical and administrative sources and, lastly, the resources available for collecting the data. These *Guidelines* suggest, however, that countries collect information, at a minimum, on the following "priority" set of assets, categorized as such because of their universal applicability (principal dwellings and financial assets) or relevance for global development monitoring under the Sustainable Development Goal indicator framework (agricultural and non-agricultural land). In addition, these assets have been found to constitute a substantial portion of individual wealth in prior studies in Ecuador, Ghana, and the Karnataka State of India[37] and the bulk of household wealth in European countries.[38] The priority set of assets is as follows:

- Principal dwelling
- Agricultural land
- Other real estate, including non-agricultural land
- Financial assets

71. Based upon policy needs and the prevalence of each asset within the country, the latter of which can be determined by existing household-level or holding-level data from household or agricultural surveys, countries may also wish to collect data on additional assets. For example, countries whose economies are centred upon the production, consumption, trade and sale of agricultural products may also wish to collect information on the ownership of livestock and agricultural equipment, while industrialized economies may opt to collect information on non-agricultural enterprises and valuables. The additional assets recommended for data collection are as follows:

- Non-agricultural enterprise assets
- Livestock
- Large and small agricultural equipment
- Valuables
- Consumer durables

It should be noted that, if countries plan to collect information on the value of each "priority" or "additional" asset for the purposes of calculating individual-level wealth measures, as discussed in detail in section 4, then data should also be collected on liabilities.

72. The following section specifies terms and definitions related to each type of asset.

3.2. Terms and definitions related to specific types of assets

73. This section presents terms and definitions related to the specific types of assets covered by these *Guidelines*. For each type of asset, two aspects are emphasized: first, the importance of covering the asset, and, second, consistency and differences with existing international standards. Related measurement issues are discussed in part three, in the section on questionnaire design.

[37] Cheryl Doss and others, "Lessons from the field: implementing individual asset surveys in Ecuador, Ghana, India and Uganda", *Journal of Economic Inequality*, vol. 11, No. 2 (June 2013), pp. 249–265.

[38] Household Finance and Consumption Network, "The Household Finance and Consumption Survey: results from the second wave", ECB Statistics Paper Series, No. 18 (Frankfurt am Main, European Central Bank, 2016).

Dwellings

74. Dwellings are one of the most important assets owned by individuals and households. They serve as a store of wealth and can provide a place to live for owners. In particular for women, having secure tenure to a dwelling reduces their vulnerability when the household is dissolved through divorce or death and it provides economic security. From a policy perspective, information on the ownership of dwellings is key to an understanding of the forces driving homeownership and to the development of national and local housing programmes that can reach both women and men.

75. Dwellings can also be occupied by household members on a regular or occasional basis or be used by the household for other purposes, including for running and operating an unincorporated enterprise. They can also be rented out, in whole or in part, to earn money. These *Guidelines* distinguish between the principal dwelling, defined as the main dwelling or housing unit occupied by the household and owned by one or more of its members, regardless of whether the residence has a mortgage or loan secured against it, and other dwellings. Other dwellings that are not used as principal residences are captured, in these *Guidelines*, within the category of "other real estate," together with non-agricultural land. Agricultural land is captured as a separate category of assets.

76. The definition of dwellings (regardless of their use) used by these *Guidelines* is consistent with the 2008 System of National Accounts. "Dwellings are buildings, or designated parts of buildings, that are used entirely or primarily as residences, including any associated structures, such as garages, and all permanent fixtures customarily installed in residences" (System of National Accounts, para. 10.68). Some typical examples of dwellings are houses, semi-detached houses and flats in a block of flats. Houseboats, barges, mobile homes and caravans used as principal residences of households are also included (ibid.). Furthermore, the definition of the principal dwelling and the distinction between the principal dwelling and other dwellings adopted by these *Guidelines* is consistent with the *OECD Guidelines for Micro Statistics on Household Wealth* and current practices of data collection on housing units in household surveys and censuses.

77. One challenge faced in collecting data on dwellings is the need to determine whether the land on which a dwelling sits should be treated as a distinct category of asset. Evidence from the EDGE pilot studies shows that, in some contexts, the plot of land on which the dwelling is located may be owned together with the dwelling, while in other contexts it may be owned separately. When the land and dwelling are owned separately, provision needs to be made for a separate measurement. In addition, some areas of the plot of land on which the dwelling is located may be used for agricultural production, such as a kitchen garden. Information on the use of the land of the dwelling for agricultural purposes should also be recorded separately. The section on questionnaire design in part three of these *Guidelines* shows in detail how to deal with these measurement challenges.

Agricultural land

78. The ownership and control of agricultural land are important for a range of policy issues, including, for example, agricultural production, food security and the development of rural communities. In recognition of the importance of this type of economic resource, particularly for women, one of the indicators for monitoring Sustainable Development Goal 5 on gender equality and

empowerment for all women and girls, indicator 5.a.1, directly refers to the ownership and control over agricultural land (see box 1 in the introduction to these *Guidelines*).

79. Accordingly, these *Guidelines* recommend that agricultural land should be treated as a distinct category, separate from land that may be used for non-agricultural purposes, which is classified as "other real estate" in the *Guidelines*. This approach differs from that of the System of National Accounts and the *OECD Guidelines for Micro Statistics on Household Wealth*, which do not identify agricultural land as a separate category. In the System of National Accounts, the focus is on the overall category of land, defined as a natural resource and a non-produced asset consisting of "the ground, including the soil covering and any associated surface waters" (para. 10.175). Agricultural land, however, is a subset of the "land" category classified by use, according to the central framework of the System of Environmental-Economic Accounting. In this framework, land use reflects the activities undertaken and the institutional arrangements for a given area of land for the purpose of economic production or the maintenance and restoration of environmental functions.[39]

80. The present *Guidelines* are consistent with the land use classification of the System of Environmental-Economic Accounting and FAO in covering the following classes of land use under the category of "agricultural land": (a) arable land under temporary crops (with a less than one-year growing cycle); (b) arable land under temporary meadows and pastures (cultivated with herbaceous forage crops for mowing or pasture); (c) arable land that is temporarily fallow (because of crop rotation systems or temporary unavailability for planting); (d) land under permanent crops; and (e) land under permanent meadows and pastures.[40]

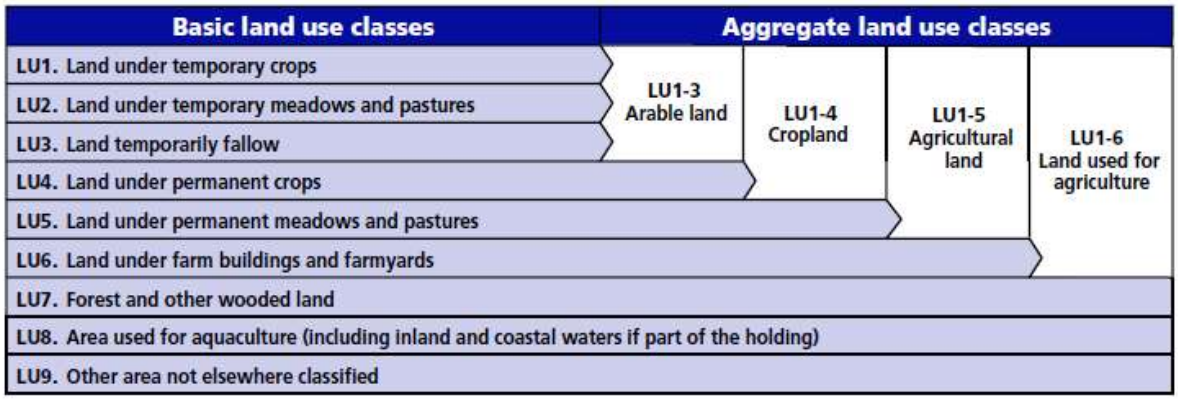
81. Going further than the System of Environmental-Economic Accounting, FAO distinguishes the category "land under farm buildings and farmyards," which refers to areas under farm buildings such as hangars, barns, cellars, silos and buildings for animal production such as stables, cow sheds, sheep pens, and poultry yards. Farmyards and areas under the holder's house and the yard around it are also included in this category. "Agricultural land", together with "land under farm buildings and farmyards", forms the FAO category "land used for agriculture", which is equivalent to the "agriculture" category within the central framework of the System of Environmental-Economic Accounting. This is presented schematically in figure 2.

[39] *System of Environmental-Economic Accounting – Central Framework*.

[40] FAO, *World Programme for the Census of Agriculture 2020*, vol. 1, *Programme, Concepts and Definitions* (Rome, 2017).

Figure 2

FAO classification of land use



Source: FAO, *World Programme for the Census of Agriculture 2020*, p. 68.

Note: Greenhouses and land in family gardens are included in LU1 and LU4 and classified in one of these categories depending on the crop types.

82. These *Guidelines* suggest that data be collected on the ownership of all categories of agricultural land as described above (LU1–LU5). Additional information is available in box 1 on the definition of agricultural land for measuring ownership of assets in the context of the 2030 Agenda.

83. Evidence from the Gender Asset Gap Project and the EDGE pilot surveys shows that individuals may own one or more parcels of agricultural land. These parcels may vary in terms of use (as shown in figure 2 above), and other characteristics such as tenure type, size, value, or existing improvements such as irrigation systems. Thus, countries which wish to collect data on such aspects will have to record the information parcel by parcel, as shown in the section on questionnaire design in part three of these *Guidelines*.

Other real estate

84. Real estate other than the principal dwelling and agricultural land (already covered above) includes other residential buildings and spaces, buildings for commercial use, and non-agricultural land. These assets may serve several purposes, including providing services to one or more household members (such as a secondary vacation house), serving as a source of income by being rented out, or being used as assets in an unincorporated enterprise for the purpose of producing and selling goods and services.

85. These *Guidelines* recommend that information on all categories of other real estate listed above is collected by countries. Two additional definitional aspects should be noted. First, consistent with the 2008 System of National Accounts, incomplete dwellings that may be used in the future as a primary residence for the owner should be listed as other real estate and not in the category of principal dwellings. While they are not yet used as a primary residence, they are still assets to the extent that the ultimate user is deemed to have taken ownership, either because the construction is on

an own-account basis or as evidenced by the existence of a contract of sale or purchase (2008 System of National Accounts, para. 10.71).

86. Second, in a departure from the System of National Accounts, these *Guidelines* recommend that information on the ownership and value of non-agricultural land improvements is collected together with the ownership and value of the land on which these improvements have been made. Within the 2008 System of National Accounts, improvements to land are treated as a fixed asset separately from the natural asset (agricultural and non-agricultural land included) in its unchanged state. Such improvements may be the result of land clearance, land contouring, creation of wells and watering holes and other measures (ibid., para. 10.79) and their value is to be compiled separately in the accumulation accounts and the balance of sheets of the System of National Accounts. This detailed approach might, however, unnecessarily complicate data collection in household surveys. Instead, countries may consider collecting information on existing improvements to land in additional questions describing the quality of the land owned.

Livestock

87. Livestock refers to all animals, birds and insects kept or reared in captivity primarily for agricultural purposes.[41] The term includes the following categories: cattle and buffaloes, sheep and goats, horses and other equines, camels and camelids, poultry, bees and silk worms and others. Domestic animals that may be used as pets, such as cats and dogs, are excluded, unless they are being raised for sale, food or other agricultural purposes.[42]

88. The *Guidelines* recommend that countries collect information on asset ownership for categories of livestock that are most relevant in their context. Those categories may be further refined to include, for example, categories defined by the purpose of raising the livestock. For instance, the 2008 System of National Accounts distinguishes livestock that should be considered fixed assets from livestock considered as inventories (para 10.92). Included among fixed assets are breeding stocks, dairy cattle, draft animals, sheep or other animals used for wool production and animals used for transportation, racing or entertainment. Animals raised for slaughter, including poultry, are considered "inventory", a separate category of assets.

89. Countries should not, however, exclude categories of livestock that have a higher monetary value and would contribute substantially to the wealth of individuals and households, such as cattle, or categories of livestock that may be more often in the ownership of women, such as poultry or sheep and goats.

Large and small agricultural equipment

90. Agricultural equipment constitutes a crucial asset for many households and individuals, and is often central to the livelihoods of people living in rural areas. These *Guidelines* recommend that countries collect data on the ownership of large agricultural equipment and consider covering small agricultural equipment as well, if relevant in their context. It should be noted that, although small agricultural equipment is of limited value, its coverage can be useful for understanding agricultural

[41] Ibid.

[42] Ibid.

productivity, in particular in poorer developing countries. In addition, the gender gap in asset ownership may be different where small agricultural equipment is concerned by comparison to large agricultural equipment.

91. The above recommendation on the coverage of large and small agricultural equipment is consistent with the *2008 System of National Accounts* and the *FAO guidelines for the 2020 agricultural census round* (WCA 2020).[43] Within the 2008 System of National Accounts, agricultural equipment is a subcategory of fixed assets relating to machinery and equipment. They are produced assets that are used repeatedly in agricultural production processes for more than one year. The 2008 System of National Accounts recommends that tools that are small, inexpensive and used to perform relatively simple operations may be excluded from the asset boundary and be treated as materials or supplies for intermediate consumption. Examples of such tools include saws, spades, knives, axes, hammers, screwdrivers and spanners or wrenches. Nevertheless, the 2008 System of National Accounts acknowledges that some flexibility is needed, depending on the relative importance of such tools in a given country. In countries in which they account for a significant part of the value of the total stock of an industry's durable producers' goods, they may be treated as fixed assets (*2008 System of National Accounts*, para. 10.35).

92. A broad concept of machinery and equipment is also used for agricultural censuses, covering all machinery, equipment and implements used as inputs to agricultural production.[44] This includes everything from simple hand tools, such as a hoe, to complex machinery, such as a combine harvester. According to the WCA 2020, countries should decide on the type of agricultural machinery and equipment that is most relevant in their context. Developed countries may focus on machinery such as tractors, and crop maintenance and harvesting machines. However, less developed countries may be interested in some animal-powered or even hand-powered items of equipment, as well as machinery.[45]

93. The following categories of agricultural machinery and equipment, distinguished within the FAO guidelines for agricultural censuses, are within the scope of the present *Guidelines* and may be adapted to the country context, as is the case in the EDGE pilot surveys: manually operated equipment such as seeding and fertilizing drills, transplanters, threshers, winnowers, sprayers, dusters; animal-powered equipment such as wooden ploughs, steel ploughs, cultivators, disk harrows, animal carts; machine-powered equipment, including machines for general farm use, tractors, bulldozers and other vehicles, crop machinery and equipment for land preparation, planting, crop maintenance, crop harvesting, post-harvest equipment; livestock machinery and equipment; and aquacultural machinery and equipment.[46]

[43] Ibid.

[44] Ibid.

[45] Ibid.

[46] Ibid. A complete list of classes, subclasses and type of machinery and equipment is included in annex A.

Non-agricultural enterprise assets

94. Enterprises, defined as entities engaged in the production or distribution of goods and services mainly for the purpose of sale, are one of the major components of individual and household wealth.[47] While enterprises may be considered "assets" in the sense that holding them would bring a series of economic benefits to the owner, these *Guidelines*, consistent with the 2008 System of National Accounts, consider enterprises as economic institutional units that may hold financial and non-financial assets. Ownership of such productive assets that can be used to start or grow a business play an important role, particularly for women, in creating self-employment, earning income, and reducing poverty and inequality.

95. These *Guidelines* recommend collecting information on the ownership and control of assets used only in non-agricultural and unincorporated enterprises, for the following reasons. First, capturing agricultural enterprises is operationally more challenging, including with regard to separating agricultural activities for own consumption from activities mainly for the purpose of sale, and thus warrants a separate set of recommendations. Moreover, these *Guidelines* recommend collecting data on the ownership of key assets that are involved in agricultural production, including agricultural land, agricultural machinery and equipment, and livestock, in addition and separately from assets of non-agricultural enterprises.

96. The following definitions are used to distinguish between agricultural and non-agricultural enterprises. Agricultural enterprises are enterprises engaged in the production and sale of non-processed agricultural goods (such as milk, wool, fruits, vegetables) produced on own farm. Non-agricultural enterprises are enterprises engaged in the production or sale of goods and services other than own-produced, non-processed agricultural products. It should be noted that the sale of by-products of agricultural goods (such as cheese, beer, jam, sweaters and other products) is a non-agriculture enterprise in the manufacturing sector. The sale or trade of agricultural products purchased from non-household members is also a non-agricultural enterprise, in the trade sector. Other examples of non-agricultural enterprises are: making mats, crafts and bead jewellery, bricks, or charcoal; working as a builder or carpenter; selling firewood; metalworking; running a street corner stall; providing services such as haircuts or massages; making local drinks, carpets or baskets; trading in any form (in food, clothes or various articles), offering services for payment in cash or in-kind, including for professional activity (like that of, say, a private lawyer or a doctor).

97. Second, these *Guidelines* recommend focusing only on assets in unincorporated enterprises, consistent with the *2008 System of National Accounts* and the *OECD Guidelines for Micro Statistics on Household Wealth*. As mentioned earlier, the *2008 System of National Accounts* distinguishes between the household sector and other institutional sectors, including corporations, the Government and non-profit institutions serving households. Assets owned by one or more members in a household are uniquely accounted for in the household sector. Assets owned by other entities are accounted for separately, in the entity's corresponding institutional sector. For instance, assets of incorporated enterprises are recorded in the sectors of non-financial and financial corporations. Sources such as

[47] Cheryl Doss and others, "Lessons from the field: implementing individual asset surveys in Ecuador, Ghana, India and Uganda"; Household Finance and Consumption Network, "The Household Finance and Consumption Survey: results from the second wave".

establishment surveys and business registers may be used to obtain information on incorporated enterprises, including the assets that they hold.

98. An incorporated enterprise is defined as a legal entity, "created for the purpose of producing goods and services for the market, that may be a source of profit or other financial gains to its owner(s); it is collectively owned by shareholders who have the authority to appoint directors responsible for its general management" (2008 System of National Accounts, para 4.39).[48] An incorporated entity is recognized independently of the other institutional units that may own shares of its equity. The shareholders are entitled to dividends (shares of the enterprise's income) and, in the event that the enterprise is wound up or liquidated, they are entitled to a share in the net worth of the corporation remaining after all assets have been sold and all liabilities paid. If, however, a corporation is declared bankrupt, the shareholders are not liable to repay the excess liabilities with their own money (ibid., para 4.40).

99. Unincorporated enterprises, on the other hand, often belong to the household sector. Households are primarily consumer units, but they can also engage in production, including for the purpose of producing goods or services for sale or barter on the market. They can range from single persons working as street vendors or shoe cleaners with virtually no capital or premises of their own to larger manufacturing, construction or service enterprises with employees. When the production units of households are not legal entities, they are described as household unincorporated enterprises and they remain part of the same institutional unit as the household to which they belong (ibid., para. 4.21). The liability of the household members for the debts of the enterprises is unlimited, and all the assets of the household may be at risk if the enterprise goes bankrupt. Household unincorporated market enterprises may also include unincorporated partnerships, where the partners may belong to different households (ibid., para. 4.156).

100. Some unincorporated enterprises may hold accounts similar to incorporated enterprises. An unincorporated enterprise can be treated as a corporation only if it is possible to separate all financial and non-financial assets into those belonging to the household in its capacity as a consumer from those belonging to the household in its capacity as a producer (ibid., para. 4.157). The 2008 System of National Accounts advises that such unincorporated enterprises that maintain separate accounts be treated as quasi-corporations, and the data be presented in the sectors of non-financial and financial corporations. In practice, however, it is rare that unincorporated enterprises maintain separate accounts.[49]

101. These *Guidelines* recommend that all unincorporated enterprises, regardless of whether they maintain separate accounts or not, are treated similarly. This is consistent with the *OECD Guidelines for Micro Statistics on Household Wealth*, which argue that unincorporated enterprises and quasi-corporations share key similarities, including the fact that the risks and benefits associated with the ownership of assets and the running of the business stay with the person and not with a legal entity. Therefore, assets and liabilities of any unincorporated enterprise owned and operated by one or more household members should be captured by individual-level measures of asset ownership and wealth.

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[48] An incorporated enterprise may also be owned by one shareholder, who would hold all the shares of the enterprise.

[49] *OECD Guidelines for Micro Statistics on Household Wealth*.

As mentioned earlier, assets of incorporated enterprises are excluded, since these are not owned by individuals within the household; equity shares in incorporated enterprises should, however, be included among financial assets that a person may hold.

102. Nevertheless, it is important to note that collecting information on assets of unincorporated enterprises can be operationally challenging. It is difficult to distinguish between the assets belonging to an unincorporated enterprise and those that are used to provide goods and services for own use by the household members. A dwelling, for example, may be used as a primary residence for the household members but also as the place where products meant for market are prepared or crafted. A vehicle owned by a household may be used not only for the transport of household members but also to distribute to clients goods produced by the household enterprise. The section on questionnaire design in part three of these *Guidelines* shows how to deal with these measurement issues and to ensure that only assets not listed under previous categories of assets should be included under the category of assets of unincorporated (and non-agricultural) enterprises.

Financial assets and liabilities

103. Financial assets are a key component of the wealth of households and individuals, in particular in industrialized countries.[50] Examples of financial assets include cash and deposits, shares and debentures, bonds, and also loans made by households or individuals to others in cash and in kind. Several types of financial assets may be held by individuals or households, as distinguished and defined by the *2008 System of National Accounts* and the *OECD Guidelines for Micro Statistics on Household Wealth*:

- *Currency and deposits*: these consist of notes and coins of fixed nominal values issued or authorized by the central bank or government and claims represented by evidence of deposit. Typical forms of deposits relevant for the household sector include saving deposits, fixed-term deposits, and non-negotiable certificates of deposits (2008 System of National Accounts, paras. 11.52, 11.54, and 11.58).
- *Debt securities*: these are negotiable instruments serving as evidence of a debt. They include bills, bonds, negotiable certificates of deposit, commercial paper, debentures, asset-backed securities, and similar instruments normally traded in the financial markets (ibid., para. 11.64).
- *Equity and investment fund shares*: equity comprises instruments and records acknowledging claims on the residual value of a corporation after the claims of all creditors have been met (ibid., para. 11.83). Investment funds are collective investment undertakings through which investors pool funds for investment in financial and non-financial assets (ibid., para. 11.94).
- *Insurance, pension and standardized guarantee schemes*: these refer to financial claims of policy holders, account holders or members who contributed with funds to a financial institution in exchange for financial benefits in the same or later periods. Among these types of financial assets, life insurance and annuity entitlements and

[50] Household Finance and Consumption Network, "The Household Finance and Consumption Survey: results from the second wave".

pension entitlements are the most common at the household and individual level. Life insurance and annuity entitlements are defined as "claims of policy holders on enterprises offering life insurance or providing annuities, except those annuities purchased from lump sums rolled over from pension schemes. These claims include life insurance entitlements where the insurer guarantees to pay the policy holder an agreed minimum sum or an annuity at a given date or earlier if the policy holder dies beforehand" (ibid., para. 17.6, and *OECD Guidelines for Micro Statistics on Household Wealth*). Term insurance is a policy that provides a benefit in the case of death within a given period but in no other circumstances is regarded as a non-life insurance and is not covered by the measurement of wealth and asset ownership (*2008 System of National Accounts*, para. 17.6). Pension entitlements refer to claims of members and account holders on pension schemes such as retirement plans or superannuation schemes and include "entitlements in both employment-related social insurance pension schemes and private pension schemes. These claims also include annuities purchased with lump sums rolled over from pension funds regardless of the institution with which the annuity is held" (*OECD Guidelines for Micro Statistics on Household Wealth*). Excluded are entitlements in government social security pension schemes.

- *Financial derivatives and employee stock options*: these financial assets are less frequently held by individuals and households. Financial derivatives refer to financial instruments through which specific financial risks (such as interest rate risk, currency, equity and commodity price risk, and credit risk) can be traded in their own right in financial markets (*2008 System of National Accounts*, paras. 11.111 and 11.112). Employee stock options are agreements made on a given date under which an employee may purchase a given number of shares of the employer's stock at a stated price either at a stated time or within a period of time immediately following (ibid., para. 11.125).
- Other financial assets held by individuals or households may refer to loans made to persons in other households.

104. These *Guidelines* recommend, however, that national statistical offices collect information on the ownership of financial assets using the list of types of assets noted above along with subcategories of those assets, based on their prevalence in the population and relevance from a policy perspective. In particular, subcategories of "currency and deposits" may be defined relative to the institutional set-up and refer to bank savings, savings and credit associations, post-office accounts, informal saving accounts, saving accounts operated through non-governmental organizations and other arrangements. Use of such subcategories captures gender differences that can be relevant to programmes designed to boost women's access to financial services.

105. Countries are also encouraged to collect data on liabilities. This information is needed to estimate the net worth of a person or household, by subtracting the value of outstanding liabilities from the value of the asset held. By definition, a liability (or debt) is established when one unit (the debtor) is obliged, under specific circumstances, to provide a payment or series of payments to another unit (the creditor) (2008 System of National Accounts, para. 3.5). Most financial liabilities at the level of the household sector are loans. Loans are defined as obligations that are created when a creditor

lends funds directly to a debtor and the creditor's claims are evidenced by documents that are not negotiable (ibid., para 11.72, and *OECD Guidelines for Micro Statistics on Household Wealth*). Loans may be categorized into short-term loans (with an original maturity of one year or less) and long-term loans.

106. In addition, countries should consider collecting information on the main purpose for which the loan was taken out. For example, the *OECD Guidelines for Micro Statistics on Household Wealth* suggest the following types of loans: principal residence loans and other owner-occupied loans; other real estate loans; financial asset loans; valuable loans; intellectual property loans (loans to develop intellectual property products such as a computer software); vehicle loans; other consumer durable loans; education loans; other loans and liabilities.[51] Collecting this information would also enable analysis of whether women and men borrow money for different reasons. Countries may also consider further splitting the category "other loans and liabilities" into further subcategories, such as loans for the purpose of paying medical bills, food and clothing, and so on, which may also be relevant from a gender perspective. Information on the identity of the lenders, including formal or informal institutions or persons from whom the money was borrowed, is also important in providing evidence for gender-relevant policies and programmes on access to financial services.

Consumer durables

107. Consumer durables are goods that may be used for the purposes of consumption repeatedly or continuously over a period of a year or more (2008 System of National Accounts, para. 9.42). Examples of consumer durables are cars and other vehicles, furniture, kitchen equipment, laundry appliances, computers and entertainment equipment. It should be noted that the same type of durable good may be considered an asset in one circumstance and a consumer durable in another. For example, a car used as means of transportation solely for the household members is a consumer durable, while a car used for transportation of passengers for pay or profit is an asset in an enterprise providing transport services. Similarly, a computer may be a consumer durable when used in a household for educating children or paying personal bills or as an item of personal entertainment but an asset in the equipment category when used to keep business records for a household-operated enterprise.

108. As noted before, consumer durables are not regarded as assets in the 2008 System of National Accounts (but as a form of expenditure) because the services that they provide are not within the production boundary; for their part, however, these *Guidelines* recognize the analytical interest of information on the stock of consumer durables, including for the purpose of measuring household and individual-level wealth. This approach is also consistent with the *OECD Guidelines for Micro Statistics on Household Wealth*, which treat consumer durables as non-financial assets. The OECD Guidelines highlight two main reasons for this treatment. On one hand, the inclusion of consumer durables in the measurement of household wealth can significantly affect the magnitude and distribution of wealth across households. On the other hand, treating consumer durables as assets ensures greater symmetry with liabilities data, since households often take out loans to purchase more expensive durables, such as motor vehicles. In addition, an asset owned by a household may have

[51] *OECD Guidelines for Micro Statistics on Household Wealth*.

multiple uses, including for productive activities and other activities. Conceptually, these multiple uses can complicate the categorization of a durable good as an asset or a consumer durable. In practice, however, ownership of such goods that can be used in productive activities can have a positive impact on livelihoods, particularly for women.

109. These *Guidelines* recommend that countries determine which categories of consumer durables to include on the basis of their prevalence in the population and also of the countries' own policy needs. In general, however, countries should include durables of high value such as motor vehicles (cars, motorcycles and boats), together with those durables that are of lower value but that may be of particular importance to women, such as cell phones, kitchen equipment, or laundry appliances. While the high-value durables are important from the perspective of the value stored in the assets and the estimation of individual and household wealth, other durables may be used in productive and non-productive activities that may be more often performed by women.

Valuables

110. Valuables include precious metals and stones, fine jewellery, paintings, antiques or other art objects, and other valuables. Values are acquired and held as stores of value. They are expected to appreciate or at least not to decline in real value or to deteriorate over time. Thus, although valuables are a type of non-financial assets they have more in common with financial assets (2008 System of National Accounts, paras. 10.13 and A4.57).

111. These *Guidelines* recommend that the range of valuables covered should be wider than that prescribed by the System of National Accounts, including for the purpose of capturing types of valuables that are more relevant for women. The intent of the 2008 System of National Accounts is to capture only those items that can be regarded as alternative forms of investment. Valuables function as a store of value but they can also be used as collateral in pawn markets or sold quickly for cash. This can play an important role in consumption-smoothing and building individual and household wealth.[52] Valuables such as collections of stamps, coins, china, books and other objects that have a recognized market value, and fine jewellery, fashioned out of precious stones and metals of significant and realizable value (such as gold, for example) may be more often held by individual household members, with jewellery in particular being an important asset for women in some countries.

Key points:

- The "priority" set of assets on which countries should collect information are the following: principal dwellings, agricultural land, other real estate, including non-agricultural land, and financial assets. Countries may also wish to collect data on non-agricultural enterprises, livestock, agricultural equipment and valuables, and also on liabilities and consumer durables based on their policy needs and the importance of each asset within the country.

[52] Rania Antonopoulos and Maria Floro, "Asset ownership along gender lines: evidence from Thailand", Economics Working Paper No. 418 (Annandale-on-Hudson, Levy Economics Institute, Bard College, 2005).

4. Establishing the value of assets

4.1. Why valuing assets is important

112. Establishing the value of assets allows for the calculation of wealth, or net worth, which is defined in the 2008 System of National Accounts as the value of all non-financial and financial assets owned by an institutional unit or sector less the value of all its outstanding liabilities (para. 3.109). Similarly, at the microlevel of individuals and households, wealth represents the net value of economic resources held at a point in time by an individual or a household, measured as the value of all assets owned less the value of all liabilities.[53] The share in monetary terms contributed by each type of asset to the total wealth of an individual or a household is referred to as the composition of wealth.[54] The level and the composition of wealth may vary over time as a result of changes in the assets owned and changes in the market prices of assets.[55] The valuation of assets reflects a range of asset attributes, such as size, quality or location, and allows for the calculation of a series of measures of wealth level, distribution and composition at individual, household and macroeconomic levels. All assets can be valued in monetary terms. The value of an asset represents the total of the benefits (current or future) embodied by the asset, typically assessed as if the asset was acquired in a market transaction.

113. Wealth may be calculated at the level of a person, household, institutional sector or an economy. Because the valuation of assets reflects the attributes of the asset, the calculation of wealth at the individual level provides important information on gender and asset ownership beyond a simple count of women's and men's asset holdings. For example, women and men in a given community may own an equal number of agricultural parcels, suggesting gender equality in land ownership, but the men's parcels may in fact be more valuable because of differences in the characteristics of women's and men's parcels (such as size or soil quality). Expressing asset values in monetary terms provides a method for summarizing differences between women's and men's ownership of assets, by type of asset, or in an aggregated measure for all assets. The aggregate measure, referred to as the gender wealth gap, reflects differences between women and men not only in terms of whether they own assets but also in terms of the number and quality of the assets that they own. The gender wealth gap can thus be used to assess differences in women's and men's relative holdings, and also to understand how women's and men's wealth relates to other outcomes of interest, such as investment in agriculture, livelihood strategies, and resilience to shocks.

114. At the household level, the valuation of assets can serve two purposes. First, valuation can provide the basis for estimating household wealth. This can be done, as recommended by OECD, in an integrated framework that ensures consistency in measuring household economic well-being along the dimensions of wealth, income and consumption.[56] Second, information on the value of some assets,

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[53] OECD, *OECD Framework for Statistics on the Distribution of Household Income, Consumption and Wealth* (Paris, 2013).

[54] *OECD Guidelines for Micro Statistics on Household Wealth*.

[55] 2008 *System of National Accounts*; *OECD Guidelines for Micro Statistics on Household Wealth*.

[56] *OECD Framework for Statistics on the Distribution of Household Income, Consumption and Wealth*.

such as the value of owner-occupied dwellings, may be incorporated into living standard measures at the household level. For example, consumption analyses incorporate the rent paid for housing, including an estimated rental equivalent for housing owned by the occupants. While, however, rentals may be observed directly for renters, for owner-occupied dwellings a rental value may be imputed when the value of the dwelling is obtained.[57] Lastly, information on the values of assets held in a household may be used to validate some of the statistics generated by the System of National Accounts, in particular for the balance sheets in the household sector, and thus contribute to constructed measures of wealth at the level of the household sector and the national economy.

115. Regardless of the level at which wealth is estimated, it is important that assets are not double-counted. In the System of National Accounts, for example, rules of accounting are followed systematically to avoid counting the same asset as being owned in more than one institutional unit or sector. Data collection on asset ownership at the individual level, for the purpose of wealth measures, should also ensure that assets are not double-counted. If an asset is owned exclusively by an owner, that asset should be listed only once as belonging to that and only that owner, and its total value should become a share in the net worth of that owner. If an asset is owned jointly by more than one owner, the asset should be listed as belonging to all joint owners and, for the purpose of estimating wealth, its value should be divided into shares that can be apportioned to the net worth of each owner.

4.2. Principles in establishing value

116. These *Guidelines* recommend several principles of establishing value for the purpose of measuring wealth at the individual level. They are consistent with the *2008 System of National Accounts* and the *OECD Guidelines for Micro Statistics on Household Wealth*, ensuring the comparability of statistics and indicators of wealth based on individual-level measurement with those based on household and macroeconomic levels of measurement.

117. The first principle is that assets and liabilities should be valued at market prices. Market prices are values at which assets are exchanged (or could be exchanged) in actual transactions, in other words, the amounts of money that willing buyers pay to acquire something from willing sellers (2008 System of National Accounts, paras. 3.118 and 3.119). The second principle is that assets and liabilities should be recorded at current values, corresponding to the value that would be obtained for the asset in its current condition at the reference point date, or its closest equivalent, not the value that would have been obtained when the asset was acquired.

118. The third principle relates to the consistency of valuation across assets. Household surveys collecting information on the value of assets should aim to obtain the information in a consistent manner across all assets, using the same principles of valuation and time reference. A common approach, used in the World Bank Living Standards Measurement Study – Integrated Surveys on Agriculture project and the Gender Asset Gap Project, and further tested in the EDGE pilot surveys, is

[57] Margaret Grosh and Paul Glewwe, *Designing Household Survey Questionnaires for Developing Countries: Lessons from Fifteen Years of the Living Standards Measurement Study*, vol. 1 (Washington, D.C., World Bank, 2000).

to inquire about the amount of money that would be received if the asset were to be sold today.[58] This method is referred to as the potential sales value or realization value[59] and is recommended by the present *Guidelines* as the preferred method for collecting data on the prices of assets in household surveys. When a point estimate cannot be obtained, an interval estimate may be required as a follow-up question.

119. The potential sales value method, while not without its challenges, as discussed below, has been shown to provide a more robust measure of asset prices by comparison to methods based on the construction value or rental value of the asset, in countries covered by the Gender Asset Gap Project.[60] It also allows for consistent measures of wealth at the individual level, comparable with household and macroeconomic levels of wealth. The application of the potential sales value method, including the exact formulation of questions, is illustrated in the section on questionnaire design in part three of these *Guidelines*.

120. When current market prices are not available, alternative methods of valuation may be considered. For instance, the System of National Accounts recommends that the observable current market price for the asset in question be used to value non-financial assets. In the absence of an observed value, however, averages estimated from observed market values for similar assets may be used if the market is one on which the items in question are regularly, actively and freely traded. Information from markets may also be used to price similar assets that are not traded (2008 System of National Accounts, para. 13.22). When assets cannot be valued at the current acquisition price, as in the case of used assets, such as consumer durables, for which second-hand markets may not exist, their value may be given by the current acquisition price of an equivalent new asset less the accumulated depreciation. This valuation is sometimes referred to as the "written-down replacement cost" (ibid., para 13.23). Similarly, in the case of financial assets and liabilities, the 2008 System of National Accounts recommends that financial assets and liabilities should be valued at current prices if they are regularly traded on organized financial markets. Financial claims that are not traded on organized financial markets should, however, be valued by the amount that a debtor must pay to the creditor to extinguish the claim (ibid., para. 13.54).

121. Countries may consider similar alternative methods for establishing the value of assets,[61] if deemed to be practical, for the purpose of estimating asset prices or supplementing the information obtained using the potential sales value method. The use of these methods, however, will depend on

[58] Alternative methods of obtaining the values of assets, although departing to some extent from the concept of current market prices, include what is referred to as the "quick sale price" (the price that would be obtained if the owner sells right away) or a "reservation price" (the price that would cause an owner not intending to sell to be willing to sell). Some of these methods may undervalue the assets – the "quick sale" approach – or overvalue them – the "reservation price" approach (*OECD Guidelines for Micro Statistics on Household Wealth*).

[59] Cheryl Doss and others, "Do men and women estimate property values differently?" *World Development*, vol. 107, issue C, pp. 75–78.

[60] Cheryl Doss and others, "Measuring personal wealth in developing countries: interviewing men and women about asset values", Gender Asset Gap Project Working Paper Series, No.15 (Bangalore, Centre of Public Policy, Indian Institute of Management, 2013).

[61] While the alternative methods recommended here have not been tested in the EDGE pilots, they are consistent with the OECD guidelines on measuring household wealth (see *OECD Guidelines for Micro Statistics on Household Wealth*).

the availability of reliable statistical information from other sources of data, preferably disaggregated at regional or other subnational levels, and may be suitable for some assets only. Overall, three categories of alternative methods may be considered:

- Countries with reliable price indices data reflecting changes in asset prices over time may consider collecting information on acquisition prices and the year when the asset was acquired. This method would typically apply to real estate items, including the principal dwelling, agricultural land and other real estate.
- Countries with existing information on accumulated depreciation for assets such as specific types of equipment, vehicles or other consumer durables may consider using information on current acquisition prices of an equivalent new asset less the accumulated depreciation.
- Countries may also consider imputing asset values based on statistical information obtained from other sources of data, including administrative sources (such as property records for tax purposes, land registration and cadastre systems), land-use surveys and statistical data collection from local expert informants, such as community and price surveys. While community and price surveys do not typically cover asset prices, such items could be considered for inclusion and enumerators could be trained in obtaining information on unit prices (for example, for different categories of livestock, agricultural land or agricultural equipment) based on community information interviews or the visiting of markets.

122. One argument for considering alternative sources for obtaining valuation data is the potential challenge of obtaining this type of information from household surveys due, for example, to respondents' lack of information about asset prices and the sensitivity of the data being collected. Results from the EDGE pilots show that only a fraction of respondents report being aware of the existence of sales markets and informed about recent market transactions. For example, in Uganda, women owners report information on markets and recent transactions in the location of only 28 per cent of the dwellings and 40 per cent of the agricultural parcels they own. For men owners, the corresponding proportions stand at 63 and 68 per cent, respectively. A similar pattern is observed in Mongolia, while in Georgia and Cavite province, Philippines, the proportion of dwellings and agricultural parcels for which the owners have information on markets and recent transactions is even lower.

123. In addition, respondents may be unwilling to disclose information perceived as sensitive to enumerators, including the values of the assets that they own. As a result, a high proportion of non-responses on questions of valuation may arise. For example, in the KwaZulu-Natal province of South Africa, 53 per cent of women dwelling owners reported that they did not know the value of their dwelling and an additional 7 per cent of women dwelling owners refused to disclose the value of their dwelling. The corresponding proportions for men owners were 41 and 2 per cent, respectively. Similarly for Cavite province, Philippines, a higher percentage of women than men (55 per cent versus 41 per cent) did not answer the question on value of dwelling.

124. The value of financial assets may be considered particularly sensitive by respondents. In the KwaZulu-Natal province of South Africa, 13 per cent of women owners of financial assets reported that they did not know the value of their financial assets and an additional 23 per cent of female financial asset owners refused to disclose the value. The corresponding proportions for men were 18 and 16 per cent respectively.

125. Countries aiming to measure individual wealth will thus need to decide which methods to use to obtain the values of assets based on an assessment of available sources and to plan accordingly before the household survey on asset ownership is implemented in the field. If countries determine to collect asset valuation data through household surveys, they should draw on any prior experience that the national statistical office has gained in the collection of valuation data through household surveys and thoroughly pretest the questionnaire and train field staff to mitigate the challenges described above. If additional sources on price information are used to impute asset values in the household survey data set, a set of variables available in the external data sources related to the characteristics of assets, together with other variables that are correlated with the value of assets, must also be collected in the household survey. In addition, if community and price surveys are to be used to obtain the prices of some assets, the household survey and the community and price survey should be planned in coordination.[62]

126. Regardless of the method of valuation chosen by countries, it is important that data are provided with information about the method of valuation used. This information is important in assessing the comparability of information across countries.

127. Finally, the last principle of valuation refers to the fact that assets should be valued item by item, even when they belong to the same category. This is because each asset item may have distinct characteristics that determine the market value of that particular asset. In addition, each asset item may be owned by a different number and set of owners, and this has implications for the calculation of individual wealth because the total value of the asset is to be apportioned between its owners. As discussed below, however, there are some instances where item-by-item valuation is not feasible, such as in the case of livestock and jewellery valuation, and in these cases it may be more practical to obtain a bulk valuation.

4.3. Which assets to value?

128. These *Guidelines* recommend that, in principle, all assets should be valued. Collecting information on the value of all assets held by a person is key to obtaining unbiased statistical measures of the distribution of wealth across gender and other groups of the population.

129. In practice, if countries' aim is to obtain a full set of measures of the distribution of wealth, including by gender and wealth quintiles or deciles, it is recommended that the valuation of all assets is attempted. Wealth tends to be concentrated in the hands of a fraction of the population, and a

[62] For a description of community and price surveys and their integration with multi-topic household surveys see Elizabeth Frankenberg, "Community and price data", in *Designing Household Survey Questionnaires for Developing Countries: Lessons from Fifteen Years of the Living Standards Measurement Study*, vol. 1, Margaret Grosh and Paul Glewwe, eds. (Washington, D.C., World Bank, 2000).

significant proportion of women and men may hold no major assets, as evidenced by the EDGE pilots. In addition, the Gender Asset Gap Project found that the poorest households typically hold the majority of their wealth in consumer durables rather than in land and other real estate. Valuing all assets would enable countries to answer more properly questions related to, for example, gender inequality at the lower end of the wealth distribution.

130. Posing question about the value of all owned assets, large or small, can, however, complicate data collection and jeopardize the quality of information obtained. For instance, the EDGE pilot in Uganda included a detailed module on large livestock that collected information on each animal owned, the number of owners and the value of the animal, all essential information for calculating individual wealth held in livestock. Despite focused training, however, the module proved difficult for the enumerators to understand and cumbersome to implement in the field.[63]

131. One practical strategy would therefore be to obtain valuation only for major assets that form the bulk of wealth at the individual and household levels. For example, a key result of the Gender Asset Gap Project was that the principal dwelling, agricultural land and other real estate, including non-agricultural land, constituted a substantive proportion of non-financial household wealth in Ecuador, Ghana and the Karnataka state of India.[64] Countries may consider using this approach and value only priority assets – the principal dwelling, agricultural land, other real estate, and financial assets – if the objective is to obtain overall measures of the gender wealth gap or the average net worth of women and men.

4.4. Who should provide values?

132. These *Guidelines* recommend that the self-reported owner of an asset should also report the value of the asset. When, however, more than one household member is interviewed, countries may wish to consider collecting information on the value of non-financial assets from only one household member, ideally from an adult knowledgeable about the assets belonging to the household and thus capable of constructing a household roster of assets (see section 5.2. below, for a discussion on the rostering of assets). Financial assets should always be valued by their owners.

133. These recommendations are based on both operational feasibility and analysis of the EDGE pilot data. Across all pilots in which valuation data were collected from multiple household members, the household member most knowledgeable about the assets belonging to the household had the same likelihood of providing the potential sales value of the asset in question as the owner of the asset. In addition, in three of the pilots –Georgia, Mongolia and Cavite province, Philippines – the differences between the mean values of the principal dwelling reported by the most knowledgeable household member and those reported by the respondent owner were not statistically significant, suggesting that in these three pilots, valuation estimates were less sensitive to variations in the individuals reporting the values.

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[63] In light of the experience gained in Uganda, the remaining EDGE pilots did not collect valuation data on livestock or other assets that it had proved difficult to itemize.

[64] Cheryl Doss and others, “Do men and women estimate property values differently?”

134. In other contexts, however, widely differing asset values may be reported when more than one household member is interviewed. For example, in Uganda, the average gap between the dwelling sales value reported by any respondent and the dwelling sales value reported by the presumed most knowledgeable person stood at 34 per cent of the value provided by the most knowledgeable person. Similar differences in reported asset values were observed for countries under the Gender Asset Gap Project.[65] In such cases, reporting discrepancies will need to be reconciled to calculate measures of wealth and without the use of external or secondary sources of valuation data to validate the information obtained from multiple respondents, and the necessary methodology for this process is not available.[66] Countries may wish to consider conducting experiments to test which respondent's valuation would be closest to what may be deemed a "true" asset market value. Nevertheless, in the absence of such evidence, collecting the information from one household respondent (either one randomly selected member self-reporting his or her assets and their value, or if more than one member is interviewed, the most knowledgeable person about all assets owned by any household member), is a pragmatic approach that eliminates the need to reconcile discrepancies.

4.5. Valuation of specific assets

135. This section discusses issues specific to the valuation of each type of asset recommended for data collection by these *Guidelines*. It addresses both the preferred method of valuation – the current market price operationalized as the potential sales value – tested in the EDGE pilots and alternative methods not tested by the EDGE pilots, which may vary from one asset to another.

136. The recommended approaches are consistent with the *OECD Guidelines for Micro Statistics on Household Wealth* and the other international statistical guidelines noted above. Countries are encouraged to consider which valuation methods would provide the most reliable data in their specific context and be most cost-effective. It is also recommended that the questions on valuation are thoroughly tested before the survey is implemented in the field.

137. As the number of countries collecting data on asset ownership and wealth, including from a gender perspective, are increasing and new practices of valuation are emerging, the treatment recommended by these *Guidelines* is expected to evolve accordingly in the future.

4.5.1. Dwellings and other structures

138. The principal dwelling is considered one of the most valuable assets of a household and every effort should be made to obtain its value for the purpose of measuring wealth. The recommendation of these *Guidelines* is that dwellings (principal dwellings and others) be valued together with the land on which the buildings stand, unless the ownership of the dwelling differs from that of the land. This recommendation is consistent with the *OECD Guidelines for Micro Statistics on Household Wealth*

[65] Ibid.

[66] While the EDGE pilots were not designed to test which respondent's evaluation would be closest to a "true" asset market value, countries may wish to consider conducting their own experiment to answer this question, including by taking into account reliable external sources on valuation that can be used for validation.

and reflects how real estate market transactions take place (the dwelling and the land are traded as one asset) and, therefore, how the value of dwellings is most often obtained in practice.[67]

139. Houseboats, barges, mobile homes and caravans used as primary residences of the household, which conceptually are included under the category of principal dwellings, should be valued in manner similar to that used for vehicles (a subcategory of consumer durables).[68]

140. As with other assets, challenges related to the valuation of dwelling include difficulties in obtaining, from household survey respondents, an objective estimate of the asset value, or any estimate at all, when the markets are thin or non-existing. Compared to certain other assets (such as agricultural land, agricultural equipment or livestock), dwellings are more likely to have specific features that render the use of other sources of data on dwelling prices (such as those based on local expert opinion) to impute valuation less precise.

Preferred valuation method

141. The preferred approach to the valuation of the principal dwelling and other dwellings and structures is to use the potential sales value reported by the respondent. The respondent may be prompted to take into account the price of similar dwellings that have been sold recently in the location of the dwelling.

Alternative valuation methods

142. The following valuation methods may be used as alternatives or in addition to the preferred method of valuation:[69]

- When a price index for changes in dwelling prices over time is available from alternative sources of data, the survey may collect information on the purchase price and the year when the dwelling was acquired. Information on the type of dwelling and its location may also be needed if the price index is calculated with the disaggregation of those characteristics. This method is difficult to use, however, when a large proportion of dwellings are inherited from previous generations.
- Valuation of the dwelling for the purpose of property taxes may be used to establish value in household surveys, if such information is considered to be relatively well known within the population of the country and the evaluations made by the Government for tax purposes are frequently updated and based on sound methods. Alternatively, existing information on property taxes from administrative sources may be adjusted to give a better reflection of current market prices and combined with the information obtained in the household survey. For combining methods, the administrative source of data and the household survey may be directly linked or

[67] While the 2008 System of National Accounts recommends that the dwelling and the land on which it is located be valued separately, in practice, the information available on property values for the household sector often covers both the dwelling and the land and statistical models are used to separate the two components for the purpose of providing information useful for the System of National Accounts, including for the estimation of consumption of fixed capital and net income.

[68] *OECD Guidelines for Micro Statistics on Household Wealth*.

[69] Based on the *OECD Guidelines for Micro Statistics on Household Wealth.* See the cited reference for further details on the methods described and their limitations.

statistically matched, based on a common set of variables available in both sources of data.

- Existing sources such as property records for tax purpose and transaction sales databases may also be used in making an indirect estimate of the value of dwellings reported as owned in the household survey. In this approach, the existing databases are used to specify regression models that predict the value of dwellings. The derived regression coefficients for a set of variables are then used to impute the values of dwellings in the household surveys. It is important that the set of variables specified in the regression model are collected in the household survey as well. These variables may refer to:[70]
  - Floor area of the dwelling
  - Location of the property
  - Age of the dwelling (construction year)
  - Type of structure of the dwelling (detached, semi-detached, a unit in a multi-family residence building, such as an apartment in a block of apartments, etc.)
  - Materials used in construction (wood, brick, concrete, traditional materials, etc.)
  - Other price determinant characteristics, such as the number of bedrooms and bathrooms, whether there is a garage, swimming pool or air conditioning and distance to amenities.
- For selected types of dwellings, such as detached houses, the estimated current construction cost of the asset (assuming that the size remains the same and the construction materials are similar) may be requested. This method may be used when housing markets are thin or non-existent, but it is important that the value of land on which the dwelling is located is also valued, and that it is valued separately. A variation of this method is to obtain construction prices for typical housing units in a community and price survey implemented at the same time with the household survey.
- When markets are thin, other measures of housing values such as rental rates may be collected in the household survey to facilitate the imputation of data for unit non-response rates based on dwelling values reported by other respondents in the survey, along with information on asset characteristics.

4.5.2. Land

143. Obtaining the value of land poses challenges similar to those arising in the valuation of dwellings, in particular in areas where markets are thin. In addition, some land such as communal land or State land held in long-term lease by individuals cannot be sold. Information on the value of land needs to be collected parcel by parcel.

Preferred valuation method

144. As with dwellings, the preferred approach in the valuation of land is the potential sales value reported by the respondent. The respondent may be prompted to take into account the sale prices of similar parcels of land sold in the area where the parcel is located.

Alternative valuation methods

[70] The list of characteristics provided are those used in the 2013 edition of the Eurostat *Handbook on Residential Property Prices Indices (RPPIs)*.

145. The following valuation methods may be used as alternatives if field testing reveals that individuals are poorly aware of the cost of land or in addition to the preferred method:

- Countries may use prices per unit of agricultural land disaggregated by characteristics of the land (such as type of land use and irrigation), at the subnational level, if available for other statistical purposes (including, for example, for the purpose of the System of National Accounts). In this case, the household survey would collect information on the area and location of the land and characteristics of the land but not on the value of the land. The prices per unit of land (per hectare or equivalent) may be based on prices in actual transactions of land; networks of local experts (including local representatives of the ministries of agriculture, local agents from real estate agencies, experts from the regional statistical offices); or administrative sources (cadastres, land registries, tax records).[71] It is recommended, however, that the administrative sources are carefully reviewed before use, including in terms of coverage, underreporting of prices, and availability of information disaggregated at the subnational level and by type of land.[72] In the European context, for example, it is recommended[73] that, at a minimum, data on prices of agricultural land are provided at regional level (for Europe, following the nomenclature of territorial units for statistics – or NUTS – classification system, at the NUTS 2 level). The disaggregation of agricultural land by use should cover at least the categories "arable land" and "permanent grassland". Arable land should further include the subcategories: "irrigable arable land" (defined as "arable land area which could, if necessary, be irrigated in the reference year using the equipment and the quantity of water normally available on the holding") and "non-irrigable arable land" (defined as "arable land which cannot be irrigated due to the lack of water for irrigation on the holding"). Consistent with the System of National Accounts, the prices considered should be the prices received or paid by the holder in free trade without deduction of taxes and levies (except deductible value added tax) and without the inclusion of subsidies.[74]
- As with the valuation of dwellings, when a price index for changes in the land prices over time is available from alternative sources of data, the survey may inquire about the purchasing price and the year in which the land was acquired. Because land prices typically vary by the type of use of the land, it is important that information on the use of land is also collected in the household survey. This method may be used for both agricultural and non-agricultural land (excluding land on which dwellings or other buildings stand). As mentioned before, however, the method is difficult to use when land is frequently acquired through inheritance.
- When markets are thin, other measures of land values such as rental rates may be collected in the household survey to facilitate the imputation of data for unit non-response rates based on land values reported by other respondents and land characteristics.

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[71] Eurostat 2009 methodology on land prices and rents; Eurostat, "Agricultural land prices and rents data for the European Union", Research Paper (Brussels, European Commission, Eurostat, Directorate E: Sectoral and Regional Statistics, Unit E-1: Agriculture and Fisheries, 2016).

[72] Ibid

[73] Ibid.

[74] Ibid.

4.5.3. Agricultural equipment

146. The valuation of agricultural equipment may be difficult in the absence of markets for used agricultural equipment. These *Guidelines* recommend that, at a minimum, the value of large agricultural equipment is obtained, item by item, based on the current condition of the equipment. Countries may also consider valuing small agricultural equipment, in particular if small equipment is an important contribution to the livelihood and wealth of a significant proportion of individuals and households, as may be the case for households reliant on smallholder agriculture.

Preferred valuation method

147. The preferred valuation method for large agricultural equipment is to ask the respondent to estimate the potential sales value of each piece of equipment owned given its current condition. If countries wish to collect the values of small agricultural equipment that cannot be easily itemized, a suggested approach – although not one tested by the EDGE project – is to ask the respondent about the number of items in each group of items and their average age. In this case, information on replacement value may be obtained from other sources such as community and price surveys. A general depreciation factor would need to be applied to obtain current practices. For the purpose of calculating individual wealth, respondent owners should be asked to estimate their own share of wealth from each group of small agricultural equipment.

Alternative valuation methods

148. The following alternative valuation methods may be considered:

- When information on price indices and depreciation rates by type of equipment are already available from other sources of data, countries may consider collecting information on the historical cost of the equipment and its age. This method may be less applicable for small agricultural equipment.
- Countries may also consider using prices of second-hand agricultural equipment collected from expert informants in community and price surveys, or from existing sources. For example, countries that have robust cost-of-production programmes in place which are aimed at measuring the cost of agricultural production may have information on the value of agricultural equipment. In this case, only data on the type and age of agricultural equipment owned by respondents need to be collected from the household survey on asset ownership.

4.5.4. Livestock

149. The potential market value for livestock should, in principle, be relatively easy to obtain. In most places where people raise livestock, there is an active livestock market. The challenge arising in the valuation of livestock is that, if a farmer owns five head of cattle, for example, each animal may have a different sales price, depending on its sex, age and condition. The farmer may also own some of the animals exclusively and others jointly with one or more people and information must be collected on the ownership arrangement for each animal in order to apportion its value to its owner.

150. Depending on their policy needs, countries may still wish to itemize large livestock and collect its value. The valuation of small livestock and poultry would, however, be extremely burdensome and likely to yield poor-quality data. Thus, if countries wish to collect the values of livestock that cannot

be easily itemized, a suggested approach – although not one tested by the EDGE project – would be to collect for each category of livestock only the average sales prices per unit (for example, the average price per goat, per chicken and so forth), either in the household survey or, if they have been conducted, from community and price surveys. For the purpose of calculating individual wealth, respondent owners should be asked to estimate their own share of wealth from each group of livestock.

4.5.5. Financial assets

151. A general challenge for collecting information on financial assets is that people may be reluctant to report these assets and provide their values. There are wide differences between countries as to whether their respondents are willing to provide account balances and whether the enumerators think that it is appropriate to make such a request. Accordingly, the thorough training of field staff can make a difference to the quality of the data obtained.

152. In addition, pensions that provide a stream of income over time (such as annuities) are difficult for respondents to value. Respondents may, however, be able to provide the amounts in pension savings accounts. Whenever possible, respondents may be asked to consult their own financial records (such as annual statements) to improve the accuracy of their responses.

153. These *Guidelines* recommend that the valuation of financial assets be obtained directly from the respondent owners, item by item. As a matter of principle, financial assets and liabilities should be valued at current prices if they are regularly traded on organized financial markets. Financial claims that are not traded on organized financial markets should be valued by the amount that a debtor must pay to the creditor to extinguish the claim.

154. The following specific valuation rules, derived from the *OECD Guidelines for Micro Statistics on Household Wealth,* should be observed:[75]

- Currency and overnight deposits that can be converted into cash and is transferable on demand (such as transaction accounts, saving accounts, fixed-term deposits and non-negotiable certificates of deposit, and special saving accounts) should be valued at their nominal value.
- Agreed maturity deposits should be valued at the present value of their expected redeemable value.
- Bonds and other debt securities should be valued at the market price. Respondents may, however, report the face value, in which case countries may consider adjusting the data obtained by taking into account the market interest rates and the interest rate of the securities.
- The value of shares in corporations should be based on the quotation prices of the shares for listed companies.
- Mutual funds and other investments funds should be reported at market values.
- Agreed maturity deposits should be valued at the present value of their redeemable value.

[75] For detailed information on valuing financial assets see *OECD Guidelines for Micro Statistics on Household Wealth.*

- Life insurance funds are primarily seen as saving and investment vehicles, where the entitlement of a payout at the policy maturity date is regarded as an asset. The value of this payout should be reported.
- For life insurance policies before maturity, the payout depends on the nature of the policy and may be approximated, for example, by the current equity of the policy holder in the fund or the surrender value. Countries would need to determine what types of life insurance policies are most relevant in their context and the corresponding valuation.
- Annuities that function as an investment fund should be valued as the equity remaining in the fund. For annuities with guaranteed payments for the remainder of the beneficiary's life, an asset value would need to be derived by the statistical office based on the schedule of payments obtained from the respondent and actuarial life expectancy data typically generated by the statistical office based on demographic data sources.
- The valuation of pension funds is complex and depends on the type of pension benefits. A first step for national statistical offices is to determine the types of pensions relevant in the country. Pension benefits may refer to three categories: social assistance schemes, social-insurance pension schemes and private pension schemes.[76] Social assistance schemes are non-contributory and should not be considered assets or valued as assets. Social-insurance pension schemes and private pension schemes are contributory schemes and, from a conceptual point of view, are considered to be assets. They may be further distinguished as follows:
    - Social-insurance pension schemes are typically defined-benefit schemes in which the employer or employee or both contribute to a pension fund throughout the employment time and the benefits reflect the wage level at retirement and the length of participation in the scheme. The benefits may be paid as a lump sum or as regular pension payments. If the benefits are paid as lump sum, the asset value should be equal to the lump sum. If the benefits are paid as regular pension payments, the asset value would need to be derived by the statistical office based on the schedule of payments obtained from the respondent and actuarial life expectancy data (for the owner and potential survivors that may have benefits) typically generated by the statistical office based on demographic data sources. [77]
    - Private pension schemes are typically defined-contribution schemes which function as saving and investment schemes. The benefits received at retirement are lump sums that reflect the contribution made. At the simplest, the pension benefits, and therefore the asset value, can be approximated by the current equity accumulated in the fund, and the respondent owners should be asked to indicate this amount. Countries may consider additional adjustments of this information according to the specific procedures determining the final retirement benefits in the scheme.[78]
- For loans made to other people, the value of the loan should include the amount of the original loan and any interest accrued to date (but not in the future).

[76] *OECD Framework for Statistics on the Distribution of Household Income, Consumption and Wealth.*

[77] See *OECD Guidelines for Micro Statistics on Household Wealth*.

[78] Ibid.

4.5.6. Liabilities

155. Liabilities, which are primarily loans taken out by a person individually or jointly with someone else, should be valued item by item. The value of loans should be collected from household survey respondents who have taken out the loan or are responsible for paying back the loan. The value of liabilities is the outstanding balance of the debt, including any outstanding interest that is currently due. For example, in the case of a regular mortgage payment, the value of liability is the amount of principal still outstanding.

4.5.7. Consumer durables

156. Consumer durables are an important contribution to the wealth of individuals and households, in particular in the poorest households that may not own major assets. They are even more difficult to value, however, than major assets such as real estate. Only a small number of consumer durables are traded in second-hand markets and very few people may be aware of those markets and the transactions taking place. As a result, most people are unable to estimate a current market value for most consumer durables.

157. These *Guidelines* recommend that, at a minimum, countries should collect value information on big items likely to cost a significant amount of money, such as vehicles, including cars, motorcycles, boats, caravans and aircraft. These assets should be valued item by item in their current condition. The remaining types of consumer durables may be valued group by group. This recommendation is consistent with the recommendations in the *OECD Guidelines for Micro Statistics on Household Wealth* on collecting valuation data for consumer durables.

Preferred valuation method

158. The preferred valuation method for vehicles or other major consumer durables that can be itemized and for which markets are likely to exist is to ask the respondent to estimate the potential sales value of such items. If countries wish to collect the values of smaller consumer durables that cannot be easily itemized, a suggested approach – although not one tested by the EDGE project – is to ask the respondent about the replacement value of each group of items and their average age. A general depreciation factor would then need to be applied based either on information from the respondents about how long they expect to keep those durables, or on a standard factor established by the data analyst for general application.[79] In addition, for the purpose of calculating individual wealth, respondent owners should be asked to estimate their own share of wealth from each group of durable goods.

Alternative valuation methods

159. The following three methods may be considered for the valuation of vehicles or other major consumer durables that can be itemized:

- When information on price indices and depreciation rates for vehicles by type of vehicle is already available from other sources of data, countries may consider collecting information on the historical cost of the vehicle and its age.

[79] Ibid.

- When databases of second-hand vehicle prices exist, household surveys may collect data on the type and age of vehicle.
- When the insuring of vehicles or other consumer durables is a frequent practice in the country and the valuation practices used by the insurance companies reflect the value of the asset, the insured value of the asset may be requested in the household survey.

4.5.8. Non-agricultural enterprise assets

160. Non-agricultural enterprise assets should be valued by category of asset, including, first, all machinery, equipment and furniture used in the production process; second, inventories of inputs and supplies, including raw materials; and, third, inventories of finished merchandise (goods for sale). The recommended valuation method is to ask the respondent to estimate the potential sales values of each category of enterprise asset, by group of assets. For the purpose of estimating individual wealth, respondent owners should be asked what percentage of the enterprise they own and the apportioned value of the assets should be assigned to them, accordingly.

4.5.9. Valuables

161. Valuables are acquired and held as stores of value. They are expected to appreciate or at least not to decline in real value or deteriorate over time. Although markets exist for valuables, average individual respondents in household surveys (unlike sale and other industry experts) may find it difficult to estimate the prices of such valuables.

162. If countries wish to value valuables, a suggested approach is to ask the respondent for the potential sales value of each category of valuables. In addition, for the purpose of calculating individual wealth, respondent owners should be asked to estimate their own share of the sales value from each group of valuables.

Key points

- If countries' aim is to obtain a full set of measures of the distribution of wealth (for details, refer to part four, section 3.1.4), including by gender and wealth quintiles or deciles, it is recommended that the valuation of all assets is attempted. If the aim is to obtain overall measures of the gender wealth gap, countries may consider valuing only major assets.
- Assets should be valued item by item at current market prices.
- The potential sales value method of valuation allows for consistent measures of wealth across assets but, if sales markets do not exist, alternative methods may be used, including the following:
    - Countries with reliable price index data reflecting changes in asset prices over time may consider collecting information on acquisition prices and the year when the asset was acquired from the survey on asset ownership. This method would typically apply to real estate items, including the principal dwelling, agricultural land and other real estate.

    - Countries with existing information on accumulated depreciation for assets such as specific types of equipment, vehicles or other consumer durables may consider using information on current market prices of an equivalent new asset less the accumulated depreciation.
    - Countries may also consider imputing asset values based on statistical information obtained from other sources of data, including administrative sources (such as property records for tax purposes, land registration and cadastre systems), land-use surveys and statistical data collection from local expert informants such as community and price surveys. While community and price surveys do not typically cover asset prices, such items could be considered for inclusion and enumerators could be trained in obtaining information on unit prices (for example, for different categories of livestock, agricultural land or agricultural equipment) based on community information interviews or the visiting of markets.
- The method of valuation should be consistent across assets and countries should provide information about the valuation method used.
- When one randomly selected household member is interviewed about his or her asset ownership, this same respondent should provide the value of the assets that he or she owns. When more than one household member is interviewed the valuation of non-financial assets should be obtained at the household level from a knowledgeable person capable of constructing a household roster of assets. The value of financial assets should, however, always be reported by their owners.

5. Units of observation

163. This section discusses the different units of observation that can be used to collect data in a survey on individual-level asset ownership and control, namely, the individual and the asset, and the different measures that can be generated from each unit. Each option is explained in detail below.

164. Household surveys in general have households and individual household members as their basic units of enumeration, observation and analysis. Households may consist of one or more persons and they are defined on the basis of the housekeeping concept. According to the third revision of the *Principles and Recommendations for Population and Housing Censuses*,[80] a one-person household is defined as "a person who makes provision for his or her own food or other essentials for living without combining with any other person to form part of a multiperson household". A multiperson household is defined as "a group of two or more persons living together who make common provision for food or other essentials for living. The persons in the group may pool their resources and have a common budget; they may be related or unrelated persons or a combination of persons both related

[80] *Principles and Recommendations for Population and Housing Censuses*, rev. 3 (United Nations publication, Sales No. E.15.XVII.10).

and unrelated." Definitions of households may vary and countries are encouraged to use their own definitions, already established and in use by the statistical offices, for the purpose of collecting data on asset ownership.[81]

165. Although in practice most households are composed of a single family, the concept of "household" differs from that of "family". A family is defined as those persons "who are related, to a specified degree, through blood, adoption or marriage".[82] A household may contain a combination of one or more families together with one or more non-related persons, or may consist entirely of non-related persons. A family, however, will typically not comprise more than one household. There are exceptions, including, for example, the case of polygamous families in some countries, or the shared child custody and support arrangements in others.

166. These *Guidelines* recommend that households – not families – are used as one of the key units of enumeration. This is consistent with common practices in conducting surveys and censuses in most countries and existing international standards, including the Principles and Recommendations for Population and Housing Censuses, the System of National Accounts, and the *OECD Guidelines for Micro Statistics on Household Wealth*.

167. Persons as units of enumeration and observation in data collection may be identified, in principle, within households (where the majority of the population live) or within institutions. Typically, household surveys are designed to represent only the population living in households (in other words, the non-institutional population). For the purpose of these *Guidelines*, a person is defined as an individual residing within a household. As with other surveys, a roster of household members is constructed, namely, a listing of all persons identified as belonging to a household, and for each of them a series of basic characteristics such as age and sex are collected. Other characteristics, such as those pertaining to education and employment, are collected only for a subset of household members, typically defined by an age threshold. Information on asset ownership is collected only for adult persons, defined as individuals aged 18 or above. The threshold of 18 years follows international standards defining a child, as set out in the Convention on the Rights of the Child and is often the minimum age at which individuals can enter into legally binding contracts to own property. While this publication offers guidance on collecting asset ownership data only for the population aged 18 or above, countries may consider extending the data collection to younger ages as warranted.

168. When planning a survey on measuring asset ownership at the individual-level, countries must decide whether to collect the data using the individual or the asset as the unit of observation, based on their main policy needs and the related statistics that they wish to generate. Table 2 below presents the key measures that can be calculated and who should be interviewed when the unit of observation is the individual or the asset.

Table 2

Units of observation and key measures that can be calculated

[81] A discussion on the pros and cons of using different definitions of households and population when designing a sample is presented in section 4 of part three of these guidelines.

[82] *Principles and Recommendations for Population and Housing Censuses*. Rev. 3.

Unit of observation	Key measures that can be calculated[83]
Individual: Minimum set of questions	*Prevalence gaps*, which compare the proportion of individuals who are owners of a particular type of asset, by sex *Share of owners*, which indicates how many of the people who own a particular type of asset are women and men *Forms of ownership*, which provide information on whether respondents are exclusive or joint owners
Asset: appending modules to an existing survey or conducting stand-alone surveys when only one respondent is selected per household	All the above, plus*:* *Share of agricultural land area owned by women*, which requires data on the size of each agricultural parcel owned by women and men plus the number of owners for assets owned jointly *Proportion of men and women who acquire assets through a specific mode*, which provides information on potential channels for strengthening women's ownership of assets *Differences in the characteristics of assets owned by women and men* *Gender wealth gap*, which requires data on the value of each asset owned by women and men plus the number of owners for assets owned jointly
Asset: if more than one respondent per household is selected for interview on asset ownership, asset roster is produced at the household level	*Level, composition and distribution of household wealth*, which can also validate the statistics on the balance sheet of the households sector, which is derived residually in the national accounts of the country [84] Analysis of intrahousehold gender inequality in asset ownership

5.1. Individual as the unit of observation

169. A simpler approach is to use the individual as the unit of observation, as this allows for the measurement of asset ownership through a minimum set of questions that ask whether respondents, women and men, own a given type of asset. Countries may consider this approach when they want to obtain information on gender prevalence gaps in asset ownership. For example, it can be used to monitor part (a) of Sustainable Development Goal indicator 5.a.1 on the proportion of the total agricultural population with ownership or secure rights over agricultural land, by sex. This approach has been used in demographic and health surveys for the purpose of measuring land ownership, and for some assets in the EDGE pilot studies, including livestock, small agricultural equipment, consumer durables and valuables. As presented in part three of these *Guidelines*, the recommended

[83] Details on key measures and indicators for the gender analysis of asset ownership are presented in section 2 of part four of these guidelines.

[84] Household wealth data obtained from a survey can be used to cross-check and cross-validate the statistics on the balance sheet of the households sector in the national accounts, because the latter are usually residual estimates. Many countries are able to obtain frequent data to compile the balance sheets of the total economy and the other institutional sectors such as corporations and general government in their national accounts. The data used to compile the balance sheet of the households sector tend, however, to be available only intermittently. As a result, the statistics on the balance sheet of the households sector in countries' national accounts are derived residually by subtracting the balance sheets of the other institutional sectors from the balance sheet of the total economy.

minimum set of questions for measuring the prevalence of women's and men's ownership of key assets also uses the individual as the unit of observation.

5.2. Asset as the unit of observation

170. Using the asset as the unit of observation is a more complex approach that requires inventories, or rosters, of assets to be created for each type of asset (such as agricultural land and other real estate), but it allows for the computation of additional measures of asset ownership, such as the gender wealth gap, that can provide important policy insights. In addition, many household surveys, such as the Living Standards Measurement Study surveys, already collect asset rosters, to which a module on individual-level asset ownership and control could be appended. In these cases, only slight modifications of the host survey instrument would be required to align it with the recommendations in the present publication.

171. Two types of asset rosters can be obtained, each providing different information, as presented in table 2 above. A respondent roster of assets lists each asset owned (whether exclusively or jointly) by the respondent randomly selected for interview. The respondent provides this information to the enumerator in the individual questionnaire.[85] A household roster of assets lists each asset owned (whether exclusively or jointly) by all household members. One person, ideally the person most knowledgeable about household assets, provides this information to the enumerator in the household questionnaire (see box 4 below on an alternative approach implemented in the EDGE pilot studies).

172. Countries will need to determine which assets to include in the roster based on their policy needs, but it is suggested that they include the priority assets (principal dwelling, agricultural land, other real estate and financial assets), along with liabilities for the purposes of calculating individual-level net wealth.[86] Once the roster of assets is established, two sets of information are collected: first, key characteristics of the asset, such as its value, size, location or use; and, second, the identity of the owner of owners of the asset. If the respondent roster is used, all of this information is obtained in the individual questionnaire for assets owned by the selected respondent. If the household roster of assets is used, information on the value and other characteristics of the asset is obtained when the assets are listed in the household questionnaire, but information on the identity of the owners is reserved for the respondents to the individual questionnaire. This design approach is based on both operational feasibility and the rationale that reporting the characteristics of assets is less sensitive to variations in respondents (owner or non-owner) than reporting ownership status.

173. A respondent roster of assets enables countries to generate statistics that take into account differentials in the size and quality of assets owned by women and men. For example, as discussed in section 4 above, gender wealth gaps can be derived by collecting information on the value of each asset owned by male and female respondents and on the number of owners for assets that are jointly owned. With this information, both the total wealth gap, and wealth gaps by composition or type of asset, such as agricultural land, can be calculated. Establishing a roster of assets also enables countries

[85] See part three on questionnaire design for illustrations, including discussion of the household and individual questionnaires.

[86] Because there is only one principal dwelling, it does not need to be itemized in a roster of assets.

to develop asset-level indicators on the joint or exclusive ownership of assets that provides insights into asset ownership patterns other than individual-level prevalence indicators. For example, policymakers might be interested in knowing the proportion of agricultural land that is jointly owned by spouses. If multiple respondents are interviewed, multiple rosters of assets need to be merged ex post – and for cases with discrepancies, reconciled – to create one household asset roster that does not double-count assets. This has proved to be resource-intensive in the EDGE pilot surveys (box 4).

174. A household roster of assets, established by a knowledgeable person in the household questionnaire, is therefore recommended as it eliminates the complication of having to merge multiple individual rosters of assets and resolving any discrepancies among them. In addition, with a household roster of assets, information may be produced for two additional areas of analysis important for policymaking: household wealth and intrahousehold gender inequality in asset ownership and control. As discussed in section 4 above, microdata on the level, composition and distribution of household wealth is of increasing interest to policymakers as it can inform the design and evaluation of a wide range of economic and social policies.[87] Such data can also be used to validate statistics generated for the balance sheet for the household sector in a country's system of national accounts. Countries wishing to also estimate household wealth through a survey on individual-level asset ownership can obtain information on the value of each asset from respondents who complete the household roster of assets in the household questionnaire and then proceed to interview individual household members about their ownership status for the assets listed in the household roster along with any other assets that were not captured in the roster.

175. A household roster of assets also provides the scope for intrahousehold gender analysis of asset ownership so long as couples, or multiple household members, are interviewed and self-report their ownership status for the assets listed in the household roster of assets. As discussed in section 2 above, understanding how assets are distributed among couples or all household members can provide policymakers with important insights, including how household members may respond differently to policy and program interventions based on their asset endowments. Countries wishing to collect data for intrahousehold analysis can obtain the household roster of assets, as described above, in the household questionnaire from one respondent and then proceed to interview more than one household member about their ownership status for the assets listed in the household roster and any other assets that were not captured in the roster. (For guidance on how to select multiple household respondents, see part three on sampling).

Box 4

The challenges of constructing household rosters of assets from multiple respondents

A respondent roster of assets was tested in five of the EDGE pilot studies. In Georgia, Mexico, Mongolia, the Philippines and Uganda, rosters of agricultural parcels, large agricultural equipment, non-agricultural enterprises, other real estate, and financial assets and liabilities were collected in the individual questionnaire from each household member who was interviewed by asking him or her to list

[87] *OECD Guidelines for Micro Statistics on Household Wealth*.

each asset (for example, each agricultural parcel) owned by each member of the household (whether exclusively or jointly). This decision was based on the hypothesis that a household roster of assets created by one respondent in the household questionnaire might be incomplete because of information asymmetries within the household, including the presence of hidden assets – namely, assets that household members owned but reportedly kept hidden from other household members.

To assess the prevalence of hidden assets, enumerators in Georgia, Mongolia, the Philippines and Uganda asked respondents whether anyone 18 years of age or older did not know about the respondent's ownership of the assets that they reported owning, including agricultural parcels, agricultural equipment, non-farm enterprises, other real estate, financial assets and liabilities. Across the pilot studies, the proportion of hidden assets was negligible for all assets considered, with the exception of financial assets and liabilities. For example, in Uganda, about 25 per cent of men who had borrowed money reported that at least one other member of the household did not know about their liability, while the comparable figure for women was 18 per cent. In Georgia, while the percentage of hidden liabilities was negligible, the percentage of male and female owners of financial assets reporting hidden assets was about 12 and 13 per cent, respectively, with slightly higher proportions for both sexes in urban areas than in rural areas. While the low prevalence of hidden assets in the pilot studies could be driven by respondents' reluctance to reveal them to the enumerators, qualitative findings from the Gender Asset Gap Project support the results of the EDGE pilot studies, as they revealed that, while individuals were likely to know about the physical assets owned by other household members, they were less likely to know about the financial assets of other household members.[88]

Moreover, when multiple respondents provide independent asset rosters, the information must be merged ex post – and for cases with discrepancies, reconciled – to create one household asset roster that does not double-count assets. Counting each asset only once is essential for the estimation of household wealth and the construction of indicators at the asset level. In all the EDGE pilot studies, this exercise proved to be resource-intensive with little additional information gained, suggesting that having multiple household members create independent household rosters is not a better design approach than having one person provide a list of all assets belonging to the household's members. The one exception would be for financial assets. If countries wish to obtain a complete household roster of financial assets, it should be generated by asking all adult household members about the financial assets that they own.

Key points

Data on asset ownership and control can be collected at the **individual** or at the **asset level**, contributing to gender analysis from different angles.

Two options are presented for countries that want to use the asset as the unit of observation:

- **Respondent roster of assets** self-reported by the randomly selected adult household member that lists all of the assets that she or he owns;
- **Household roster of assets** reported by one adult household member in the household questionnaire that lists all the assets owned by all the household's members.

With regard to the type of gender analysis and indicators that can be produced:

[88] Cheryl Doss and others, "Measuring personal wealth in developing countries: interviewing men and women about asset values".

- Countries interested in information on gender prevalence gaps in asset ownership can ask a minimum set of questions that use the individual as the unit of analysis.
- Countries interested in developing asset-level indicators that account for differentials in the size and quality of assets owned by women and men need to establish a roster of assets, at least for all priority assets. The roster can be established at the household or individual level.
- Countries interested in estimating household wealth need to establish a household roster of assets that includes information on the value of each asset.
- Countries interested in analysing intrahousehold gender inequality in asset ownership can establish a household roster of assets and interview multiple people in the household, as described in part three of these *Guidelines*.

Part two.
Role of household surveys and other sources of data in collecting individual-level data on asset ownership and control

176. Individual-level data on asset ownership and control can be collected principally through household surveys, agricultural censuses and surveys and administrative sources. In some countries, population and housing censuses may also play a role; these are conducted only once every 10 years, however, and the magnitude of the operations to conduct them limits the possibility of adding new topics and covering these in any detail.

177. National statistics offices should consider all relevant sources in a complementary manner and decide, within the context of the overall statistical plan, each source's role in collecting individual-level data on asset ownership and generating statistics relevant from a gender perspective. For this purpose, the chapters below briefly describe the type and detail of information each data source can provide in respect of, first, the range of assets and types and forms of ownership that can be measured; second, the conceptual framework used to assess ownership and control; third, the units of observation and analysis; and, ultimately, the types of statistics and indicators that can be generated.

1. Role of household surveys

178. Household surveys are a major source of social, demographic and economic statistics in both developed and developing countries. As survey is defined as "an investigation about the characteristics of a given population by means of collecting data from a sample of that population and estimating their characteristics through the systematic use of statistical methodology"[89], household surveys are specialized surveys on a sample of households. Compared to other sources of data on asset ownership, household surveys are advantageous because they can cover a wide range of topics and conceptual frameworks and generate a complete set of measures of asset ownership from a gender perspective.

1.1. Scope

179. Household surveys are the only source of data that can explore the full range of physical and financial assets, including those recommended for data collection in the present *Guidelines*: dwellings, agricultural land, other real estate, livestock, agricultural equipment, bank accounts or other financial assets, valuables and consumer durables. The information obtained on women's and men's ownership of these assets can be linked to information obtained on other topics covered by the same survey, such as education, health, employment, income or living arrangements. Integrating these relevant dimensions into data collection in the same household survey will provide the most complete understanding of asset ownership patterns across different groups of the population and the link between asset ownership and key development outcomes for the household.

[89] Terminology on Statistical Metadata (United Nations publication, Sales No. E.00.II.E.21), available at www.unece.org/fileadmin/DAM/stats/publications/53metadaterminology.pdf.

1.2. Conceptual framework

180. Household surveys can easily adopt the conceptual framework presented in part one of these *Guidelines* for measuring asset ownership and control from a gender perspective. In particular, household surveys can accommodate the set of questions for measuring the bundle of ownership rights, including reported ownership, documented ownership and the rights to sell and bequeath an asset.

181. In addition, household surveys can relatively easily implement the respondent selection protocols presented in the *Guidelines*. As discussed in part one above, national statistical agencies are recommended to collect self-reported information on the ownership and control of assets from household surveys by interviewing one or more randomly selected adult household members or all household members. Among the various types of surveys within a country's household survey programme, some may already select individuals on a random basis for interview or interview all household members, while others may be able to initiate the respondent selection protocols after data for the main survey have been collected.[90] Other potential sources of data on the ownership and control of assets do not have the same flexibility in adjusting respondent selection protocols. For instance, agricultural censuses and surveys focus on agricultural holdings and therefore have an interest in collecting information from the person most knowledgeable about the agricultural holding, not from a randomly selected household member who may or may not know about the agricultural holding. Censuses can cover topics of interest only briefly and have to rely heavily on proxy response in order to avoid inflating the length and cost of the census.

1.3. Units of observation and measures of ownership

182. Household surveys have households or individuals as their basic units of enumeration, observation and analysis and the data requirements for producing prevalence indicators can be as simple as asking the sampled persons whether they own any of the different types of assets of interest. Population-based prevalence indicators on asset ownership and control provide a basic picture of how many women and men own dwellings, land, livestock or other physical and financial assets. Gender differences in the prevalence of ownership by type of asset, for the entire population of a country or disaggregated by multiple relevant population groups, can only be assessed, in most countries, on the basis of household surveys. This is essential information for policymaking that most countries currently do not collect but which national statistics offices can produce in order to assess the extent of gender discrepancies in asset ownership. This information may also signal the need for additional data to understand the factors causing these discrepancies, including data that may be provided by other sources, such as agricultural surveys or administrative data.

183. Depending on the overall objectives of the data collection and the overall tabulation and analysis plan envisioned by the national statistics office, data requirements may be more complex. Each respondent may be required to list assets owned individually or jointly with somebody else. Household surveys are flexible enough to allow the collection of information on an inventory of assets and their characteristics item by item, as discussed in part one of these *Guidelines*. In this case, the

[90] The implications for the organization of fieldwork are discussed in part three below.

different types of assets listed become additional units of observation and analysis. Using assets as units of analysis in addition to the individual allows for a much broader range of indicators and analyses to be developed from the data, including measures of wealth distribution by sex (as described in part one), in addition to the measures of ownership prevalence.

1.4. Limitations

184. It should be noted, however, that data collection through household surveys has implications in terms of cost, data quality, sampling errors and the ability to provide data for small areas or population groups. These challenges and limitations are typical of all household surveys.

185. Some non-observation errors may have a specific impact on the estimates of asset ownership. For example, the richest and poorest households may be excluded from some household surveys, either by design or because they are more likely to refuse to respond to the surveys.[91] This omission can have an impact on the estimated wealth distribution across the population, and, to a lesser degree, the estimated prevalence of ownership. This aspect should be taken into account in survey operation activities, including the sample design, the training of enumerators, data processing and weighting.[92]

2. Population and housing censuses

186. "A population census is the total process of planning, collecting, compiling, evaluating, disseminating and analysing demographic, economic and social data at the smallest geographic level pertaining, at a specified time, to all persons in a country or in a well-delimited part of a country."[93] They are conducted every 10 years, on the principle of complete enumeration, and based on large-scale operations.

187. Population censuses and household surveys cover, in principle, the same population and employ the same units of enumeration: households and individuals. For their part, however, censuses are less well equipped to collect complex or detailed information on specific topics that would require intensive training, more specialized interviewers and a higher burden for the field staff. Furthermore, the census interview relies heavily on proxy respondents. The requirement to collect self-reported data from one or more randomly selected adult household members or from all household members (as is needed for measuring asset ownership at the individual level) would considerably increase the burden, length and cost of the census.

188. Nevertheless, many countries have designed population censuses to combine, first, a full field enumeration, based on a short-form questionnaire, and, second, a large sample attached to the census, where a long-form questionnaire can be used to cover a range of issues in greater depth. Collecting

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[91] *Handbook of Household Surveys*, Studies in Methods, Series F, No. 31 (United Nations publication, Sales No. E.83.XVII.13); European Commission, International Monetary Fund, Organization for Economic Cooperation and Development, United Nations and World Bank, System of National Accounts 2008 (New York, 2009).

[92] Sample design and field operations are discussed in part three of these guidelines. Data processing is discussed in part four.

[93] *Principles and Recommendations for Population and Housing Censuses*, Rev. 3 (United Nations publication, Sales No. E.15.XVII.10).

information during the census on additional topics from a sample of households is a cost-effective way of broadening the scope of the census to meet the expanding demands for statistics. Countries may explore this sample-based modality of data collection to obtain individual-level data on the ownership and control of a core set of assets. For example, adding questions on whether women, men or both own selected assets listed in the housing questionnaire would enable the calculation of some basic asset-based measures of wealth distribution by sex; while adding questions on the ownership of selected assets for adults listed in the household roster would enable the calculation of population-based prevalence measures of ownership. Such attempts, however, would first need to assess carefully the possibility of using only self-reported information on ownership.

3. Agricultural censuses and surveys

189. As defined by FAO, a "census of agriculture is a statistical operation for collecting, processing and disseminating data on the structure of agriculture, covering the whole or a significant part of the country. Typical structural data collected in a census of agriculture are size of holding, land tenure, land use, crop area, irrigation, livestock numbers, labour and other agricultural inputs." Data are normally collected on the basis of a complete enumeration of all agricultural holdings (the agricultural production unit), every 10 years.[94]

190. Agricultural surveys collect structural and production data from a sample of agricultural holdings. They are based on the same units of analysis as those used in agricultural censuses. With much smaller workloads and the opportunity to train fewer personnel more intensively, however, agricultural surveys can examine topics in much greater detail. They are conducted more frequently than agricultural censuses and can therefore provide more timely data.

191. The key concepts in agricultural censuses and surveys are the agricultural holding and the agricultural holder. The agricultural holding is defined as "an economic unit of agricultural production under single management comprising all livestock kept and all land used wholly or partly for agricultural production purposes, without regard to title, legal form or size" and the agricultural holder as "the civil person, group of civil persons or juridical persons who makes the major decisions regarding resource use and exercises management control over the agricultural holding operation."[95]

192. The statistical unit for the agricultural census and surveys is the agricultural holding. Overall, data are collected at the agricultural holding level, but secondary units of observation and analysis are used. For example, some of the information on agricultural land may be collected at the parcel level, including, for example, area of land, land use, land tenure and terms of renting.

3.1 Scope for agricultural surveys

193. Because of their focus on agricultural holdings, agricultural surveys can be extremely efficient in obtaining detailed information on a series of aspects related to agricultural production and to the structure of the agricultural sector. Agricultural surveys are more likely than agricultural censuses to

[94] FAO, *World Programme for the Census of Agriculture 2020*, vol. 1, *Programme, Concepts and Definitions*, FAO Statistical Development Series 15 (Rome, 2017).

[95] Ibid.

collect data on ownership of agricultural land and equipment. They may be an appropriate vehicle for obtaining individual-level data on ownership of assets used in agricultural production, including agricultural land, livestock and agricultural equipment, and also on their characteristics. In addition, the inclusion of questions on the owners of these assets is relatively straightforward, since the surveys normally already collect holding-level information on ownership of agricultural land, livestock and agricultural equipment.

194. In addition, agricultural surveys can be an optimal vehicle for monitoring Sustainable Development Goal indicator 5.a.1, since the reference population for this indicator consists of the adult individuals living in agricultural households and there is normally a one-to-one relationship between the holdings in the household sector and the agricultural households.

3.2. Limitations of agricultural surveys

195. Ownership indicators constructed on the basis of data collected in agricultural surveys may have limitations related to the coverage of the data collection method. As mentioned above, agricultural surveys use the "holding" as their unit of analysis and cannot therefore be used to generate estimates on the asset ownership of women and men that are representative for the entire population: in particular, individuals residing in urban areas may not be captured.[96]

196. In addition, agricultural surveys may be less flexible than household surveys when it comes to collecting individual data or applying the respondent selection protocols presented in these *Guidelines*. The information that individuals would provide about the ownership status of other persons in the households may be biased. Furthermore, the ownership of women holding small-size areas of land may not be captured either because, in some countries, agricultural surveys have a minimum size limit for the holdings covered by the data collection or because they are restricted to holdings conducting commercial agricultural activities.[97]

3.3. Scope for agricultural censuses

197. The emphasis in agricultural censuses is on the management of the agricultural holdings, and not the ownership of agricultural assets. The identification of the agricultural holder provides the basis for comparing the characteristics of holdings operated by women and men, which is important for understanding issues of decision-making and agricultural productivity. Agricultural censuses rarely identify the owners of agricultural assets, although land and livestock ownership within the holding is proposed as a new topic for data collection by the guidelines for the 2020 agricultural census round, under the World Programme for the Census of Agriculture 2020, together with intrahousehold distribution of decision-making.

[96] Ibid.

[97] Ibid.

3.4. Limitations of agricultural censuses

198. Like the population and housing censuses, agricultural censuses are complex and large-scale operations. For that reason, they are not flexible when it comes to collecting individual data or applying the respondent selection protocols presented in these *Guidelines*. Indeed, the World Programme for the Census of Agriculture 2020 recommends that the respondent be someone sufficiently knowledgeable to give accurate answers to questions on the agricultural holding and its components – in other words, ideally the holder or the manager.[98]

199. For the agricultural census, the size limitation for holdings covered is justified on the grounds that there are usually a large number of very small units making little contribution to total agricultural production and it is not cost-effective to include them in the agricultural census. Nevertheless, an alternative to setting minimum size limits is to cover all units regardless of size, but to ask only some very limited questions for small units.[99] The questions put to small units should, however, include questions on asset ownership and control from a gender perspective.

4. Administrative sources of data

200. Administrative sources are defined as "data holdings containing information which is not primarily collected for statistical purposes".[100] Typically, they are developed and maintained by government administrative authorities for the purpose of implementing government services and regulations.[101] Administrative sources have several key advantages by comparison to other sources of data: first, their running cost is low once they have been set up; second, when complete, they can provide accurate and detailed information at the level of small geographic areas; third, they can generate statistics at frequent and regular intervals; and, fourth, they can eliminate survey errors and non-response.

4.1. Scope

201. Statistical information on asset ownership may be derived from some administrative sources such as land registration and cadastre systems (or some sort of land information system), dwelling property records, property taxation records and vehicle registration records. These sources may provide information on registered assets (such as a description of the land parcels or dwellings and their value) and some characteristics of their owners (such as their name and national identification). These sources of information are typically developed by formal institutions and can provide statistics mainly on documented ownership. For example, in a country where access to land is governed by a mix of formal and customary institutions, information on formal legal rights to land is probably recorded in some form of land registration and cadastre system.[102] While that information may be

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[98] Ibid.

[99] Ibid.

[100] United Nations, *Using Administrative and Secondary Sources for Official Statistic: A Handbook of Principles and Practices* (Geneva, United Nations Economic Commission for Europe, 2011).

[101] Ibid.

[102] FAO, "Land tenure and rural development", FAO Land Tenure Studies 3 (Rome, 2002).

retrieved for the purpose of generating statistics, there are no corresponding systematic and consolidated records reflecting customary tenure.

202. Several countries have developed farm registers (listings of farms or agricultural holdings) and some have attempted to create statistical farm registers, including for selecting samples for agricultural surveys and for generating statistics, among other purposes. Farm registers may be developed and updated based on agricultural censuses and surveys or on administrative records (such as tax records, cadastral records, directories from farmers' associations). Statistical farm registers are in use in many European countries.[103] At the same time, however, the development of statistical farm registers with regularly updated and maintained records of holdings and holders that would generate statistics in agriculture remains a difficult enterprise. Statistical farm registers usually contain information about the name of the holder and the address of the holding, sex of holder, total area of holding, main land uses and types of animals kept. Owners of specific agricultural assets are usually not recorded.

4.2. Conceptual framework

203. Information available in administrative sources is not regarded as a primary source for statistical purposes. Therefore, the recording of information about assets covered and their owners does not follow a predefined conceptual framework. It should be noted, however, that administrative sources such as property and taxation records typically cover assets that are registered and documented, thus corresponding to one of the types of ownership presented in these *Guidelines*.

4.3. Units of observation and measures of ownership

204. The unit of record in administrative sources is typically the asset. In theory, having the asset as a unit of record enables the calculation of both population-based indicators and asset-based indicators of gender differences in documented asset ownership. In practice, the calculation of these two types of indicators depends on the accurate and complete recording of all owners of an asset and their sex, and also on the ability to determine whether one person owns multiple plots, as the plots may be registered under different names and thus viewed as two separate people.

4.4. Limitations

205. Administrative sources can only be useful if they are kept current and if the sex of the owner or holder is recorded. This is not the case for many administrative sources. Besides differences in conceptual frameworks, one of the key limitations in using administrative sources for statistical indicators and analysis of asset ownership in the incomplete coverage of assets and incomplete information on all owners of an asset, including their sex or other demographic characteristics. For instance, land registry records may not systematically incorporate information that can be used to

[103] Stephen Clarke, "Improving the quality of EU farm registers", paper presented at the Seminar on Registers in Statistics, Helsinki, 21–23 May 2007.

establish whether the landowners are women or men. A review[104] of land registry databases in five countries of the Western Balkans[105] showed that the sex of the owner is not typically recorded as a stand-alone variable and often cannot be deduced from other information that may be specified in the records, such as the identity details or the first name of the owners.

[104] FAO and World Bank, *Gender Disaggregated Data – Western Balkans. Statistical Reports 2005–2013* (2014).

[105] Albania, Bosnia and Herzegovina, Montenegro, Serbia and the former Yugoslav Republic of Macedonia.

Part three.
Guidance for implementation

206. Careful planning and execution are critical to the success of any survey or survey module on measuring asset ownership and control at the individual level. General principles and rules for all statistical sample surveys are applicable to surveys on asset ownership but, in addition, specific considerations should be taken into account in order to ensure the quality and reliability of results on individual-level asset ownership. Topics addressed in this chapter include the planning process, data collection strategies, sample design, questionnaire design and field operations.

1. Planning to collect data on asset ownership at the individual level

207. While some countries collect data on assets or durable goods owned by, or used in, the household, very few collect individual-level data on asset ownership and control. Countries adopting this new gender-relevant approach will need to decide which mechanisms of data collection are at their disposal to gather such data. As discussed in part two above, household surveys are the preferred data source for regularly estimating the prevalence of asset ownership and other key measures within the female and male populations, but other potential sources include agricultural surveys and censuses and administrative records. All of these sources should be assessed to determine their capacity for delivering the data needed, the costs involved and the technical expertise required.

208. The desired frequency of producing statistics on asset ownership and of ensuring comparability with future statistics through the use of the same methodology of data collection over time should also be assessed at this early stage and should inform the decision on which sources of data to use. Asset-ownership prevalence is expected to be fairly stable over short periods of time, unless there are economic crises that deeply affect the wealth of a large portion of the population or new government programmes that target assets. In the absence of such events, monitoring the prevalence of ownership once every five to seven years should be sufficient to construct reliable trends.

209. Nevertheless, similar to other data collections, the quality of data collected will depend in part on the quality of the planning process, starting with specifying clear objectives for data collection, bringing together the right people and developing realistic budgets and timelines. These aspects are covered in the following sections.

1.1. Specifying the data collection objectives

210. A clear statement of the data collection objectives should be developed in consultation with stakeholders, including data users. The objectives indicate topics and policy issues that need to be addressed; the statistical information on which they are based; the geographical and population coverage of the results; and the manner in which the results will be used. Data collection objectives give a rough idea of the expected scale of the survey and are a crucial input in deciding the sample size and structure, the amount and complexity of information to be collected, and the required resources of time, human skill and funding.

211. Data collection objectives may initially be formulated as key questions to which the collection exercise is seeking answers. They may vary from very simple ones that provide a basic picture of asset ownership to more complex ones, as in the following examples:

- What is the prevalence of asset ownership among women and men, by type of asset? A simple description of asset ownership can be developed by using data collected through a minimum set of questions on whether the respondent owns specific assets or not.
- Are women more likely to own assets exclusively or jointly? Are men? Are female owners as likely as male owners to possess the full bundle of ownership rights, including the right to sell and bequeath assets? Do women and men acquire assets in different ways? To address these policy issues, a few more questions can be added to a short module appended to a household survey.
- What is the monetary value of assets owned by women and men? Is women's wealth concentrated in the same types of assets as men's wealth? On average, do men possess more net wealth than women? Addressing these types of questions requires that a respondent roster of assets is created and information obtained on the form of ownership and the value of each asset.
- Are assets equally distributed among adult women and men living in the same household? Is the value of assets owned by women who are married or in partnerships similar to the value of assets owned by their husbands or partners? Data requirements to answer these questions are more complex and require that a household roster of assets is created and information is obtained about each asset listed. In addition, couples and possibly other adult members of the household, depending on the focus of analysis, will have to be interviewed about their own asset ownership.
- Do women who own assets, whether exclusively or jointly, have more decision-making power than women who do not own assets? Are they more likely to be entrepreneurs or to have their own income? Do they invest more often in the education of their children? Are they less likely to be victims of domestic violence? Answering these policy questions requires the inclusion in the survey of additional questions that need to be analysed in relation to the questions on asset ownership.
- Have government programmes on housing subsidies or land allocation had different impacts on women's and men's ownership of these assets? Addressing questions of programmatic impact may require including in the questionnaire items specifically referring to the programme of interest or fielding separate survey waves before and after the programme is implemented.

212. Several objectives may be accommodated in the same data collection if they are consistent with one another and their number and complexity do not compromise the quality of the overall data collection. For example, Statistics South Africa included a module on decision-making in the EDGE pilot survey in order to analyse the relationship between women's and men's asset ownership and household decision-making.

213. Nevertheless, covering too many objectives may prove challenging for sample and questionnaire designs and may cause budget overruns. As such, care must be taken not to overload the data collection with too many competing goals, and a clear statement of the objectives will help to

keep the project focused throughout all stages of development, implementation, data analysis and dissemination.

214. Similar to other data collections, once the objectives have been drafted, they should be ranked by their importance and feasibility, including through the use of a tabulation and data analysis plan. A tabulation and data analysis plan explains in detail what data are needed to attain the objectives (namely, to answer the questions) set out for the data collection and what indicators can be derived from the data collected. It also ensures that no unnecessary questions are included and no essential analyses are omitted, therefore maintaining compatibility between the data requirements and the final survey design. Survey designers must refer to this plan constantly when working out the details of the survey questionnaire.

215. The final set of objectives to be covered in the data collection should be chosen on the basis of capacity for data collection, amount and quality of data expected from other sources and the funding available. If countries choose to append a module, rather than implementing a stand-alone survey, as discussed in section 2 below, it is important that the module itself be designed on the basis of a clear set of objectives that can be accommodated by the host survey.

1.2. Building the project team

216. The planning of a data collection exercise is usually carried out by a relatively small group of subject-matter specialists and technical and administrative staff members of the central statistics office, in close collaboration with key stakeholders. A small team of key stakeholders should be involved from the early planning stages of the data collection, including when formulating the scope and objectives. Consultations should also be undertaken at other specific stages. By including this group, the communication between the data users and data producers will be greatly increased. Engaging stakeholders throughout all phases of the project also ensures that there will be knowledgeable experts who are prepared to use the basic statistics obtained and the results of deeper analysis for policymaking.

217. Key stakeholders may include researchers, women's and gender advocates, policy analysts and policymakers, and donors. Data and analysis on asset ownership is generally relevant for the development and monitoring of government policies and programmes related to poverty, livelihoods and entrepreneurship, agriculture, women's empowerment and gender equality, and housing and distribution or titling of land. Analysts involved in these aspects of policymaking can provide technical expertise and contribute to specifying the objectives of the survey. When individual-level data on asset ownership is collected through a module attached to a survey, it is important that the group of stakeholders for the overall host survey includes people representing those institutions.

218. Staff requirements for the various aspects of the survey are a crucial planning consideration in any survey and their assignment to the project must be decided at an early point. A team of experts, subject-matter specialists and data analysts must be formed at the very beginning of survey planning to ensure that no aspect of the survey is neglected and that it is given priority in the national statistics office's survey programme. This team should include senior staff of the national offices, including specialists in gender statistics, household surveys, sampling, national accounts and agriculture, along

with data managers and other specialists in field operations. The services of additional specialists may be enlisted from outside the statistical agency, including the stakeholders referenced above.

219. This team of experts has a crucial role to play, especially when it is the first time that the national statistics office is collecting data on asset ownership from a gender perspective. New concepts and definitions will need to be applied, reflected in the questionnaire design in a way that makes sense to the country context, and communicated in an effective way to the enumerators and supervisors during the training of field staff. The sample design needs to account for potential variations of the tenure system across the country and may involve new respondent selection protocols. The individual-level perspective used in data collection makes it possible to analyse asset ownership in new ways that could lead to better articulated policies; at the same time, however, the data structure and data analysis have a certain degree of complexity and analytical reports that inform policymaking will need to be carefully drafted.

220. Lastly, the group of data collectors has an indispensable role to play in ensuring the quality of data. This group includes interviewers, supervisors, data entry staff and computer technicians. They may be part of the staff of the central agency or of regional offices. Additional interviewers and supervisors may be hired from the field. Some representatives of this group may be involved in some aspects of the questionnaire design, including the optimal formulation of some questions or instructions to ensure that they are clearly understood by both enumerators and respondents.

1.3. Budget and timeline

221. One of the first tasks in planning a survey is to draw up a draft budget that approximates the cost of the survey based on some assumptions of the sample size and the average time needed to interview one or more household members. This exercise is normally accomplished by looking at budgets of similar surveys already implemented in the country or in similar countries.

222. Typically, there are two types of survey costs: fixed and variable. Examples of fixed costs are costs associated with the developing and testing of the questionnaire and other survey instruments. Variable costs refer to expenses that are highly dependent on the sample size and structure, including those related to the employment of the field staff and their transportation and accommodation in the field, or, for example, the number of electronic devices needed when computer-assisted interviewing is used. The variable costs, mainly driven by the sample size and structure, will usually dominate the survey budget. As extensively discussed in section 4 below, the sample size and structure will depend on the level of precision required for the key estimates of asset ownership and wealth, the number and level of population subgroups for which estimates need to be produced, and the prevalence of asset ownership in the targeted population or population subgroups. Another important factor is the use of sampling techniques such as stratification and clustering, which are cost-effective ways of reducing costs associated with field staff travel without compromising the possibility of obtaining estimates representative at the level of the population groups desired and with the required precision.

223. More reliable and detailed cost estimates can be developed once the overall scale of the survey and a detailed timetable of activities are in place. The timetable of activities should be comprehensive and include details on the time frame of each activity, keeping in mind existing constraints such as other surveys being developed at the same time or the preferred time of the year when the fieldwork

should take place. There should also be a clear specification of which activities are to be done in-house – performed by the regular staff of the statistics office – and which are to be outsourced to other individuals or institutions.

224. Financial resources can be a major constraint, limiting how many households can be surveyed, how many interviewers can be employed and how much time they can spend within any given enumeration area. Some elements of the survey may need to be adjusted depending on the available budget, including sample size and structure and questionnaire length and complexity. The quality of the data, however, needs to be preserved. Survey errors need to remain at an acceptable minimum for the specified survey objective; the data collection instruments need to be properly developed or customized; and the staff involved in data collection need to be adequately skilled and properly trained.

2. Data collection strategies

225. Countries choosing to measure asset ownership and control at the individual level through household surveys have three options for collecting the data. These vary both in their complexity and in the range of measures that can be produced from the data items. First, and simplest, they can append a minimum set of questions using the individual as the unit of observation to an existing household survey. Second, they can append a more detailed module using the asset as the unit of observation to an existing household survey. Third, and most complex, they can implement a stand-alone, or dedicated, survey comprising a household roster of assets and individual questionnaires on asset ownership.

226. Each option, including the advantages and limitations of the data collection strategy, is discussed in detail below.

2.1. Appending a minimum set of questions to an existing survey questionnaire

227. Countries may choose to append a minimum set of questions on asset ownership to an existing nationally representative household survey, in order to measure the prevalence of asset ownership by sex. For each asset, five questions in total, using the individual as the unit of observation, as illustrated in section 5 below on questionnaire design, can be appended to an existing questionnaire to measure the full bundle of ownership rights. It is advised that countries adopting this approach limit data collection to priority assets including principal dwellings, agricultural land, other real estate and financial assets. Countries may also choose to collect individual-level data for non-priority assets covered in the *Guidelines*, depending on their policy needs, by including one question each to measure reported ownership of agricultural equipment, livestock, consumer durables and valuables. The collection of information about these additional assets will, however, require the inclusion of several additional questions, since they will have to be disaggregated by type within their asset type to yield meaningful information. For example, asking the question “Do you own any consumer durables?” will not yield information on the types of durables that the respondent owns and is thus less useful for analysis. Suggested questions to collect information on ownership of different assets are provided in part three of these *Guidelines*, on questionnaire design.

228. There are several advantages to appending a minimum set of questions to an existing survey questionnaire. First, the data collection strategy enables countries to measure the prevalence of ownership for priority assets in the population, by sex, with minimal increases in data collection or response burden. For example, countries can adopt this approach for measuring Sustainable Development Goal indicator 5.a.1 on the proportion of the agricultural population with ownership or secure rights to agricultural land, by sex, so long as the sampling design treats the agricultural population as a subgroup of interest. Second, appending a minimum set of questions to an existing household survey may be more sustainable than appending a detailed module to a host survey or conducting a stand-alone survey, as the latter approaches are often more susceptible to budgetary cuts and competing priorities within a survey programme. One disadvantage of this approach, however, is that it only allows for the calculation of prevalence estimates of women's and men's ownership of priority assets. If countries wish to collect information on additional assets or to derive additional indicators, such as on the gender wealth gap or modes of asset acquisition, they should consider appending a survey module to an existing household survey.

2.2. Appending a survey module to an existing household survey

229. Alternatively, countries may opt to append a survey module on asset ownership and control, using the asset as the unit of observation, to an existing nationally representative household survey. Depending on the level of precision needed at lower administrative units, the module may be appended to the entirety of the sample for the main survey or to a subsample of the main survey, so long as national representation is retained. Appending a module to an existing survey is often less resource-intensive and costly than conducting a stand-alone, dedicated survey on asset ownership, because the bulk of the costs are borne by the main survey; as discussed in section 4 below on sample design, the marginal costs of the survey module are a function of the total number of interviews on asset ownership. Appending a module on asset ownership to a household survey, in particular a multi-topic survey, will also provide a rich source of data for the analysis of relationships between asset ownership and key variables of interest to policymakers.

230. One disadvantage of this approach, however, is that it affords less flexibility than a stand-alone survey, because the data collection is subject to the parameters of the main survey. For example, the sample size is determined by the objectives of the main survey, not by the module on asset ownership, which has implications for within-household respondent selection, as detailed in section 4 below. In addition, the content of the module on asset ownership, including the number of both the assets that can be covered and the questions asked, will be determined in part by the length of the main survey questionnaire and the need to minimize response burden. As a result, this approach is more suitable to collecting data on the priority set of assets rather than the full range of assets covered in the publication.

231. Countries planning to append a module on asset ownership and control to an existing household survey should consider which surveys in their existing survey programme would be a good fit for hosting the module. There are several factors to consider. First, the topic or topics of the main survey should complement the module's focus on asset ownership and control, so as to ensure the continuity of the interview. Integrated, or multipurpose, household surveys, which collect data on

multiple topics relevant to policy analysis in one survey, such as the Living Standards Measurement Study survey, are a natural fit. Also appropriate are household income and expenditure surveys, which collect data on the flow of monetary and non-monetary resources of households and individuals and may already include a module on asset ownership at the household level. Because these surveys tend to require repeat visits by the enumerators to the households to collect the data, respondents may be more comfortable answering sensitive questions, such as on asset valuation, than in surveys requiring enumerators to visit the household only once. For example, in the qualitative assessment of the EDGE pilot study in Mexico, it was observed that the module on asset ownership should be appended to a household survey that allows enumerators to develop a rapport with respondents through repeat visits to the enumeration area.

232. Second, the host survey must be able to accommodate the respondent selection protocols necessary for collecting individual-level data on asset ownership and control. Furthermore, as previously discussed, information on asset ownership should be self-reported, not reported by proxy (see part one, section 2 on respondent selection rules).

233. As detailed in section 4 on sample design, the present publication recommends that, for the purposes of deriving nationally representative estimates of asset ownership and wealth, one randomly selected adult respondent be interviewed. In this case, unless the host survey randomly selects adult respondents for interview, field protocols must allow for the random selection of household members to complete the module on asset ownership.

234. If countries aim to undertake an intrahousehold analysis of asset ownership via an appended module, more than one respondent per household must be interviewed, and the selection of respondents will depend on the sample size of the host survey. When more than one respondent per household is interviewed, it is advised that a roster of assets be collected at the household level, as discussed in part one of these *Guidelines*. Thus, countries adopting this approach must ensure that, in addition to accommodating the respondent selection protocols, the main survey is able to integrate a household roster of assets into its household questionnaire.

235. Third, countries should assess how often they will need to collect data on individual-level asset ownership and select a host survey that can accommodate this frequency. As discussed in section 1 above, data on asset ownership can be collected every five to seven years unless a country has a policy need, such as assessing public interventions, for more frequent monitoring. Thus, the main survey to which the module on asset ownership will be appended should be administered with similar frequency.

2.3. Conducting a stand-alone survey

236. A stand-alone survey on individual-level asset ownership and control includes, at a minimum, two parts: the first consists of a household questionnaire comprising, first, a household roster that lists, and collects basic sociodemographic information about, all household members; and, second, a household roster of assets that lists all the assets owned by the adult members of the household and collects information on the characteristics of the assets, including their value. The second part consists of an individual questionnaire on asset ownership. It is advised that the household questionnaire be completed by a person knowledgeable about the household's asset holdings. The roster of assets is

then fed forward to the individual-level interviews, which are administered to all adult household members as described in section 4 below, on sampling design. In the individual questionnaires, respondents self-report their ownership status for the assets listed in the household roster and also for any additional assets owned by them that were not captured in the household roster of assets.

237. A dedicated survey on asset ownership and control enables countries to collect a comprehensive set of data from all adult household members for the purpose of informing policies and programmes aimed at promoting gender equality both within and across households. In comparison to a minimum set of questions or a survey module, a stand-alone survey can collect information on a larger range of assets and their characteristics, including, for example, the tenure type and size of agricultural parcels. It can also measure all components of the conceptual framework presented in part one of these *Guidelines*, including types and forms of asset ownership, modes of asset acquisition and asset valuation. Notably, because a household roster of assets and their values are collected and all adult household members are interviewed about their ownership status (see figure 4 in section 4 below, on sampling design), a stand-alone survey also enables analysis of how total household wealth is distributed among all household members.

238. A dedicated survey on asset ownership also has the flexibility of including modules on additional topics, such as education, health or decision-making, so that data users can analyse the relationship between asset ownership and key development outcomes of interest to policymakers. Moreover, because the data collection is not subject to the sample design and fieldwork organization of a host survey, more control can be exercised over these components of the survey process to ensure data quality. Lastly, because the survey's focus is on asset ownership, the data collected in a dedicated survey are less likely to suffer from respondent fatigue than data collected from a module appended to a household survey on another topic.

239. A disadvantage of stand-alone surveys is that they typically require more resources to implement than appending a minimum set of questions or a module to an existing household survey. In countries that conduct many official surveys in one year, it may also be difficult to find the time and resources to include a dedicated survey on asset ownership in the survey pipeline, in particular within the constraints of a limited survey budget.

2.4. Choosing between the three data collection strategies

240. In choosing between the three data collection strategies, countries should first determine which assets to collect data on by assessing their policy needs, including the types of measures needed by data users, in consultation with the survey team's stakeholders comprising policymakers, researchers, gender specialists and other data users. In tandem, countries should assess whether they have existing data, either through statistical or administrative sources, on the prevalence of each asset type (such as principal dwellings or agricultural land) within the country to determine which assets individual-level data should be collected for. For example, an industrialized country in which less than 5 per cent of the population owns agricultural equipment may choose not to collect data on agricultural equipment, while a country with a largely agrarian economy and a higher percentage of agricultural equipment may opt to do so.

241. If no such data exist for each of the types of assets of interest, a country may choose to add a few questions on asset ownership at the household level to an existing and nationally representative survey that will be implemented well in advance of the data collection on individual-level asset ownership. The information on asset prevalence obtained at the household level through this exercise can be used to determine which assets should be included in future data collection on individual-level asset ownership, along with the required sample size. As an alternative, but less robust, option, countries may choose to conduct a series of focus group discussions with individuals to identify which assets women and men own. While, owing to the non-probabilistic approach in which focus groups are selected, this approach will not yield prevalence estimates of asset ownership, it can still identify the assets which women and men consider important to their livelihoods and well-being that should be included in national data collections. If national statistical agencies choose this approach, skilled facilitators should be employed to lead the focus groups and a sufficient number of groups should be conducted in various regions of the country to ensure variation in land tenure systems and gender norms and other characteristics that may influence asset ownership.

242. Similarly, each national statistical agency will need to determine the relevance of the bundle of ownership rights to its country context. As discussed in part one of these *Guidelines*, this assessment should entail an analysis of the legal framework, including statutory and customary laws, on property rights and also of the social norms mediating those rights. If countries opt to conduct focus group discussions, as outlined above, the bundle of ownership rights and other themes important to the data collection, such as modes of asset acquisition, can be explored. The qualitative information obtained would serve both to inform whether data should be collected on the full bundle of ownership rights and subsequent questionnaire design and also to interpret the quantitative findings of the survey.

243. With a clear understanding of which assets and which measures are needed, countries should consider the following guidance:

- If countries are only interested in deriving prevalence measures, by sex, on the ownership of priority assets, including principal dwellings, agricultural land, other real estate and financial assets, they are advised to append the minimum set of questions using the individual as the unit of analysis to an existing household survey.
- If countries want to collect data on priority assets to calculate additional measures, such as the gender wealth gap, which requires that assets are valued asset by asset, they are advised to append a module using the asset as the unit of observation to an existing household survey.
- If countries wish to collect information on the full range of physical and financial assets, and on their characteristics, they are advised to implement a stand-alone, dedicated survey on asset ownership.

244. Ultimately, the determination of which data collection strategy to adopt should be considered in the light of the objectives of data collection, the resources available for the data collection, including the capacity to implement the required respondent selection protocols, and the overall work programme of the national statistical agency.

Key points:

- Data on individual-level asset ownership and control may be collected through, first, appending a minimum set of questions on ownership and rights to existing household survey; second, appending a module on asset ownership and rights, and also on asset characteristics, to existing household surveys; and, third, conducting a stand-alone survey. Each of these data collection strategies has its advantages and limitations, as summarized in the following table:

	Integrating: minimum set of questions on ownership and rights	**Appending: module on ownership and rights; asset characteristics**	**Stand-alone survey: ownership and rights; asset characteristics; within-household decision-making**
Data and indicators to be produced (based on objectives of data collection)	Gender asset gap	– Gender asset gap – Gender wealth gap – Intrahousehold analysis (if more than one respondent from each household)	– Gender asset gap – Gender wealth gap – Intrahousehold analysis
Asset roster needed?	No	Yes	Yes
Assets covered	Priority assets*	Priority assets	All relevant assets
Flexibility in sample design	Less flexible	Less flexible	Flexible
Cost	Less costly	Costly	More costly

3. Modes of data collection

245. This chapter briefly introduces modes of data collection typically used in household surveys, including face-to face interviews, telephone interviews, self-enumeration methods and computer-assisted interviewing. It then focuses on face-to-face interviews, including the advantages and limitations of using paper questionnaires versus computer-assisted personal interviewing (CAPI) questionnaires. The focus on face-to-face interviewing is attributable to three factors: first, it is the most common method; second, it meets key sampling and field operations requirements when implementing a survey on asset ownership from a gender perspective; and, third, it achieves a high degree of cooperation, resulting in higher response rates and data that are more complete and accurate. The discussion on the advantages and limitations of a paper questionnaire versus a CAPI approach summarizes a few general issues related to data quality and timeliness, and emphasizes aspects that

are most relevant for data collection on asset ownership, including how these methods deal with the complexity of using multiple rosters (of individuals and assets) in the household.

3.1. Basic modes of data collection

246. The modes of data collection used by national statistics offices vary across countries and across surveys within the same country. A household survey may employ one mode of data collection or a combination of two or more methods. The mode of data collection has implications in terms of logistical requirements for the survey operations, procedures related to sampling, number and qualifications of the enumerators, training needs, and, consequently, the cost of the survey. Accordingly, a decision on the mode of data collection should be made by countries early in the planning stage of the household survey, based on the objectives and scope of the survey, previous experience in data collection, available resources, characteristics of the population such as literacy rates and coverage of phone and internet services, and availability of sampling frames.

247. There are three basic modes of data collection used in household surveys that countries may consider: face-to-face interviews, telephone interviews, and self-administered questionnaires. Face-to-face interviews are the most common method, in particular in developing countries and in population groups with significant illiteracy rates. In this method, information is obtained from one or more household members and entered in the questionnaire by an enumerator (field interviewer) designated to visit that household and conduct an interview for the purpose of data collection. A high degree of cooperation from respondents is usually achieved, which translates into response rates that are typically higher than those of other methods.[106] Data obtained in face-to-face interviews may also be more complete and accurate because of the potential for interaction between the enumerator and the respondent, and the opportunity to clarify some of the questions and probe for more adequate answers. At the same time, face-to-face interviews require highly trained enumerators and are likely to be more costly than other data collection modes, primarily because of the need to travel to respondents' residences.

248. Telephone interviews are increasingly used, but require that telephone services have broad coverage. Surveys based on telephone interviewing are cheaper than face-to-face surveys and may be completed faster than surveys involving a self-administered questionnaire. Their main limitation is their incomplete coverage, resulting in a high proportion of non-responses. In addition, telephone interviewing may result in higher coverage error when the survey requires a listing of all household members with a subsequent random selection of a person in the household.[107]

249. Self-administered questionnaires are more often used in developed countries. In the self-enumeration method, questionnaires are distributed to households selected in the survey sample and collected by mail, email or posting on an Internet site. The major responsibility for entering the information in the questionnaire is given to a person in the household. The sample population must be literate and, in the case of web-based surveys, able to access the Internet through computers or handheld devices. Self-enumeration questionnaires need to be limited in length in order to avoid

[106] Robert Groves and others, *Survey Methodology*, 2nd ed. (Hoboken, New Jersey, John Wiley and Sons, 2009).
[107] Ibid.

confusion and reduce non-response. In addition, when using self-enumeration, there are no established methods of meeting key sampling and operational requirements for collecting the data on asset ownership presented in these *Guidelines*: methods range from randomly selecting one person in the household to interviewing multiple respondents.[108]

250. More recently, computer-assisted versions of these three methods have been developed and countries are increasingly using an electronic questionnaire. Computer-assisted interviewing may take the form of a computer-assisted personal interview (CAPI), a computer-assisted telephone interview (CATI), a computer-assisted self-interview (CASI) or an audio-computer-assisted self-interview (ACASI).[109]

251. There are several advantages to using technology in data collection. Data will be available much faster for analysis because the data are transferred to a central database immediately or soon after data collection in a household. Electronic forms reduce the amount of material (such as questionnaires) to be printed, distributed and returned, and reduce data entry costs and errors. In addition, the need to securely store completed paper questionnaires is eliminated, thus contributing to the privacy of respondents and the confidentiality of data. Instead, national offices need to ensure that online transmission is encrypted and secured for confidentiality purposes. Most important, electronic forms can improve data quality by implementing validation rules on individual questions, cross-validation between questions and automatic sequencing of questions (leading the operator to the next appropriate question). More options in pull-down lists may be implemented, thus capturing more detailed data. Finally, electronic questionnaires can also give enumerators access to material provided by a "help" function that can be used during interviews.

3.2. Implementing face-to-face surveys using paper questionnaires versus CAPI approaches

252. As mentioned above, face-to-face interviews, the most common method of data collection in surveys, have the advantages of achieving higher response rates and obtaining data that are more complete and accurate. This is particularly the case when the questionnaires used and the interviewer protocols are complex, as in the EDGE pilot studies. All seven EDGE pilot studies were based on face-to-face interviews, reflecting the typical mode of data collection used by the national statistics offices in those countries. Five countries used paper questionnaire, while two countries, South Africa and Uganda, collected data using the CAPI software developed by the World Bank known as Survey Solutions. Each of the two methods proved to have its own advantages and challenges in collecting data on asset ownership.

253. Paper-based data collection has been used for decades and many countries have accumulated extensive experience with this mode of data collection in terms of designing and testing questionnaires, building networks of skilled enumerators and trainers and implementing quality assurance procedures for field operations. Nevertheless, use of a paper questionnaire in collecting data on asset ownership involves certain specific challenges when complex survey instruments are used. One of these relates to the creation and use of multiple rosters, one roster for household members and

[108] These requirements are explained in detail in the sections of these guidelines on sampling design and field operations.

[109] Groves and others, *Survey Methodology*.

additional rosters for the different inventories of assets that are collected. For example, one of the requirements in constructing asset rosters is the need to list all asset items in a roster before starting to record specific information for each asset item. This technique prevents the underreporting of asset items due to respondent fatigue. While this aspect can be emphasized during their training, the enumerators may not necessarily follow the rule in the field and proceed to complete all the questions related to an asset before listing a second asset.

3.2.1. Advantages of using a CAPI questionnaire

254. Use of the CAPI approach can address some of the challenges that are common in household surveys or specific to the measurement of asset ownership. As with other computer-assisted modes of data collection, CAPI considerably reduces the time lag between data collection and data analysis because data entry and certain data validation procedures can be embedded in the process of recording information obtained from respondents. In addition, the CAPI questionnaire can be designed to facilitate better data quality through the way in which the rosters of assets are constructed and displayed. By design, the enumerator has to complete a roster of assets before recording further information for each asset. When collecting information regarding the joint owners of a particular asset, the name or identification of the asset in question remains displayed, so that the enumerators are reminded of the subject of observation. The roster of household members, including their names, is also displayed, reducing the potential for errors in recording the joint owners of that particular asset.

255. Better data quality is also made possible by embedding in the CAPI questionnaire design an algorithm for within-household respondent selection based on randomization procedures. When using a paper questionnaire, some enumerators may have difficulties in correctly using the method prescribed for randomly selecting a respondent (such as the Kish selection method or a selection method based on birth date), as observed in some of the EDGE pilot studies, with a negative impact on the quality of the estimates obtained in the survey.

256. In addition, the CAPI approach can capture a range of operational information that can be used to monitor operations and analyse responses. For example, although the duration of an interview may be recorded manually in a paper questionnaire, use of CAPI enables a detailed analysis of the time taken by the exercise, including the duration of the entire questionnaire and the time spent on each module and question. Lastly, use of CAPI is also conducive to the more efficient management of interviewers, including the updating of enumerators' assignments and checking of the completed questionnaires by the supervisors.

3.2.2. Costs and risks associated with using CAPI

257. At the same time, however, there are costs and risks associated with using CAPI instead of a paper questionnaire. When considering the CAPI method, the cost of providing all interviewers with

the electronic device[110] used to administer the questionnaire must be incorporated into the project budget. All interviewers must have their own tablet computer for data collection, which can represent a substantial initial investment. Less expensive tablets and notebooks are becoming widely available, however, enabling computer costs to be offset by savings derived from eliminating the printing, editing and transport of the questionnaires and the transfer of data from paper forms to an electronic database. These devices can also be reused in future surveys. Accordingly, use of CAPI is typically more expensive for the first one or two surveys, but subsequent surveys should be far less expensive. Additional costs when using CAPI may include the human resources and time needed for programming and additional CAPI training for interviewers, field supervisors and headquarters staff; cost of access to server hardware, software and server maintenance; and technical support.

258. Furthermore, more preparation time is needed before starting data collection in the field. The additional time to be allocated to field preparation activities should not be underestimated. It also should be emphasized that, when not enough time is allocated for the development and testing of the CAPI questionnaire, data quality may be severely compromised. Based on the EDGE pilot studies in South Africa and Uganda, additional time needs to be allocated to field preparations when using CAPI, to allow for CAPI design, CAPI testing, and training in CAPI-specific issues.

259. Nevertheless, when using CAPI, statistics offices are strongly encouraged to develop a paper questionnaire first. The paper questionnaire will serve several purposes. First, a draft questionnaire will need to be developed in parallel with the tabulation and data analysis plan and the objectives of the survey, to ensure consistency among all three elements. The paper questionnaire can be shared with the entire team and stakeholders, to ensure exchange of ideas and communication.

260. Second, the paper questionnaire will provide a full picture of the organization of the questions in modules and sections, the flow from one section to another and the sequence of questions within each section. It is important that the paper questionnaire contains all the questions and skip patterns needed. Having the entire logical design on paper will significantly facilitate implementation of the right sequence of questions and logical validations in CAPI. It is important that the paper questionnaire is implemented in CAPI only after it has been tested, finalized and approved. This will prevent going back and forth in numbering the questions and redoing validation checks in the CAPI questionnaire.

261. Third, the paper questionnaire is an invaluable tool to be used during the training of the enumerators. Trainers and trainees can easily refer to the paper questionnaire for a variety of purposes, including understanding the scope of data collection and how key concepts are operationalized, illustrating the sequencing of questions and emphasizing difficult questions that need to be probed

[110] The term “handheld electronic device” typically refers to a small device which provides computing and information storage along with retrieval capabilities. The typical handheld electronic device has a touch-screen interface for input and output, along with a miniature or a virtual keyboard. Most handheld electronic devices have an operating system and can run various types of application software. Most are equipped with capabilities for connection to cellular networks and for establishing connectivity to the Internet and other devices such as a personal computer and other mobile devices through mechanisms including Wi-Fi and the Bluetooth, Infrared Data Association (IRDA) and near field communication (NFC) technologies. The synchronization function of these devices allows the exchange of data with a personal computer or other devices. Handheld devices are available in a variety of forms, including personal digital assistants, tablet computers, smart phones and ultra-mobile personal computers.

further, without getting distracted by the use of technology. Fourth, the paper questionnaire can be made available by itself or can accompany the statistical publications and products developed after data collection.

262. The CAPI questionnaire will be used specifically for the following purposes: to test the flow of the questionnaire and validation rules in the field and the communication between the different components of the system involved in data transfer; to conduct the training of enumerators and supervisors on CAPI-specific issues; to conduct the field practice for enumerators and supervisors; and to collect the data once the fieldwork commences.

263. Countries with little experience in conducting surveys with the use of a handheld device may refer to box 5, which outlines a list of key issues to be considered while planning such surveys, and also to the forthcoming *United Nations Guidelines on Use of Electronic Data Collection Technologies in Censuses*,[111] for additional information.

Box 5

Key steps to consider when conducting a survey using a handheld device

Successful data collection exercises using handheld devices require careful planning and a number of elements need to be considered, including:

(a) Timetable: this should be adjusted to fit the needs of collecting data using a handheld device, particularly when the technology is being used for the first time. More time is needed to develop and test the application; to set up data transfer and processing systems; to procure, programme and test the handheld devices; to plan edit checks in the program; to design and test the electronic questionnaire; to test and debug the software; and to train field staff to ensure proficient use of the handheld devices;

(b) Budget: using an electronic questionnaire may save costs of printing paper questionnaires and data capture. The additional costs of using handheld devices should also be considered, however, including system design, software development, hardware acquisition, communications, system maintenance, technical support, human resource planning and the additional training required;

(c) Questionnaire development process: developing an electronic questionnaire is an iterative process. Both the technical and content elements must be developed, tested, revised and then tested again, repeating the cycle until the questionnaire works as intended. It is critical that the subject matter specialists work closely with the programmers throughout the process to ensure that there is clear communication and understanding regarding the purpose of the questionnaire content, layout and design, data validation, and other specifications;

(d) Infrastructure considerations such as availability of electricity and Internet access should be assessed before the electronic data collection process is launched. In the early planning stage, areas that lack electricity or Internet coverage or both should be identified. If a cellular or Wi-Fi network needs to be used to transmit data, the speed of the data transmission should be tested. Contingency plans should be developed for charging and backing up devices for sampling areas where electricity or Internet access is not available;

(e) System design, software development and hardware acquisition: it is necessary to take into consideration the minimum requirements for installing and operating the electronic questionnaire, in addition to any restrictions on the operating system on which it works;

(f) Data transfer from the field: if the data collection strategy requires transmitting data and monitoring fieldwork directly from the handheld devices in the field, then reliable cellular coverage is essential. If cellular network coverage is poor, mechanisms need to be developed for data transfer from the

[111] United Nations, *Guidelines on Use of Electronic Data Collection Technologies in Censuses* (forthcoming).

field to a central server by establishing multiple data collection stations with better internet connections;

(g) Data security: after completing each interview, data should be saved and secured until being transmitted to the central database. Data collection through handheld devices requires investments in data security and staff training to prevent unauthorized access and the loss of sensitive personal data. Security concerns include failures in hardware and software, human errors and accidents. Data transfer protocols from the field should be designed with specific security features, including encryption;

(h) Technical skills and capacity development: careful consideration should be given to the type of expertise needed to build, integrate and implement a handheld collection system. This requires evaluating the technical skills held by, and the distribution of responsibilities among, the staff of the national statistics office and developing training programmes or hiring external contractors.

Source: *Guidelines on Use of Electronic Data Collection Technologies in Censuses*.

Key points

- The modes of data collection typically used in household surveys include face-to face interviews, telephone interviews, self-enumeration methods, and computer-assisted interviewing.
- A decision on the mode of data collection should be made by countries early in the planning stage of the household survey, based on the objectives and scope of the survey, previous experience in data collection, available resources, characteristics of the population such as literacy rates and coverage of phone and internet services, and availability of sampling frames.
- When the questionnaire used and the interviewers' protocols are complex, as in the case of surveys on asset ownership from a gender perspective, face-to-face interviews are preferred.
- Face-to-face interviews on asset ownership can be carried out through the traditional paper questionnaire or through an electronic questionnaire conducted on a handheld electronic device (CAPI method).
- Countries interested in using electronic questionnaires should take into consideration a number of important elements during the planning stage of their household survey (see box 5 above).

4. Sample design

264. Sample design is a process that specifies how to select a sample of elements from a sampling frame and how to compute estimates using sample data. The goal is to provide estimates of certain properties in the population from which the sample was drawn and make statements about the uncertainty of those estimates, because a sample rather than a complete enumeration of all elements was selected.

265. Official statistical systems generally prefer that the elements in the sample be randomly selected with a non-zero probability, properly representing the target population, along with key subgroups of the target population. A survey collecting information on asset ownership, as with a survey on any topic, needs to satisfy survey objectives, take into account the mode of data collection

and the fieldwork constraints, be efficient in terms of cost and the precision of the survey estimates and be practically feasible in a country.

266. In most countries, no comprehensive population or household register is available. Hence a stratified multistage area sample design is used. The sample is selected in stages so that locations where interviews are conducted require less travel and the households are chosen efficiently. To ensure the representation of population subgroups in the sample, first stage sampling units, such as enumeration areas defined in a population census, are divided into mutually exclusive strata, based on information that is available for every element in the first stage frame. Clusters are then selected independently across the strata. Within selected clusters, households are selected from a list of households in the selected cluster created at the time of household selection or obtained from official sources, to keep costs at a manageable level. For surveys requiring the sampling of individuals, a last step of the sampling process involves the selection of one or more individuals from selected households, who are then interviewed.

267. In countries which maintain a comprehensive and up-to-date population register, the selection of individuals may be carried out either through systematic sampling from a purposively ordered list of people registered in the system or systematic sampling from a purposively ordered list of addresses followed by the selection of individuals from within the household. Even if a population or address register is available, individuals or addresses may be clustered into first stage sampling units, as in stratified multistage area sampling, and multiple individuals or addresses can be selected from chosen sampling units. If, on the other hand, a selection of individuals is carried out directly from a register, the ordering of people in the register should be carefully sorted by key characteristics available in the register that are correlated with the measurement of asset ownership. Systematic selection applied to such a sorted list is often called implicit stratification and is helpful in achieving smaller standard errors for virtually the same cost as systematic sampling from a randomly ordered or unsorted register. Information on relevant correlates is available below in the section on stratification.

268. As outlined earlier, countries measuring asset ownership at the individual level may choose to implement a stand-alone or dedicated survey, append a survey module to an existing household survey, or integrate a minimum set of questions into the questionnaire of an existing household survey. If a stand-alone survey is implemented, sample selection involves selecting sample households and selecting individuals from households. If a survey module is appended to an existing household survey, sample households would have already been selected and the sampling process for the purpose of collecting data on individual-level asset ownership only involves the selection of individuals from the sampled households.

269. Designing the sample for a survey requires comprehensive knowledge of the principles and techniques of sampling. Survey managers without such comprehensive knowledge must seek assistance from a specialized statistician early in the planning stage.

270. While a thorough review of the principles and techniques is beyond the scope of these *Guidelines*, this section will cover basic principles in sampling households and individuals, along with issues that need to be taken into consideration for household surveys collecting individual-level asset ownership data. This section will also cover, in detail, the selection of individuals within households.

4.1. Principles in sampling

271. This section outlines basic principles in sampling households and individuals, including, first, the target population; second, the sampling frame; third, the sample size; and, fourth, the structure of the sample. Whenever relevant, issues relevant to measuring asset ownership from a gender perspective are highlighted.

4.1.1. Target population

272. The target population refers to the population or universe that is the focus of the study. Depending on the objective of the survey, the target population could be person-based or entities other than persons, such as establishments for establishment surveys and agricultural holdings for agricultural surveys. Population-based surveys are typically used for surveys of persons, and often limit their focus to a specific target population such as people residing in the country, including those living in households or institutions, excluding population subgroups such as the homeless or those in the military.

273. More specific objectives of the survey could further limit the scope of the target population. For example, as this set of guidelines focuses on collecting information on asset ownership at the individual level, the target population will be limited to usual residents living in households who are above a certain age.[112] If the objective were to understand decision-making and power dynamics between husbands and wives or between unmarried partners, the target population would be persons who are either married or residing with a partner.

274. Other restrictions may arise depending on the survey focus. For example, the measurement of women's land ownership, as presented in the 2030 Agenda (under Sustainable Development Goal indicator 5.a.1 on the proportion of the total agricultural population with ownership or secure rights over agricultural land, by sex), could restrict the population to the agricultural population. This can be done by limiting data collection to individuals only in that specific population or the subpopulation may be treated as a subgroup that is of interest in a survey with a broader target population.[113]

4.1.2. Sampling frame

275. Sampling frames are lists or source materials used to select the sample. Ideally, the sampling frame is a perfect match to the target population. In a multistage sample design, the sampling frame is different for each stage. Surveys on asset ownership could, as noted above, require an area sampling frame composed of lists and maps of geographical units for the first stage of sampling, a list and a map of households for the second stage, and a list of individuals in selected households, for the final stage of sampling.

276. An area sampling frame consists of geographical units arranged hierarchically. An area frame may include provinces, districts, tracts, wards, and villages (rural areas) or blocks (urban areas). For census purposes, these administrative subdivisions are further divided into enumeration areas. The

[112] The guidelines recommend collecting data on asset ownership for individuals aged 18 and over. Countries may, however, use a different age cut-off as appropriate.

[113] See box 1 in the introduction to these guidelines for an overview of the 2030 Agenda and indicator 5.a.1.

enumeration area is typically the smallest geographical unit that is defined and delineated in a country, making it a natural and convenient choice for the primary sampling unit in household sample surveys. The use of census frame lists of households is not an uncommon practice in the field. If household census information is outdated, the frame can still be used, but a new or updated listing of households within the selected enumeration areas is advised.

277. For surveys designed to collect data on asset ownership at the individual level, the last stage sample frame includes a list of individuals in selected households. It is recommended that the individuals listed should be those aged 18 years or older. The list is constructed by asking one informant, such as the head of household or a knowledgeable household member, to identify individuals who are residents of the household and provide their birthdates so those who are aged 18 and older can be identified. Residency rules must be specified so the enumerators can determine, based on the information provided by the informant, whom to list as residents.

278. Two different residency rules are generally used. One is a de facto residence based on the place where the person resides at the time of the data collection, usually the night before data are collected. The other is a de jure residence based on the place where the person usually resides. De facto residence is more straightforward for the informant to report – anybody who spent the night prior to data collection in the household would be listed as a household member. Frames based on de facto residents generally fit better with surveys that take a relatively short period of time. If the enumeration is extended over a period of weeks or months, the risk of either overcounting or undercounting household members increases. For example, one person who sleeps at multiple locations might be included multiple times under a de facto rule, or this person may not be included at any location.

279. Usual residents of a household are defined as persons who have lived in the household for at least a specified period of time, or who intend to stay there for some time. The minimum duration of stay, either actual or intended, that is required to qualify as a usual resident of a household varies from country to country. The United Nations recommends applying a threshold of 12 months when considering place of usual residence.[114] Even with a very clear cut-off threshold, it is not always easy to identify the usual residents of a household. The informant might understand the question differently from the survey's intention, in particular for certain groups of people whose residence is difficult to define. For example, people who maintain multiple residences and students who attend a boarding school and stay away from the family while maintaining a close tie with the family are types of individuals who are either missed or overrepresented under a de jure rule.[115] Whichever residency rule is used, clear and specific instruction should be provided to enumerators and respondents about the manner in which different types of resident groups should be treated.

280. Another important consideration in deciding who to include as resident of a household is to maintain comparability with population censuses and other household surveys conducted in the country. It is usually plausible to keep the same residence definition throughout all data collections,

[114] *Principles and Recommendations for Population and Housing Censuses*, Rev. 3.

[115] A more complete list of these population groups is available in *Principles and Recommendations for Population and Housing Censuses*, Rev. 3, para. 4.43.

unless there is a specific reason for using a criterion for a given survey that differs from the criterion used in the rest of the surveys conducted within the same country.

281. Those designing surveys on individual-level asset ownership should also consider errors in frames and remedies to address them during data collection or estimation. For example, non-coverage error arises when a sampling frame fails to cover all of the target population. Non-coverage can occur at the level of the primary sampling unit – the household – and at the individual level. For developing and transition countries, non-coverage is a more serious problem at the household and individual levels.[116] Listing of households within selected primary sampling units immediately before data collection is helpful in reducing household-level frame non-coverage. For individual-level non-coverage, clear guidance to both the enumerator and respondents on whom to include in the household roster is crucial.

282. An additional frame issue concerns blank elements in the frame, when some listings in the frame contain no elements of the target population. In the case of surveys on asset ownership from a gender perspective, households headed by children or those younger than the target age range would fall into this category.[117] This would not be discovered until after the household was visited and a roster of eligible individuals created. These households should be removed from the sample once individuals are listed, unless a country has a policy interest in collecting data on asset ownership for younger age cohorts.

283. The clustering of target population elements within the frame is another frame problem to consider. Clustering arises when a single listing in the sampling frame actually consists of multiple elements in the target population. For example, in the EDGE pilot survey in South Africa, in some instances multiple households or families appeared in one dwelling unit. In these cases, all households and families in the selected dwelling unit were included in the sample.

284. One final frame problem that arises is duplicate listings. This problem is less likely to occur in household surveys requiring personal visits than in telephone sampling frames in which one person has multiple phone numbers. Yet, it is still possible in household surveys that a person might be included in more than one household during the data collection. This further highlights the importance of following strict guidelines on listing household members under de jure rules, as mentioned earlier.

285. Countries could also use a population register as a sampling frame. In this case, however, there might be over- or undercoverage of the target population, even in countries with very well-maintained population registers.

286. There is another issue associated with the use of population registers as frames in respect of the information needed for surveys on asset ownership from a gender perspective. Individual-level

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[116] Ibrahim Yansaneh, "Overview of sample design issues for household surveys in developing and transition countries", in *Household Sample Surveys in Developing and Transition Countries*, Studies in Methods, Series F, No. 96 (United Nations publication, Sales No. E.05.XVII.6).

[117] Around 1 per cent of the households in the KwaZulu-Natal province of South Africa were headed by children under the age of 18, according to the 2011 South African census. See Statistics South Africa, *Census 2011 Municipal Report – KwaZulu-Natal* (Pretoria, 2012).

registries may not include data about the usual private household status for the individual, also referred to as "housekeeping households" data.[118] Population registers do not group individuals by private household, more typically instead providing information only about "dwelling households". Dwelling households include all persons living in the same housing unit as members of the same household. Dwelling households could therefore include one or more housekeeping households. For asset ownership dynamics within the household, the concept of "dwelling households" is problematic as respondents selected from the same dwelling household but different housekeeping households do not provide meaningful information on intrahousehold ownership dynamics. Lastly, another key piece of information that is usually missing from population registers is the status of partners living together, as is the case when only legal marital status is recorded in the system.

4.1.3. Sample size determination

287. Factors that must be considered when determining the appropriate sample size for a survey on asset ownership from a gender perspective are similar to those that must be considered for any statistical sample survey. They include the following:

- Level of precision required for the key estimates to be obtained from the survey (of which there are usually several)
- Number of planned subgroups of the population for which estimates will be produced – for example, estimates may be needed separately for urban and rural areas, geographical regions and population subgroups, such as age groups and minority groups
- Population variance, which requires prior knowledge about the approximate prevalence in the population of the key characteristics to be measured, usually obtained from past data or data from another country
- The extent of anticipated levels of non-response among households or individuals

288. The level of precision is a major consideration when determining the size of the survey sample. As a general rule, the more precise or reliable the survey estimates need to be, the larger the sample. It must be noted that, in estimating precision, sampling error needs to be estimated in a manner that takes into account the sample design that is used. Clusters in selection increase sampling variance, while stratification may reduce sampling variance. In a typical multi-stage cluster survey, using clusters would require a larger sample size than in surveys that use simple random sampling in order to achieve the same precision in the cluster sample as obtained in a simple random selection. The size of the cluster sample depends on how closely associated or alike cluster elements are, relative to elements in other clusters. Data on intracluster association or correlation, and its impact on sample size, is discussed later when the use of clusters is examined.

289. The need for estimates for subgroups of the population increases the sample size required as well. The subgroups are generally analytical subgroups for which equally reliable data are wanted. For surveys on measuring ownership from a gender perspective, the two essential subgroups are women

[118] United Nations, *Conference of European Statisticians Recommendations for the 2020 Censuses of Population and Housing* (Geneva, United Nations Economic Commission for Europe, 2015).

and men. Another subgroup that is relevant for the ownership of agricultural land, agricultural equipment and livestock is the agricultural population (see for example, box 1 in the introduction to these *Guidelines*, on Sustainable Development Goal indicator 5.a.1).[119] Separate estimates by region would also be relevant for countries that have different marital regimes and land tenure systems in different regions of the country. While it is desirable to have data for many subgroups, the number of subgroups has to be carefully considered, as an impracticably large sample size may be required to produce reliable estimates for a large number of subpopulations.[120]

290. The prevalence of the key variables of interest also plays an important role in calculating the sample size for the survey. When a proportion is to be estimated, such as the proportion of women owning assets, and if prior knowledge on ownership prevalence among women and men is available, it is possible to calculate the sample size required for the survey to reach the required precision. Measuring a rare or very low prevalence event requires a much larger sample than an event of medium prevalence. For example, the ownership of dwellings is usually quite common and measuring it would not require as large a sample as measuring the prevalence of owning agricultural land, which can vary greatly from one country to another. In Uganda some 70 per cent[121] of the population are employed in the agricultural sector, and the reported ownership of agricultural land is around 60 per cent for men and 30 per cent for women. In Mongolia, on the other hand, while around 19 per cent of men living in rural areas report exclusive or joint ownership of agricultural land, only 5 per cent of rural women report owning this asset.[122] A larger sample would thus be needed to produce a reliable estimate of the prevalence of owning agricultural land in Mongolia than in Uganda.

291. If women's ownership of assets is significantly lower than men's, oversampling women within households is one strategy that may be used to increase sample size. Ultimately, determining sample sizes is a process that must balance the overall budget and the objectives of the survey. If the prevalence of owning a particular asset is extremely low, it might be in the interests of the survey planners, in consultation with policymakers and other stakeholders, to reconsider inclusion of this asset.

292. On the other hand, the expected prevalence of individual-level asset ownership may not be known in advance, especially if it is the first time that a survey on this topic is being conducted in a country. In such cases, the national statistics office should first assess whether any prior surveys have collected data on asset ownership at the household level. From such data, an initial estimate of the prevalence can be obtained for sample size calculation. If this is not possible, a rough estimate may be

[119] There is no international agreement on the definition of agricultural population. The most recent proposal by FAO defining agricultural population for measuring Sustainable Development Goal indicator 5.a.1 may be seen in box 1 in the introduction to these guidelines.

[120] *Designing Household Survey Samples: Practical Guidelines*, Studies in Methods, Series F, No. 98 (United Nations publication, Sales No. E.06.XVII.13).

[121] International Labour Organization, Employment by sector – ILO modelled estimates, May 2018. Available at www.ilo.org/ilostat/faces/wcnav_defaultSelection?_afrLoop=704653335497001&_afrWindowMode=0&_afrWindowId=ww2zuc2wi_1#!%40%40%3F_afrWindowId%3Dww2zuc2wi_1%26_afrLoop%3D704653335497001%26_afrWindowMode%3D0%26_adf.ctrl-state%3Dww2zuc2wi_74.

[122] Findings from the EDGE pilot study on measuring asset ownership from a gender perspective in Mongolia.

calculated on the basis of household surveys conducted in other countries with similar cultural contexts and property rights.

293. A final factor to consider when calculating sample size is anticipated non-response. For surveys on individual-level asset ownership, non-response needs to be taken into account at both the household and the individual levels. Refusals, non-contacts and break-offs by a household are considered non-response at the household level. If a household questionnaire is completed but not all selected respondents are interviewed, then there is non-response at the individual level. Part four of these *Guidelines* discusses how to handle non-response at both the household and the individual level. Non-response is likely to vary by country and should be calculated on the basis of national survey experience.

294. One important consideration for surveys on individual-level asset ownership is the need to ensure that households in the entire spectrum of wealth are represented in the sample. It is well known that wealthy households tend to have lower response rates than other households and, without proper representation of wealthy households, the overall estimates of asset ownership might be skewed downward. A higher non-response rate might also occur in households that have very little wealth and hence low ownership of assets. Sample selection should take this into consideration by oversampling those households at both ends of the spectrum of wealth, which tend to have a high non-response rate in household surveys.

4.1.4. Structure of the sample

295. The structure of the sample for a survey of asset ownership at the individual level will be broadly similar to that of other national household surveys within a country for sample selection up to the household level. In most countries, a stratified multi-stage area sample design could be used. In a stratified multi-stage area sample design, sampling efficiencies are achieved by techniques such as stratification and sampling in stages. Each of these techniques figures prominently in national household surveys that employ the traditional census frame or other frames based on household or individual listings. The following discussion will briefly cover the basic principal of each technique. For more details, readers should refer to standard textbooks on sampling or a sampling specialist in their country.

4.1.4.1. Stratification

296. Stratification improves efficiency by reducing sampling variances. It also occurs when separate estimates for each stratum are required and it can be applied to any stage of sampling. It divides the units to be sampled into mutually exclusive and collectively exhaustive subgroups or strata based on auxiliary information that is known about the full population. Sample elements are selected from each stratum independently.

297. One of the purposes of stratification is to reduce sampling variances and gain efficiency. The gains in efficiency are guaranteed when strata sample sizes are proportional to the strata population size, the strata formed are as different as possible from each other and the units within the same stratum are as homogeneous as possible in respect of the characteristics of interest in the survey. For surveys on asset ownership from a gender perspective, regions that have different marital regimes and

land tenures should be placed in different strata. Dividing populations into urban and rural residence is also preferred, since the ownership of agricultural land, agricultural equipment and livestock would be very different for people living in urban and rural areas.

298. Another benefit of stratification is to guarantee the representation of important domains and special subpopulations. The level of asset ownership at the individual level is closely linked to the level of household wealth. It is therefore important to reach respondents representing an entire spectrum of wealth levels. As mentioned earlier, in practice it is often difficult to reach the two extremes of the wealth distribution, the extremely poor and the extremely wealthy.

4.1.4.2. Cluster sampling

299. Cluster sampling is a random sampling technique whereby the study population is divided into clusters and a sample of those clusters is chosen. These clusters are often naturally occurring units or groups, such as neighbourhoods, villages, enumeration areas or city blocks. The final sample of elements is then drawn from the selected clusters.

300. Sometimes a household can also be considered a cluster when more than one person from each household is selected. In practice, however, households are typically selected within enumeration areas. Then the cluster sample becomes multi-stage, with a stage for the selection of enumeration areas, a stage for the selection of households within selected enumeration areas and a stage for selection of persons from selected households.

301. In household surveys, the sampling design will invariably and necessarily use some form of cluster sampling if survey costs are to be contained.[123] Cluster sampling is particularly cost-effective in face-to-face interview situations with widely dispersed populations, where the clustering of interviews in specific geographic areas can significantly reduce travel costs and, hence, the overall costs of the survey. The disadvantage of cluster sampling is that it decreases the reliability of the estimates, because people living in the same cluster tend to be relatively alike in the characteristics under study. Correlation among units within the same cluster inflates the variance – and therefore lowers the precision – of the survey estimates.

302. The effects of clustering are measured by the design effect, which expresses how much larger the sampling variance for the cluster sample is, compared to that for a simple random sample of the same size. The design effect is generated by two factors, the intracluster homogeneity measurement (roh) and the size of the cluster. The higher the intracluster homogeneity and the larger the size of each cluster, the higher the design effect and the lower the precision of estimates. The intracluster homogeneity varies by the variables of interest. For example, studies across samples in different countries show that intracluster homogeneity is higher for socioeconomic characteristics than for variables on attitudes and behaviour.[124]

303. Before designing a survey, it is advised to use the intracluster rate of homogeneity – or roh, to take the abbreviation coined by Leslie Kish[125] – as the value to calculate the optimal cluster size. The

[123] United Nations, *Designing Household Survey Samples: Practical Guidelines*.

[124] Groves and others, *Survey methodology*.

[125] Leslie Kish, *Survey Sampling* (New York, John Wiley and Sons, 1965).

roh can be based on information obtained from prior national household surveys that investigate similar topics. If countries are conducting surveys on the topic of asset ownership for the first time, it is possible to use the roh value from another country for the initial calculation. Particular caution must, however, be exercised in borrowing a value for roh as it is more transferable for some variables of interest, such as demographic variables, than others, such as variables on socioeconomic conditions. For example, estimates of roh for a given variable in the demographic and health surveys are fairly transferable across countries if sample designs are comparable. But when the variable measures socioeconomic conditions such as household consumption and ownership of household durables, rohs tend to vary across countries.[126]

304. A standard survey sample design uses criteria that lead to the design effect being kept as low as possible, given the cost constraints. An optimal survey sample design will use clusters with a large number of units from which selections can be taken, and will sample a small number of units, as diverse as possible, from each cluster. For example, if at the last stage of selection of households there is a choice between selecting a geographically dispersed sample or groups of households that are closer together, the geographically dispersed sample is preferred, even though it may cost more to collect data from widespread households.

4.2. Selecting individuals from households

305. As discussed in part one, in the conceptual framework on measuring asset ownership from a gender perspective, it is recommended that information on individual-level asset ownership be self-reported rather than reported by proxy. The selection of respondents within households therefore needs to be dealt with carefully so that the individual respondents are selected with a known probability and representative estimates can be derived.

306. Depending on the objectives of the data collection exercise, the flexibility to follow specific field protocols and the absorption of related costs, within the household selection of respondents for asset ownership studies, can be achieved by, first, selecting one person at random from all adult household members or, second, selecting more than one adult household member for interview. The second approach covers a variety of options, ranging from interviewing two adult members to interviewing all adult members.

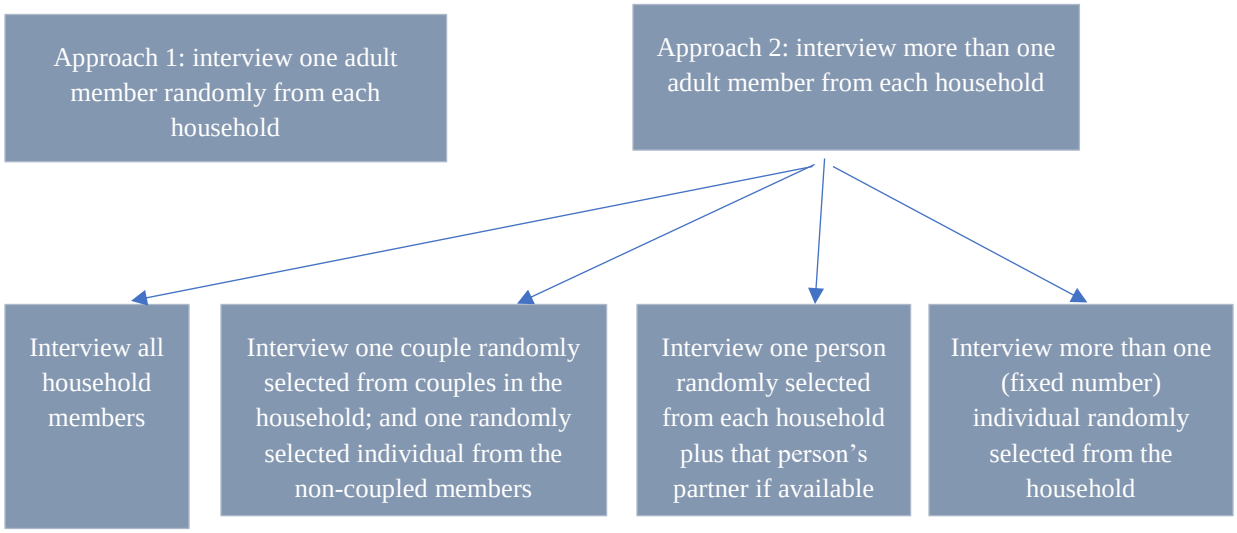
307. Four different options are proposed under the second approach (see figure 3), where more than one adult member is interviewed within the same household. In the first option, all household members are interviewed, regardless of the household size. To keep the number of interviews to a maximum of three within each household, in the second option one couple is selected at random from couples within the sampled households and then a randomly selected individual is added from among the adult household members who do not have a spouse or partner. In option three, one respondent is selected at random from the household and, if that person has a spouse or a partner, he or she will also be interviewed. In the fourth option, a fixed number of respondents are selected randomly from each household. This option can be used when EDGE questions are attached to a small household survey.

[126] Martin Vaessen and others, "The demographic and health surveys", *Household Sample Surveys in Developing and Transition Countries*; Hans Petterson and Pedro Luis do Nascimento Silva, "Analysis of design effects for surveys in developing countries", *Household Sample Surveys in Developing and Transition Countries*.

Interviewing more than one person in the household will increase the sample size and improve the precision of the estimates obtained. Other considerations should also be kept in mind, however, when deciding whom to interview at the household level, as explained below.

Figure 3

Approaches in selecting individuals from households



308. Making decisions on how respondents should be selected within households depend on a number of factors. The most important of these is the objective of the data collection exercise. For the purposes of deriving nationally representative indicators of women's and men's asset ownership, including Sustainable Development Goal indicators 5.a.1 (a) and (b) (see box 1 in the introduction to these *Guidelines*), and also of the gender wealth gap, either one or multiple adult household members from each household could be selected for interview. If the objective is to understand how assets are allocated and owned within households, in other words, to conduct an intrahousehold analysis of asset ownership, two or more adult household members must be interviewed. If the focus is asset allocation among couples or partners within the household, then a sufficient number of couples should be interviewed when designing individual-level sample selection.

309. Other factors to consider when deciding whom to interview include operational challenges and the cost of data collection. The following subsections discuss the advantages and trade-offs of different within-household selection protocols in relation to these two aspects. The discussion will also reflect how operational challenges and cost vary with different data collection strategies, namely, whether a stand-alone survey on asset ownership is conducted or asset ownership modules or questions are appended to an existing survey.

4.2.1. Operational challenges

310. Operational challenges for the different within-household individual selection protocols revolve around three aspects. The first relates to the random selection of individuals. The second is associated with challenges in field operations when multiple persons are to be interviewed separately and independently to avoid contamination. The last aspect pertains to challenges in dealing with reporting discrepancies at the data analysis stage when multiple household members are interviewed.

4.2.1.1. Random selection procedure within the household

311. The challenge of randomly selecting individuals to interview exists mainly for surveys where face-to-face or telephone data collection is carried out using paper-and-pencil methods. Before selecting respondents randomly within the household, a household roster or list must be completed. Then a random selection process will be carried out by the enumerators, ideally using the Kish selection method (as set out in box 6 below).[127]

Box 6

Kish method for random selection of household members

For interviewers who are not trained statisticians, random selection under field conditions is not at all easy to implement. In the Kish method of "objective respondent selection",[128] the selection of a single person from each household is made before the interviewer arrives at the household. Two problems must be overcome, though, to ensure that the process is ultimately objective and random.

First, households may be of different sizes, that is, may have different numbers of eligible persons within them. For instance, a household may include only one adult, or it may have two, three, four or more. At the doorstep or during a telephone interview, where interviewers have a paper form to guide them, they are told on that form which person to select. If there is only one eligible person, the interviewer is told to attempt an interview with that person. But if there are two, the interviewer is told to list the persons, and then interview either the first listed person, or the second. Whether the selected person is the first or second is determined by a central office and printed on the form. Similarly, if there are three eligible persons, the central office determines in advance whether the first, second or third listed person is to be interviewed.

To implement the Kish procedure, the form must have a table which tells the interviewer first to list the number of eligible persons and then to count the total number. For each possible number (one, two, three, four and so on), the form tells the interviewer which person on the person list to interview.

The Kish procedure introduces an additional requirement in the process. To avoid introducing subjective procedures into the selection, it does not allow interviewers to determine the order of the list of eligible persons. Instead, it requires them to list persons in a particular order. For example, females may be listed first from youngest to oldest. Since the order in which persons are listed is objective (that is, not

[127] Countries are advised to use the random selection method that has been adopted in previous surveys.

[128] Leslie Kish, "A procedure for objective respondent selection within the household," *Journal of the American Statistical Association*, vol. 44, No. 247 (1949), pp. 380–387.

determined by the interviewer), the selected person to be interviewed would also have been determined objectively.

There is one other feature of the Kish procedure that was designed to help organizations handle the problem of selecting respondents in a central office and then printing the selection on a form that is assigned to each household. There could be a very large number of possible selection tables that are used. For example, suppose that in a country no more than six eligible persons per household are expected. There would then need to be a large number of selection tables, any one of which would be assigned to a given household. One selection table could tell the interviewer to select the only person listed if only one is in the household at the moment of the interview, to select the first if two were in the household, the first if three, the first if four, the first if five, and the first if six. A second possible table would specify selecting the only person listed if one is listed, the first if two were in the household, the first if three, the first if four, the first if five, but the second if six were listed. A third possible table would specify selecting the only person listed if only one is in the household, the first if two were in the household, the first if three, the first if four, the first if five, but the third if six were listed. Altogether there would be 6 x 5 x 4 x 3 x 2 = 720 possible tables. The central office would then assign one of the 720 tables to the first household in the sample, and another at random to the second, and so on.

In practical terms, however, keeping track of 720 tables and making selections for each household in advance would be difficult in a paper-and-pencil operation. It means that there would have to be 720 forms informing the interviewer which person to select for each household, and these would have to be printed household by household. That is, each of the 720 forms would be assigned to one 720th of the households. This process, though, would dramatically drive up the cost of the process of printing forms.

Kish proposed one further modification of the process to reduce printing costs in paper-and-pencil operations. He devised a procedure whereby, for up to six possible persons in a household, only eight forms would be needed. He found that, if a subset of the 720 possible forms were assigned to households in the right proportions, the right selection process was achieved. That is, with just eight forms, he managed to find a subset that gave an equal chance to each of the two persons in a two eligible person household, and an equal chance to each of the three persons in a three eligible person household, and so on.

In order to do this, he determined that the eight forms would need to be distributed not to one-eighth of the households each, as in the 720-form case, but using a varying fraction. Two of the eight forms were assigned to one third of the households, two to one fourth, two to one sixth, and two to one twelfth. When properly balanced, the end result was that each person in any household with one, two, three, four and six eligible persons had the same chance of being selected. There was a slight difference in selection chances for persons in five person households, but the difference in chances across the five persons was not considered to be large enough to be of concern.

312. Training the enumerators in use of the Kish intrahousehold selection method is no easy task. Sufficient training and exercises should be provided to enumerators to ensure that the procedure is fully adopted by the enumerators in the field.

313. The challenge of using the Kish method, however, could be alleviated by using computer-assisted interviewing techniques, such as CAPI (for further discussion of CAPI, see section 5 of part three, below). In computer-assisted data collection, the eligible persons in the household can be listed in any order, and the computer can be programmed to select the person to be interviewed using a

random process. The procedure is then objective – list order does not matter and the interviewer will not know who is to be interviewed until after the list is entered and the computer program makes the selection.

314. The EDGE pilot countries adopted different methods for the within-household random selection of respondents, following the usual practice in the respective countries. The Kish method was used in Maldives and South Africa for the selection of one respondent from each household and in Uganda for the selection of non-principal couple respondents. Both South Africa and Uganda implemented the method through programs embedded in the CAPI platform. In Maldives, enumerators were asked to list all household members ordered by sex and age and a respondent was selected randomly following a randomly assigned Kish table for intrahousehold selection. In Georgia, Mongolia and the Philippines, the nearest birthday method was used for the selection of the non-principal couple respondent.[129]

315. Either the Kish procedure or the computer-assisted random selection procedure would yield approximately the same number of women and men in the sample, before non-response occurs. This sex balance is extremely important for the methodology proposed in the *Guidelines*. In some countries, however, asset ownership among women may occur much less frequently than among men. Having the same number of women and men in the sample can be problematic for the estimation of key measures of asset ownership in countries with large differences between women's and men's asset ownership: both the asset ownership prevalence and the estimates on asset value for women will tend to have lower precision than that for men.

316. If there is prior information on the prevalence of ownership indicating that women own fewer assets, then national statistical agencies may choose to oversample women to improve the precision of estimates of both women's ownership of assets and the value of those assets.[130]

317. Using oversampling by sex as a means of selecting persons within households will also be easier with computer-assisted systems. Sampling rates can be set by sex in the selection program, to give women a higher chance of selection than men. It is also possible in the Kish selection method to select women at a higher rate than men, but this is more difficult than with computer-assisted selection.

4.2.1.2. Avoiding contamination when interviewing more than one adult member within the household

318. The operational challenge of interviewing more than one adult member in the household is related to the organization of the fieldwork. As discussed in part one, when multiple interviews are to be conducted within the same household, field protocols should ensure, first, that respondents are interviewed alone – in other words, that no other adult member is present during the interview, which

[129] For a comparison of different methods of within-household respondent selection, see Cecilie Gaziano, "Comparative analysis of within-household respondent selection techniques", *Public Opinion Quarterly*, vol. 69, No. 1 (spring 2005), pp. 124–157.

[130] Oversampling can be accomplished by assigning a higher probability of selection for women than for men when selecting one person per household. Such selection is more straightforward with the use of a computer-assisted random selection procedure. It cannot be accomplished when all members of the household are selected, because the sex balance of the sample is determined by the sex distribution within the population.

eliminates the impact of the presence of another adult member on the respondent's answers to the questionnaire; and, second, that respondents within the same household should not be given the chance to discuss the content of the interview before their interviews are completed.

319. These two requirements are not easy to implement in the field if there is only one enumerator present in the household, unless there are only two persons to be interviewed in the household. In this case, the enumerator may conduct the two interviews independently and consecutively. If, however, there are more than two respondents in the household, two enumerators would be needed, to ensure that the two above requirements are satisfied. For example, if there are two enumerators and four respondents available at the same time, two respondents can be interviewed first, followed by the remaining two respondents when the first round of interviews is completed. This would preclude any discussion among respondents before their interviews are completed.

320. Additional complications are caused by the likelihood that not all respondents will be available to be interviewed consecutively. In the field, a certain number of days are usually allocated for each enumeration area. Decisions then need to be made as to whether interviews for some households are to be completed in multiple visits, acknowledging that there might be some contamination in the responses as discussions among respondents before all interviews cannot be avoided.

321. In principal, when more than one household member is interviewed, the members should be interviewed simultaneously to avoid the potential contamination of responses that may occur when household members exchange information with one another about the survey questionnaire. At the same time, while a contamination effect has long been surmised for opinion-based or attitudinal surveys, it is difficult to quantify this source of measurement error. In addition, in practice, as demonstrated by the EDGE pilots, simultaneous interviewing is difficult to achieve (see box 7 below, for further details on this issue).

Box 7

Challenges in conducting simultaneous interviews

In the Uganda pilot, up to four adult members[131] were interviewed in treatment arms 4 and 5[132] and the field protocol required that the respondents be interviewed alone and the interviews be carried out simultaneously. Non-simultaneous interviews were allowed only when the enumerator had confirmed that not all eligible household members would be available for simultaneous interviews within the allocated time for enumeration in the enumeration area. A similar approach was adopted for the pilots in Georgia, Mongolia and the Philippines, where three adult members per household were interviewed.

In all four pilots a team of enumerators was dispatched to the field, including an experienced supervisor who oversaw the assignment of enumerators to different households in the enumeration area. Multiple visits were made to households, so that all eligible members could be interviewed simultaneously. Despite these efforts, it proved difficult to achieve simultaneity in all the EDGE pilots. In most cases, it was not

[131] The principal couple was selected with a probability of 1 and two additional persons were selected randomly from the remaining adult household members.

[132] See box 3 in part one for more information about treatment arms 4 and 5 in the Uganda pilot survey.

possible to achieve simultaneity for all households in the sample. In addition, as shown in the following table, the more household members there were to interview simultaneously, the less likely simultaneity was achieved. For example, in the Georgia pilot, among all two-adult households that were interviewed, simultaneity was achieved in 71 per cent of the households. The percentage was lower for households where three adult members were interviewed (57 per cent). Similarly, for the EDGE pilots in Mongolia, the Philippines and Uganda, the percentage of two-adult households that achieved simultaneous interviews ranged between 38 and 57 per cent. For three-adult households, the percentage of households with simultaneous interviews was lower, in the range of 20 to 30 per cent. In Uganda, where households were sampled to interview four adult members, enumerators were able to conduct simultaneous interviews in only 8 per cent of selected households.

Percentage of households in which all eligible respondents were interviewed, interviewed simultaneously, among all households that were interviewed, by size of household

	Georgia	Mongolia	Philippines	Uganda	
				Arm 4	Arm 5
Number of two-adult households interviewed	926	1 285	622	237	248
Proportion of all eligible adults interviewed	84%	74%	89%	58%	54%
Proportion of all eligible adults interviewed simultaneously	71%	42%	57%	47%	38%
Number of three-adult households interviewed	1 399	1 341	790	54	58
Proportion of all eligible adults interviewed	75%	39%	76%	37%	40%
Proportion of all eligible adults interviewed simultaneously	57%	27%	32%	22%	26%
Number of four and more-adult households interviewed				60	60
Proportion of all eligible adults interviewed	N/A (a maximum of three adult members were interviewed in these countries)			23%	25%
Proportion of all eligible adults interviewed simultaneously				8%	8%

An additional challenge encountered by the EDGE pilot studies when testing simultaneous interviewing was a lack of space in the household when multiple interviews needed to be conducted. This was a problem

in particular in urban areas, where it was often difficult to find separate rooms where interviews would not interfere with each other.

322. Given the difficulties in achieving simultaneous interviews, along with the higher costs associated with assigning additional enumerators per household to conduct simultaneous interviews, these *Guidelines* do not include simultaneous interviewing among the recommended field protocols. Countries should, however, be aware of the potential bias introduced as a result of forfeiting simultaneous multiple interviews in the same household. On the other hand, from the experience of EDGE pilot surveys, independent interviews seem to be feasible. In Uganda and the KwaZulu-Natal province of South Africa, the proportion of individual interviews conducted alone was very high across all modules, at 90 per cent or above, for both women and men.[133] In the EDGE pilots in Georgia, Mongolia and Cavite province, Philippines, the corresponding proportions were 92, 96 and 95 per cent, respectively. The number of callbacks required to achieve such a high level of independent interviews varies among those countries, ranging from an average of less than 1 in Georgia and Cavite province, Philippines, to an average of 2 in KwaZulu-Natal province, South Africa.

323. Despite these high success rates, qualitative assessments of the fieldwork in the pilot countries revealed cases in which household members, usually male, interrupted interviews, demanding to listen and answering some of the questions themselves or amending the answers provided by female respondents to what they consider to be correct answers. Thus enumerators should be carefully trained in how they can tactfully handle such scenarios, so as to ensure that respondents can indeed be interviewed alone.

4.2.1.3. Reporting discrepancies within households

324. Interviewing multiple persons within households also poses challenges at the analysis stage. Reporting discrepancies exist when more than one person is interviewed within the same household. For example, in the Philippines pilot survey, the spouses or partners of 26 per cent of male respondents who claimed exclusive ownership of the dwelling also claimed ownership. Similarly, for 37 per cent of female respondents in Mongolia who claimed exclusively to own their dwelling, their partners also claimed ownership (table 3).

Table 3

Overlap between couples on exclusive dwelling ownership status, by sex of respondent, Mongolia and Cavite province, Philippines (as percentages)

	Respondent's self-reported status			
	Mongolia		Cavite province, Philippines	
	Exclusive owner		Exclusive owner	
Respondent spouse's self-reported status	Men	Women	Men	Women
Owner (exclusive or joint)	16%	37%	26%	23%

[133] Talip Kilic and Heather Moylan, *Methodological Experiment on Measuring Asset Ownership from a Gender Perspective (MEXA): Technical Report* (Washington, D.C., World Bank, 2016).

Exclusive owner	2%	13%	0%	1%
Joint owner	14%	23%	26%	22%
Not owner	84%	64%	74%	77%
Number of observations	874	122	120	40

Source: EDGE pilot, Mongolia and the Philippines, self-reported data.

325. While discrepancies among respondents are an interesting area of analysis in their own right, the discrepancies must be reconciled when deriving individual-level indicators on forms of ownership (exclusive or joint) and the gender wealth gap and asset-based indicators.[134] Given that there is usually no external source to verify the true owner of a given asset and the associated rights and that certain dimensions of the bundle of ownership rights are based on self-perception, reconciliation of reporting discrepancies has proved difficult. Examples of different reconciliation methods may be found in part four of these *Guidelines*, below.

4.2.1.4. Implications of operational challenges on the within-household individual selection

326. Operational challenges discussed above have implications as to who should be interviewed within households. The difficulty of implementing random selection procedures in countries suggests that countries might wish to avoid the random selection procedure when the interview is carried out through the paper-and-pencil approach. This in turn means that all adult household members would be selected for interview to avoid the random selection. Within-household selection is much more flexible when the interview is conducted through the CAPI approach, as the random selection can be integrated in the CAPI program.

327. If the sample design requires that women have a higher selection probability than men because women have lower prevalence of owning a key asset than men, then interviewing all adult household members should be avoided as the selection probability of women and men is predefined by the sex structure of the population. If a certain number of adult members are randomly selected from the household, it is possible to integrate the unequal selection probability by sex into the CAPI program. The use of paper-and-pencil approach is discouraged, however, as it will be too complicated to implement the unequal individual selection probability within the household using this mode of data collection.

328. To avoid contamination as far as possible, the number of respondents within households should be minimized, under the required precision level for key estimates. This principle would also help to offset the challenge of reconciling discrepancies in the post-data collection phase. Of course, the ultimate decision on how many people to interview within household should always be guided by the objective of the data collection exercise, overall available budget and the required estimates precision.

[134] More details on generating weights for asset-level analysis may be found in part four, section 1.4.

4.2.2. Cost considerations

329. A comparison of the costs of different selection protocols can be carried out through the following proposed cost function:[135]

$$Total\ cost = aC_a + abC_b + nc$$

where *a* is the number of clusters, C_a is the cost per cluster, *b* is the average number of households within each cluster and C_b is the cost associated with household-level activities, such as contacting households for interviews and completing the household questionnaire. The total number of individual respondents in a given household is denoted by *n* and *c* is the average cost per individual interview. In the proposed sampling designs, *n* varies from 1 to all members of the household (see figure 3 above).

330. As shown in the above formula, for a stand-alone household survey the overall cost of a sampling design is defined by the cost structure at cluster, household and individual levels, and also by the number of clusters, households and individual respondents. If data on asset ownership are collected by adding questions to an existing household survey, then the resulting additional cost is only a function of the total number of interviews on asset ownership (*nc*). The section below discusses the cost of different intrahousehold selection methods (as set out in figure 3), assuming that the same level of precision of estimates is to be achieved.

4.2.2.1. Impact of intracluster correlation

331. In a typical multistage cluster sample design, the smaller the cluster size the higher the precision achieved if the same number of respondents are interviewed. As discussed earlier under cluster sampling (section 4.1.4), the effects of clustering are measured by the design effect, which expresses how much larger the sampling variance for the cluster sample is compared to that of a simple random sample of the same size. The design effect is generated by two factors, the intracluster homogeneity measurement (roh value) and the number of individuals interviewed within the cluster. With the selection of the same number of households within a cluster, the more individuals are selected from each household and the higher the number of respondents from the same cluster. This, in turn, results in a higher design effect and a lower precision of estimates.

332. To illustrate how the design effect increases with the increase of respondents within a household, table 4 compares the design effect for two within-household designs: the first has up to three adult members from each household[136] and the second one adult member randomly selected from each household. It is assumed that 20 households were sampled from each cluster and, as an example, information on the distribution of households by the number of adults in the household is obtained from the Georgia integrated household survey in 2013.

[135] Kish, *Survey Sampling*.

[136] This was the design adopted in the Georgia pilot, although in the pilot larger households with at least three adult members were oversampled so in each cluster there were 10 households with one or two adult members and 10 with three or more adult members.

Table 4

Design effects for (a): up to three adult members from each household; and (b): one adult member from each household

	Households by number of adult members in the household					
	1 adult	2 adults	3 adults	4 adults	5+ adults	Total
Distribution of households in each cluster by size (Georgia 2013 integrated household survey)	3	6	5	4	2	20

Designs	Number of respondents in each cluster						Design effect		Effective sample size	
							roh= 0.05	*roh*= 0.1	*roh*= 0.05	*roh*= 0.1
Design (a) – up to three adult members from each household	3	12	15	12	6	48	3.3	5.7	14	8
Design (b) – one adult member from each household	3	6	5	4	2	20	2.0	2.9	10	7

Design effect = 1 + (number of respondents in each cluster – 1) x roh
Effective sample size = number of respondents in each cluster/design effect

333. The two within-household selection designs generate different levels of design effect. When the roh value is 0.05, the design effect is 3.3 for design (a), when up to three respondents are interviewed from each household, and 2 for design (b), when one person is randomly selected from each household. This means that, compared with a simple random sampling design with the same overall number of respondents, the sampling error is 3.3 times as much for design (a) and 2 times as much for design (b). When the value of roh increases to 0.1, the sampling error is 5.7 times as high for design (a) and 2.9 times as high for design (b), compared to the sampling error for a simple random sampling design.

334. One can also interpret the design effect through what is termed the "effective sample size", which is calculated as the total number of respondents divided by the design effect. The effective sample size of a particular sampling design is interpreted as the sample size under a simple random sampling design that would yield the same sampling variance as that achieved by the actual design. For instance, in the above example under design (a), with a roh value of 0.05, the sample size required in the case of a simple random sample – the effective sample size – is 14 individuals. This is contrasted to the more complex sampling design and its effects, where 48 respondents would be required in the cluster to achieve the same precision. Similarly, under design (b), the effective sample size is 10, while 20 respondents would be needed in the cluster to achieve the same precision, owing to the effect of the adopted sampling design.

335. The calculation illustrated that design (a), in which more adult members are interviewed in each household, has an advantage over design (b), in reducing the number of clusters required to achieve the same precision. The magnitude of the advantage varies by the size of the intracluster

correlation roh. Yet this advantage does not necessarily translate into a reduction in cost, as more individual interviews are required under design (a) than under design (b). For example, with the overall required effective sample size 140 and a roh value of 0.05, a total of 10 clusters are needed for design (a) and 14 clusters for design (b). The total number of interviews required is 480 (48 x 10) for design (a) and 280 (20 x 14) for design (b). Design (a) requires more interviews but fewer clusters, while design (b) requires fewer interviews but more clusters. The overall cost ultimately depends on the cost ratio of reaching a cluster and conducting an individual interview. A simulation of the cost calculation, taking into consideration the design effect, may be found in table 6 below.

4.2.2.2. Impact of unequal intrahousehold selection probability

336. As discussed above, interviewing one adult member from each household creates a lower design effect than when more than one person is selected for interview. Operationally, interviewing one person selected at random also helps in avoiding data contamination (see section 4.2.1 above). It is important to note, however, that selecting one person at random from each household creates an unequal selection probability at the household level, which is usually offset through the use of weights. This in turn will increase the variance of the estimates produced. Calculation of such effect, usually referred to as the weighting effect (1 + L), is illustrated in table 5 using data on the distribution of households by the number of adult members from Georgia and Mongolia.

Table 5

Weighting effect (1 + L) due to unequal selection probability within household members

	Size of households (h)					
	1 adult	2 adults	3 adults	4 adults	5+ adults	Weighting effect (1 + L)
Distribution of households by size (W_h)	9	15	22	26	28	--
Selection probability, 1 person per household (k_h)	1	0.5	0.33	0.25	0.2	1.26
Selection probability, 3 person per household (k_h)	1	1	1	0.75	0.6	1.05
Weighting effect (1 + L) = $\sum_h \frac{W_h}{k_h} \times \sum_h W_h k_h$						

Source of data: Georgia integrated household survey 2013. Methods for calculating the weighting effect available in Kish, *Survey Sampling*, and Leslie Kish, *Questions/Answers (1978–1994) from the Survey Statistician* (Paris, International Association of Survey Statisticians, 1995), number 17.1.

337. As shown in the table above, selecting one person from each household generates a weighting effect in the magnitude of 1.3 for both Georgia and Mongolia. If up to three adult members are selected, as in the case of the pilot surveys in these two countries, the weighting effect due to unequal selection probability is only 1.05, meaning that the sampling error resulting from the current sampling design is just slightly higher than that obtained using simple random sampling, given the same number of respondents in both designs. It should be noted that the magnitude of the weighting effect due to unequal selection probability depends only on the distribution of households by the number of adults

in the household. In a society that has smaller households, the weighting effect will be correspondingly smaller.[137]

338. The increase in sampling error due to unequal within-household selection probability when one person is selected at random from the household indicates that the total number of respondents should be increased to achieve the necessary precision (table 6).

4.2.3. Making decisions on individual respondent selection

339. While considering the advantages and limitations of different within-household selection methods (figure 3 above), national statistics agencies need to keep in mind the ultimate objectives of the survey. The choice of method should also depend on how the information on asset ownership from a gender perspective will be collected, whether through a stand-alone survey, an attached module, or a minimum set of questions added to an existing household survey.

4.2.3.1. Objective 1: Ownership prevalence and gender wealth gap

340. As discussed in section 4.2.2 above, the overall cost of a data collection varies in terms of the different within-household respondent selections; whether data are collected through a stand-alone survey or through appending to an existing household survey; and a number of key factors including the prevalence of asset ownership in the population; the required precision (coefficient of variation); the intracluster variation (roh value); the distribution of households by the number of adult members in the household; and the non-response rate in the survey.

341. Table 6 below provides a simulation of the calculation of the sample size and related costs for two major within-household respondent selection protocols proposed in the *Guidelines* – selecting all adult members (assuming 2.5 adult members per household on average)[138] and selecting one adult member at random. For both selection protocols, and to illustrate the simulation, the following assumptions are made: the value of roh is assumed to be 0.1;[139] two different levels of prevalence of asset ownership are used, 0.1 and 0.3; the coefficient of variation is set at 0.15; the individual non-response rate is assumed to be 20 per cent; and the number of households in a cluster is fixed at 20.

342. As shown in the table below, the higher the roh value, the more respondents are required to achieve the same precision. The more respondents required, the smaller the prevalence of asset ownership. The calculation takes into consideration the increase in sample error introduced by the intrahousehold correlation – or "deff 1", the design effect expressed as a function of roh, and also by the unequal within-household selection probability – or "deff 2", the weighting effect.

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[137] A large proportion (73 per cent) of households in the United States of America had two adults in 1957 and the calculated design effect was around 1.1 (see Kish, *Survey Sampling*).

[138] The averages are 2.4 for Mongolia and 2.8 for Georgia.

[139] Estimates of roh range between 0.02 and 0.3, with the lowest value in Cavite province, Philippines, and the highest in Georgia.

Table 6

Required sample sizes and cost calculation for prevalence rate estimate [140]

	Selecting all adult members		Selecting one person at random from the household	
	Percentage owning assets (p)		Percentage owning assets (p)	
	10	30	10	30
1. Number of women in the cluster (b)	25	25	10	10
2. Design effect due to intracluster correlation (deff = 1 + (b - 1) x roh)	3.4	3.4	1.9	1.9
3. Weighting effect due to weighting for unequal selection probability within household (1 + L, calculation in table 5)	1.0	1.0	1.3	1.3
4. Number of women required taking into consideration design effect and weighting effect	1 360	353	988	256
5. Number of women required taking into consideration the non-response rate (at 20 per cent)	1 700	441	1,235	320
6. Total number of households required	1 360	353	2,470	640
7. Number of clusters	68	18	124	32
8. Total cost (stand-alone)	$333 200	$86 385	$545 870	$141 522
9. Cost after reaching the household	$54 400	$14 104	$39 520	$10 246

Row 1: b = 20 households in the cluster and 2.5 adult members (1.25 women and 1.25 men on average) per household. The total number of adult women in the cluster would therefore be 20 x 1.25 = 25 if all adults are selected. If only one adult member is selected at random, then on average there will be 10 women in the cluster.

Row 2: design effect (deff) = 1 + (b – 1) x roh

Row 3: weighting effect (1 + L), calculated as in table 5

Row 4 = $\frac{S^2}{p^2 \times cv^2} \times deff \times (1+L) = \frac{p \times (1-p)}{p^2 \times 0.15^2} \times deff \times (1+L)$, the value for deff and (1 + L) is in rows 2 and 3, respectively.

Row 5 = $\frac{row\ (4)}{(1-non-response\ rate)} = \frac{row\ (4)}{(1-0.2)}$

Row 6 = $\frac{row\ (5)}{1.25}$, where 1.25 is the average number of adult women in each household. Note that 1.25 is calculated on the basis of the assumption that there are on average 2.5 adult members in the household and half of them are women.

Row 7 = $\frac{Row\ (6)}{No.\ of\ households\ per\ cluster} = \frac{Row\ (6)}{20}$, based on the assumption that there are 20 households per cluster

Row 8 = $No.of\ clusters \times C_a + No.of\ households \times C_b + No.of\ individual\ interviews \times C = row\ (7) \times C_a + row\ (6) \times C_b + row\ (4) \times 2 \times C$. Note that this is the total cost of interviewing all, women and men. The costing is based on the assumption of $2,500 reaching an enumeration area (C_a), $80 reaching a household (C_b) and $20 for each interview (C). The calculation is for illustrative purpose only; the value for the overall cost will change if different assumptions are made.

[140] Cost of the data collection is calculated on the basis of the following assumption: $2,500 to reach an enumeration area (C_a), $80 to reach a household (C_b) and $20 for each interview ($C$). Calculation is for illustrative purposes only; the value for the overall cost will change if different assumptions are made.

Row 9 = $No.of\ individual\ interviews \times C$ = row (4) × 2 × C. It is assumed that the cost of interview is $20.

Note: The following assumptions made for the simulation in this table: 2.5 adult members per household; roh = 0.1; assets prevalence = 10% and 30%; coefficient of variation (*cv*) = 0.15; non-response rate = 20% and cluster size = 20 households.

343. In general, if all adult members are interviewed from each household, some3,400 women and men need to be approached and some 1,400 households are required if the ownership prevalence is at 10 per cent, the intracluster correlation is 0.1 and the coefficient of variation is 0.15. Under the same assumptions, some 2,500 households and individuals are required if one person is randomly selected from each household. Accordingly, interviewing one person from each household requires interviewing more households but fewer total individuals, compared to interviewing all adult members in each sampled household.

344. The corresponding cost implications vary, depending on whether data are collected through a stand-along survey or through a module attached (or questions added) to an existing survey. For a stand-alone survey, the cost is much higher if only one randomly selected person is interviewed from each household. For that reason, these *Guidelines* do not recommend this respondent selection approach for stand-alone surveys.

345. If, however, the overall objective of collecting data on asset ownership is to produce statistics on asset ownership prevalence and the related gender wealth gap, the set of questions proposed in these *Guidelines* are attached to an existing survey that interviews a sufficient number of households,[141] and the marginal cost of the data collection exercise will depend primarily on the number of interviews. In this case, interviewing one person randomly from each household costs less than interviewing all adult members and this strategy should therefore be adopted. If, on the other hand, the host survey does not have a sufficiently large number of households, an alternative strategy is to interview more than one person in the selected households for the main survey, to ensure a number of respondents sufficient to derive representative estimates. A similar calculation can be performed (as in table 6), based on assumptions applied to national circumstances such as the average household size and prevalence of asset ownership.

346. Caution should be exercised when considering the cost implication of various within-household selection protocols. The calculation of cost in table 6 is based on one specific cost structure at the cluster, household and individual levels. A very different overall cost might be obtained should the cost structure change. In addition, the additional cost due to callbacks and repeated visits to households was not featured in the calculation.[142] If a significant number of callbacks is required to capture individual respondents, then the cost of those repeated visits would further drive up the total cost.

4.2.3.2. Objective 2: Intrahousehold analysis dynamics of ownership and decision-making

347. If the objective of the survey also includes analysing the intrahousehold dynamics of ownership and decision-making, multiple persons from each household must be selected. If the

[141] Totalling 2,500 households in the simulation (table 6), if the prevalence of ownership is 10 per cent.

[142] The average number of callbacks ranges between 0.5 to 2 in EDGE pilot countries.

dynamics between spouses or partners are of interest, then a sufficient number of couples are needed for the analysis. The following table illustrates how the required number of couples can be calculated for a set of outcome variables related to couples. Examples of these types of variables include the proportion of couples that both own assets or the share of women's wealth among the couple's total wealth (more examples may be found in part four of these *Guidelines*, on data analysis). It is assumed that the required coefficient of variation for a given estimate is 0.15 and that 20 households are selected from each cluster. The calculation is carried out for a number of scenarios, with the intracluster correlation roh fixed at a level of 0.1 and the values for the outcome variables set at 0.1 and 0.3, respectively.

Table 7

Required sample sizes for intrahousehold gender analysis

	Example of intrahousehold gender analysis: Percentage of couples that both own assets (y)	
	10	30
1. Number of couples within each cluster (b, assuming 50% of households have a couple)	10	10
2. Design effect due to intracluster correlation (deff = 1 + (b - 1) x roh)	1.9	1.9
3. Weighting effect due to weighting for unequal selection probability within household (1 + L)	1	1
4. Number of couples required under the required coefficient of variation (cv=0.15), under the simple random sampling design	400	104
5. Total number of couples taking into consideration the design effect and weighting effect	760	197
6. Total number of couples taking into consideration non-response (at 36% per couple)	1,188	308
7. Total number of households required	2,375	616

Row 1: Number of couples in each cluster b = 20 x 50% = 10

Row 2: Design effect *deff = 1 + (b - 1)* x *roh = 1 + (10 - 1)* x *0.1 = 1.9*

Row 3: Weighting effect (1 + L) = 1 as the selection probability of a couple from each household is 1.

Row 4: $= \frac{S^2}{y^2 \times cv^2} = \frac{y \times (1-y)}{y^2 \times 0.15^2}$, this is the number of couples required under the simple random sampling design .

Row 5: = $Row\ (4) \times deff \times (1 + L)$, where the value for deff and (1 + L) is in rows 2 and 3, respectively.

Row 6: = $\frac{row\ (5)}{(1-non-response\ rate)} = \frac{row\ (5)}{(1-0.36)}$

Row 7: = Row (6) x 2, assuming that only half of the households have a couple.

Note: Assumptions made for the simulation in this table: 50% of households have a couple; roh = 0.1; coefficient of variation (*cv*) = 0.15; non-response rate = 20% and cluster size = 20 households.

348. The calculation differs from that in table 6 in two respects. First, not every household has a couple. In the calculation, it is assumed that 50 per cent of the households include a couple among their members. This assumption in the above simulation is based on a calculation made for 31 European countries, in which the percentage of households with a couple ranges between 43 and 67.[143] The second way in which the calculation differs from earlier calculations is in the area of non-response probability. Not only is it necessary to capture a sufficient number of households with couples, but both members of the couple need to be available and to answer the questions to enable couple-based analysis. Given the assumption in table 6 that the individual response rate is 80 per cent, the response rate used in the calculation for both members of the couple is 64 per cent (or 0.8 x 0.8).

349. Again, as shown in the earlier calculation for the prevalence of asset ownership, the required number of couples is higher when only 10 per cent of couples both own assets, compared to when the proportion is 30 per cent. A comparison of the two tables above (tables 7 and 8) shows that, for the same estimated value of the outcome variable, the intra-couple analysis requires more households than the design where all household members are interviewed for a given prevalence.

350. The example here assumes that one couple is selected from sampled households, if available. It is unlikely, however, that countries would only be interested in the analysis among couples. To derive both the nationally representative ownership prevalence and to conduct intra-couple analysis, it is advised that the respondents include a couple and an additional adult randomly drawn from selected households. If there is a sufficient number of households in the survey, this within-household selection protocol keeps the maximum number of interviews at three within each household, making it easier for the supervisors of field operations to manage (see section 4.2.1 for further details on the operational challenges arising when multiple interviews are to be conducted within households).

351. Another option for attaining both objectives – deriving the prevalence rate and conducting an intrahousehold analysis – is the following: randomly selecting one adult member from the sampled household and that member's spouse or partner if she or he is married or in a union. This approach was tested in the South African EDGE pilot. It ensures that there are no more than two interviews per household and, even with only one enumerator, the interviews can be conducted with minimal potential contamination (see section 4.2.1 above). One disadvantage of this approach is that it requires an increase in the number of sampled households, because a certain percentage of the population living in households with couples do not have a spouse. For example, they may be the adult child of a couple, or a parent-in-law living in the household with a couple. According to the data from the South Africa 2011 census, among people 18 years or older living in a household with couples, 25 per cent did not have a partner[144] and, when one of these individuals is selected for interview, no partner will be available. To capture the same number of couples as when interviewing one couple and a third individual from each household, this approach requires a greater number of households.

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[143] Eurostat database, Private households by type, tenure status and NUTS 2 region, based on 2011 population censuses (extracted in August 2017). The percentage is much lower in South Africa according to its 2011 census data, which indicated that only 38 per cent of households included at least one couple. Source: Minnesota Population Center, Integrated Public Use Microdata Series, International, data set version 6.5 (Minneapolis, University of Minnesota, 2017). Available at https://doi.org/10.18128/D020.V6.5.

[144] Minnesota Population Center, Integrated Public Use Microdata Series, International, data set version 6.5.

4.2.3.2. Putting the puzzle together

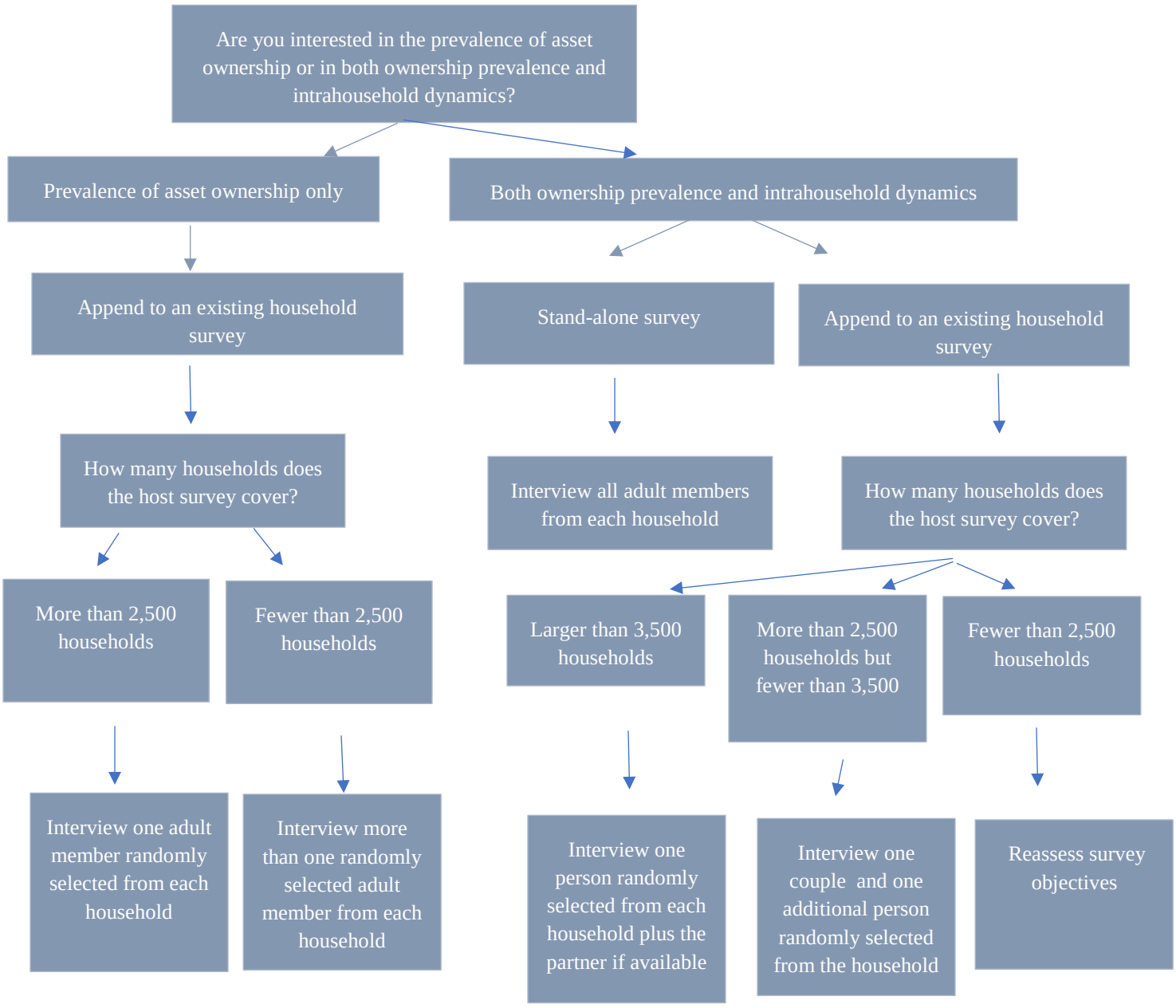
352. Making decisions on how within-household respondents should be selected requires striking a balance between data-collection costs and field-operation feasibility, while keeping sampling and non-sampling variance to an acceptable level. To that end, the following diagram aims to guide countries on respondent selection within households for data on asset ownership from a gender perspective.

353. The illustration is based on a coefficient of variation of 0.15. It is assumed that 20 households are selected from each cluster. The variable of interest, both at the individual level (for example, the asset ownership prevalence) and at the couple level (for example, the share of the couple's total wealth held by the female partner or the proportion of couples that both own assets) is set at 10 per cent. The intracluster variation is assumed to be 0.1.

354. In the illustration, the decision on whom to interview is made on the basis of the calculation in tables 7 and 8, as well as other practical considerations as outlined in section 4.2.1 above. For example, if the ownership prevalence rate is of interest and the host survey has a large enough number of households (2,500 households based on the assumptions made for the simulations described above), then interviewing one random adult member from each household is a sound choice. The design not only helps in achieving the required coefficient of variation of 0.15, but also eliminates the possibility of contamination and other field operation problems. Of course, if the host survey is small (fewer than 2,500 households), it is recommended that multiple persons be interviewed, in order to achieve the required precision.

Figure 4

Decision tree for intrahousehold respondent selection



355. From the calculation in table 7, the required number of households is also 2,500 households for a variable of 10 per cent and roh of 0.1. Accordingly, if a host survey is larger than 2,500 households, interviewing a couple and a third randomly selected person from these households would provide reliable estimates for both the asset ownership prevalence and for the intrahousehold analysis.

Alternatively, when the host survey covers more than 3,500 households,[145] an adult member randomly selected from each household and that member's partner should produce estimates that meet both objectives: asset ownership prevalence and intrahousehold analysis. This selection method has an operational advantage – a maximum of two interviews are required within each household. This helps in reducing contamination bias and also makes it easier for the survey team to assign enumerators.

356. It should be noted that the guiding sample sizes in the diagram above are for illustrative purposes only. Countries under different circumstances are advised to calculate the optimal sample sizes on the basis of the different scenarios applicable to their national context.[146]

357. When the individual-level asset ownership data are collected through appending a minimum set of questions or a module to an existing survey, another consideration that is not featured into the diagram above is the respondent selection and interview protocol of the host survey. Existing surveys vary greatly in these dimensions, and sometimes vary by modules within the same survey. While considering the suggested respondent selection protocols illustrated in the diagram, countries should also be flexible in making adjustments to adapt to the circumstances specific to the host survey. For example, the diagram shows that, if a country is interested in both the national estimates of the asset ownership prevalence and intrahousehold dynamics and the host survey is large enough, then a randomly selected adult member and that member's partner should be interviewed. If, however, the host survey is already collecting self-reported data from all adult members of the household, then the EDGE module or questions could be put to all adult members within the household. In this case, fewer households would need to be interviewed for the EDGE module and questions if there is need to control for the additional data collection cost.

[145] The requirement of 3,500 households is calculated based on an assumption that 75 per cent of the adult members living in coupled households have a partner. This percentage holds for KwaZulu-Natal, South Africa, but may change for other countries. It is suggested that countries should adjust the calculation when planning the data collection exercise in accordance with their national circumstances.

[146] See https://unstats.un.org/edge for a worksheet on calculating required sample sizes with user input on different parameters.

Key points:

- If a stand-alone survey is conducted to collect data on asset ownership, the sample selection process up to the household level is similar to any other household surveys. At the same time. however, the following elements should be taken into consideration:
  - It is recommended that the individuals interviewed be limited to those aged 18 and older.
  - The two essential population subgroups in the sample for gender analysis of asset ownership are women and men. If there is prior information on the prevalence of ownership indicating that women own fewer assets, then national statistics agencies may choose to oversample women to improve the precision of estimates of both women's ownership of assets and the value of those assets.
  - Regions that have different marital regimes and land tenure systems should be placed in different strata. Dividing populations into urban and rural is also advised, since the ownership of agricultural land, agricultural equipment and livestock would be very different for people living in urban and rural areas.
- The number of individuals to be interviewed in the selected households is determined by the following factors:
  - Survey objectives: whether the focus of the data collection is only to generate asset ownership prevalence rates, by sex, or also to study intrahousehold gender dynamics in asset ownership
  - Data collection instrument: whether asset ownership will be collected through a stand-alone survey or through a module or set of questions appended to an existing survey; in the latter scenario, the sample size of the host survey and the related interview protocol will influence the sample selection for the study of asset ownership
  - Field operation feasibility: whether it is possible to collect asset ownership data from more than one respondent in the sampled household, while keeping contamination bias to a minimum.
  - Once the above factors are assessed, the basic principles in sampling within household are:
    - If the objective includes studying intrahousehold dynamics of asset ownership, more than one respondent is required within a given household. If the only objective is ownership prevalence, a stand-alone survey is not recommended and one or more respondents from each household may be selected, depending on the sample and field protocol of the host survey and other considerations (see figure 4).
    - If there is a sufficient number of households in the sample, the number of household members to be interviewed should be kept at a minimum to ensure the necessary precision. This would reduce the contamination bias introduced by interviewing multiple persons in the same household.
    - If conducting a stand-along survey is an option for a country, it is recommended to also collect information on intrahousehold dynamics of asset ownership.

5. Questionnaire design

358. In order to produce reliable measurements of women's and men's ownership and control of assets, the conceptual framework presented in part one of these *Guidelines* must be explicitly operationalized in the questionnaire used to collect the data.

5.1. Background research

359. Although these *Guidelines* provide a model for collecting data on asset ownership and control at the individual level, including a detailed questionnaire as presented in the next section and in the annex to these *Guidelines*, countries are encouraged to conduct their own background research before adapting the proposed generic model to their country context. In general, background research to a household survey has the role of informing the survey design and providing the context in which to interpret the results of the survey. It can include a desk review of relevant national quantitative and qualitative research studies, together with new qualitative research commissioned by the statistics office or key stakeholders.

360. The desk review should cover such topics as:

- The legal framework and customary norms that govern property rights, including those related to marital and inheritance regimes, across different areas of the country
- The link between asset ownership and other development issues, including poverty, livelihoods, entrepreneurship, agriculture, women's empowerment and gender equality
- Government programmes and policies related to key core assets, including on housing and distribution or titling of land
- Existing quantitative studies providing information on the prevalence of asset ownership, including at individual and household levels, and also wealth distribution across different population groups
- Studies related to land tenure systems across the country

361. In addition, new qualitative research may be conducted. This research may be limited in scope and focused on adapting or improving the questionnaire design or more comprehensive, providing a stand-alone qualitative study complementing the statistical results obtained in the survey. Statistics offices are more likely to focus their efforts on the first approach, owing to constraints of cost and time. Conducting comprehensive qualitative research also requires a set of skills more often found among staff in research and academic institutions than in the statistics office. Accordingly, these experts should be sought out to provide technical guidance for any qualitative research undertaken by national statistics offices. The statistics offices should at the very least conduct interviews with key informants and hold focus-group discussions for the purpose of improving questionnaire design. These methods can explore how participants think about asset ownership and the terms that they use in talking about them. Individual interviews may vary in format, ranging from informal discussions, used for the purpose of gaining a broad understanding of the issues related to asset ownership, to structured interviews with a predetermined set of questions covering key topics related to asset ownership, such as types and forms of ownership and acquisition of assets. It is important that the key respondents are chosen to represent a range of viewpoints and concerns and income levels. Similar information may be obtained in focus group discussions. For example, in the Gender Asset Gap Project, four themes were covered during the focus group discussions: the accumulation of assets over the individual life

cycle; the importance of assets; the market for assets; and household decision-making over asset acquisition and use. In terms of respondents covered, it is important that several groups are formed, each of them involving a moderator and from 6 to 10 participants relatively homogeneous in terms of background and experience.

5.2. Questionnaire content

362. This section provides recommendations on the content and formulation of the questionnaire. It is important to note that countries need carefully to review the proposed questions and decide on the final formulations based on the following steps: agree on the principle concepts to be measured; identify key information required; and examine how this can be translated into specific series of questions. The content of the questionnaire should be developed in accordance with the objectives and required final outputs of the survey. Other important considerations also include the length of the completed interview, the mode of interviewing, the need for skip and filter questions, the importance of establishing rapport with respondents, and the wording and ordering of questions.

5.2.1. Key information required

363. The information required to fulfil all major objectives of collecting data on individual-level asset ownership, as described in part one, is summarized below:

- List or roster of household members, established at the household level
- Individual sociodemographic characteristics, including age and sex, collected at the household level
- Individual sociodemographic characteristics, including education, marital status, economic status and other characteristics to identify population groups that are of policy interest (such as the agricultural population), collected at household or individual level, depending on the survey design
- Within-household decision-making process, collected at the individual level
- Asset and asset characteristics: roster of assets and their characteristics, including their value. This information can be collected at the individual or household level, depending on the respondent selection protocol, within the household. Additional details are available below under the respective subsections on roster of assets and asset characteristics
- Individual ownership of assets – reported and documented ownership, ownership rights, modes of acquisition of assets, collected at the individual level

364. The roster of household members and information on their age and sex is necessary when respondents are selected at random within households. Characteristics of individuals allow data users to calculate a set of gender indicators on asset ownership and further to investigate asset ownership by key covariates for a more nuanced understanding of who owns and controls assets. Data collected on power and decision-making of women and men within the household enable an analysis of the association between asset ownership and decision-making at the individual level.

365. Collecting information on who owns the asset and whether there is an ownership document for the asset allows countries to begin to monitor both the gender patterns of asset ownership and policies to improve women's property rights. The additional questions about asset characteristics, value, alienation rights and acquisition make further gender analysis possible. Posing questions about rights over the assets will make it possible to understand the extent to which rights are shared under joint ownership. In addition, information on rights may indicate the extent to which the full range of rights are correlated with ownership and the extent to which women may have some ownership rights, but not others. The valuation and asset characteristics data allow for the computation and analysis of gender wealth gaps. Lastly, because men and women often acquire assets through different means, understanding the modes of acquisition may provide insights for developing policies to ensure women's ability to acquire them.

366. Table 8 below illustrates how, as the objectives of data collection vary from producing estimates of asset ownership prevalence, to assessing the gender wealth gap and intrahousehold asset ownership dynamics, the content of the questionnaire varies accordingly. It should be noted that, as used in the table, "essential" means that such information should be collected. "Additional" information is not necessary but would enrich the understanding of asset ownership from a gender perspective. Intrahousehold decision-making information is essential only when one of the objectives of the data collection is the intrahousehold analysis of asset ownership.

367. In cases where the only objective of data collection is to derive ownership prevalence by sex, basic information on reported and documented ownership and ownership rights would suffice, without the need to itemize each asset. For instance, using the example of agricultural land, the basic question on individual-level ownership would be whether or not the respondent owns (reported and documented) and has the right to sell and bequeath any agricultural land. It would not be necessary to ask these questions against each single parcel owned in the household. Accordingly, information on "asset roster" and on "asset characteristics" is considered not essential in table 8. Individual characteristics other than age and sex may be essential for the prevalence of asset ownership by sex, if asset ownership is to be calculated for specific population groups.

Table 8

Questionnaire content by objectives of data collection

Information to be collected	Objectives of data collection		
	Gender asset gap	**Gender asset gap and gender wealth gap**	**Gender asset gap, gender wealth gap and intrahousehold analysis**
A. Information on household and individuals			
Roster of household members	Essential	Essential	Essential

Characteristics of individuals – sex and age	Essential	Essential	Essential
Characteristics of individuals – education, marital status, economic activity	Additional	Additional	Additional
Decision-making within the household	Additional	Additional	Essential

B. Information on assets

Roster of assets	Additional	Essential	Essential
Characteristics of assets including value	Additional	Essential	Essential
Asset ownership (reported and documented)	Essential	Essential	Essential
Ownership rights	Essential	Essential	Essential
Asset acquisition	Additional	Essential	Essential

368. Table 8 defines broadly what information is to be collected for each data collection objective and should be used with caution. This is because the information to be collected on assets varies by type of asset. For example, there is only one principal dwelling for each household and a roster of dwellings is not necessary. Certain assets such as livestock are difficult to itemize; for that reason, a roster of every single animal is not recommended although broad categories of livestock might be listed, as explained later in the section covering the establishment of a roster of assets. Furthermore, documented ownership applies only to the assets that have documents (dwellings, agricultural land and other real estate). A summary of the applicability of each type of information by asset may be seen in table 9 and a more detailed discussion is covered in the following sections.

Table 9

Relevance of asset-related information by type of asset

	Roster of assets	Characteristics of assets	Reported ownership	Documented ownership	Right to sell and or right to bequeath	Asset acquisition	Valuation
Priority assets							
Principal dwelling		X	X	X	X	X	X
Agricultural land	X	X	X	X	X	X	X
Other real estate	X	X	X	X	X	X	X
Financial assets	X	X	X				X
Additional assets							
Large agricultural equipment	X		X		X	X	X
Non-agricultural enterprise assets	X	X	X				X
Liabilities	X		X				X
Livestock			X				
Small agricultural equipment			X				
Consumer durables			X				X
Valuables			X				X

369. The questionnaire design also varies by the method used to collect asset ownership data – whether through appending questions to an existing survey or conducting a stand-alone household

survey. Certain components such as the roster of household members and sociodemographic characteristics of individuals are basic questions covered by all household surveys. When appending a module on asset ownership to an existing survey, that basic information will have already been collected and will not need to be asked again. Additional details are provided in the subsections below.

5.2.2. Notes on components of the questionnaire

370. This section provides detailed comments and notes that explain, for each type of information identified above, why questions are phrased in a particular way and how each can be altered to fit specific needs and contexts. It is important to note that questions related to assets and asset ownership tend to vary by asset. The discussion below highlights commonalities in question formulation across assets while also covering deviations and special circumstances for particular assets. Aspects that are very specific to certain assets are further discussed in section 5.2.3 and a model questionnaire may be found in the annex to these *Guidelines*.

5.2.2.1. Roster of household members

371. The roster of household members should include the name of every household member and assign that person a unique identification code. This information is critical as the respondent chosen to complete the individual questionnaire on asset ownership will be randomly selected from the roster, as discussed in section 4 above. Each country should define household members according to the standards employed by the national statistics agency to ensure comparability with censuses and other household surveys administered in-country.[147] For within-household individual random selection, information on the age and sex of the household members should be collected if the Kish within-household selection method is applied. The household roster is collected at the household level, with the information provided by the most knowledgeable person.

372. If the individual-level asset ownership information is collected through appending questions to an existing household survey, the roster of household members should be already available from the host survey and can be used for the selection of individual respondents.

5.2.2.2. Characteristics of individuals

373. As is standard in most household surveys, basic sociodemographic information should also be collected for each respondent, including age, sex, education level, employment status, marital status, relationship to household head and ethnicity. The information obtained from these variables will allow data users to calculate a set of gender indicators on asset ownership and further investigate asset ownership by key covariates for a more nuanced understanding of who owns and controls assets.

374. Countries using this survey instrument to assess individual-level asset ownership for population groups should also incorporate questions that help to identify these groups. Examples of

[147] See the chapter on sampling in part three of these guidelines for further discussion of the definition of "household members".

this need may be seen in the data required to monitor Sustainable Development Goal indicators 5.a.1 (a) on the proportion of the total agricultural population with ownership or secure rights over agricultural land, by sex, and 5.a.1 (b) on the share of women among owners or rights-bearers of agricultural land, by type of tenure. In this case, the survey design will also need to ensure that the household questionnaire permits the identification of the agricultural population, as defined by the metadata for the indicators.[148]

375. Sociodemographic characteristics of individual respondents are collected by most household surveys. If the EDGE questions and modules are appended to the existing household surveys, this will mean that those questions are in all likelihood already covered by the host survey and do not need to be asked again. If, however, the host survey does not cover certain characteristics crucial to the collection of individual-level asset ownership data, additional questions could either be incorporated in the host survey, or in the individual questionnaire collecting asset ownership data at the individual level.

5.2.2.3. Roster of assets

376. The roster of assets records each asset (physical and financial, including liabilities) owned by individual respondents. It is used when it is possible for one person to own multiple assets of the same type. For example, a roster of agricultural parcels would be helpful for respondents to report on their ownership of each parcel, and also on their rights over the parcels that they own. For financial assets, it would be useful for respondents to list all their individual bank accounts, pensions or other types of financial assets, where applicable. Such a roster is important when the data collection objective moves beyond simply assessing gender gaps in the prevalence of ownership of assets. In the case of agricultural land, by establishing a roster of assets, an assessment can be made of gender differences in the quantity, quality and value of agricultural land when key characteristics and also the value are collected for each parcel.

377. On the roster, the assets are usually required to be listed in a specific order. For example, the agricultural parcel should be listed from the largest to smallest, large agricultural equipment should be listed by year of acquisition, from the most recent to the oldest, and financial assets should be listed from the most valuable to the least valuable. More instructions on how to order the assets may be found in the annex to these *Guidelines*.

378. The roster of assets is necessary for agricultural land, large agricultural equipment, other real estate, financial assets and liabilities, but not for the other assets recommended in the publication. There is only one principal dwelling for each household and there is no need for a roster. For livestock, small agricultural equipment, consumer durables and valuables, a detailed roster of assets is not recommended because itemization is extremely tedious and items tend to have different configurations of rights and ownership. Countries, however, may include broad categories of those assets for respondents to provide ownership information. For livestock, for example, there could be such broad categories as cattle, goats, sheep, pigs, horses and others. More instructions on what to list

[148] The definition of agricultural population for Sustainable Development Goal indicator 5.a.1, proposed by FAO, may be found in box 1 in the introduction to these guidelines.

under livestock, small agricultural equipment, consumer durables and valuables may be found in the model questionnaire, in the annex to these *Guidelines*.

379. A roster should also be created to collect data on non-agricultural enterprise assets but the angle is slightly different. Instead of building a roster of assets, the roster is about non-agricultural enterprises. Respondents are asked to list the non-agricultural enterprises that they own, indicating the kind of activities each enterprise is engaged in; whether the enterprise is of limited- or non-limited-liability and the type of records or accounts that the enterprises maintain. Establishing a roster in this case serves the purpose of not only itemizing the enterprises but also screening out incorporated enterprises, as their assets are usually owned by enterprises rather than by individuals.

380. The roster of assets can be completed at household or at individual level, depending on the survey instrument used. If there are multiple respondents within the household providing information on their asset ownership status, the roster of assets should be built at the household level, by asking the most knowledgeable person to provide information on assets owned by each household member. This would avoid the need for, and eventual complication of, matching assets reported by different individual respondents. Once collected at the household level, the roster of assets should be fed into the individual questionnaire and questions on ownership and rights at the individual level should be asked against each asset listed on the roster. In surveys when only one respondent is selected from each household, the roster of assets can be collected at household (for assets owned by the household) or individual (for assets owned by the individual) level. There is one exception: the roster of financial asset should always be collected at the individual level, owing to the sensitive nature of such asset and the difficulties in getting accurate information on financial items.

5.2.2.4. Asset characteristics

381. Characteristics of assets are collected for principal dwellings and agricultural land. For dwellings, information is collected on the type of dwelling, such as: whether it is detached or semi-detached, the materials used for the roof, the walls and the floor, the type of toilet available in the household, and other features. For agricultural land, data on parcel size, availability of an irrigation system and the primary use of the parcel during the last cropping season should be collected. Data on these characteristics are important for a number of reasons. First, they may serve as proxies for the difference in quality of assets owned by women and men. Second, as discussed in the section in part one on establishing values, good valuation data are crucial to establishing the gender wealth gap, yet are often difficult to obtain. In the absence of good valuation data, characteristics of assets could be used to impute value or to assess the quality of the valuation data.

382. Characteristics of principal dwellings are well covered in many household surveys and are often used as proxies for household economic status. If individual-level asset ownership data are collected through appending a module or a set of questions to an existing survey, then it is not necessary to collect such information again. Agricultural parcel characteristics should always be added next to the parcel roster, whether collected at household or individual level.

5.2.2.5. Reported ownership

383. A number of questions are used to collect information on whether an individual is a reported owner of an asset; if an owner, whether the asset is owned exclusively or jointly; and, for joint ownership, how many other people are joint owners and if the spouse or partner, is one of them.

384. The question on reported ownership is usually phrased as "Do you [currently] own [asset]?"[149]. Sometimes more specific information is provided in the question explaining what is covered under the asset. For instance, agricultural parcels cover those owned by the respondent, including those that are cultivated by the household, and those that are currently fallow, rented out or loaned out for nothing in return, on a temporary basis. Examples of large agricultural equipment (such as tractors, ploughs, irrigation systems or trailers) and financial assets (a bank account, a microfinance account, an informal savings account and so forth) are also provided.

385. Data collected through the questions on reported ownership make possible the calculation of various indicators related to the gender asset gap. They provide information on whether the respondent, and not the respondent's household, owns the asset. Reported ownership captures the respondent's self-perception of his or her ownership status, irrespective of whether his or her name is listed as an owner on an ownership document or having the relevant rights over the asset, such as the right to sell and bequeath.

386. Reported ownership questions relating to assets that are small and for which the preparation of a roster is a potentially tedious process usually integrate several major categories of the specific asset into the question's formulation. For example, for consumer durables, the question may be phrased as "Do you own any [broad or major consumer durable category], exclusively or jointly?" The respondents would answer, for each category of consumer durables, whether they are owners.

387. The question on reported ownership usually serves as a filtering question for all the other questions. In other words, questions on documented ownership and related ownership rights (see discussion below) will not be asked if respondents do not report themselves as owners. For the collection of data on non-agricultural enterprise assets, the filtering questions are slightly different. Instead of asking about ownership of assets, three questions are asked to assess whether the respondent owns one or more non-agricultural businesses before starting the questions on ownership and rights over non-agriculture enterprise assets.

388. The question on reported ownership also measures the form of ownership, in other words, whether the respondent owns the asset exclusively or jointly with one or more persons, by allowing the respondent to select relevant answering categories, such as: "Yes, alone"; "Yes, jointly with someone else"; "No, someone else is the owner"; "Refuse to answer". Because the benefits of ownership may differ if a person owns the asset alone or jointly, countries are encouraged to distinguish between individual and joint ownership. If the respondent indicates joint ownership, then a follow-up question will be asked: "How many other people jointly own [this asset] with you, including household members and non-household members?" Information collected through this

[149] For agricultural land, for a broader measurement, the question may also be formulated as follows: "Do you currently hold, have, use or occupy agricultural land?". Such formulation accommodates situations in countries where strict ownership of agricultural land does not exist.

additional question is needed for the calculation of the gender wealth gap, as discussed in part four of these *Guidelines*.

389. Identifying whether or not respondents jointly own assets with their spouses or partners allows for the construction of an indicator on joint (reported) ownership between spouses, the most common form of joint ownership for dwellings. The question is usually phrased as follows: "Is one of these joint owners your spouse or partner?" Other patterns of joint ownership are also possible, such as between siblings or a parent and an adult child, and countries that are interested in identifying these patterns are encouraged to ask: "Who are the joint owners, including household members and non-household members?" The personal identification codes assigned to household members in the household roster should be recorded for each household member who is a joint reported owner and each non-household member who jointly owns the asset should be assigned a standard non-household member identification code (for example, 100).

5.2.2.6. Documented ownership

390. Questions about documented ownership are asked in respect of three assets: principal dwellings, agricultural land and other real estate. It does not apply to other assets covered in the *Guidelines*, as documents for those assets usually do not exist. Assessing whether the respondent is a documented owner can be done through a number of questions structured in a form similar to those relating to reported ownership.

391. Before asking about documented ownership, the respondent is first asked whether there is a document for the asset: "Is there an ownership document for [the asset]?"[150] The response categories enable the collection of additional information on the different types of documents that exist. There may be a range of document types that provide formal evidence of ownership, and national statistics offices will need to customize the response categories according to their country context. Titles and deeds are common forms of ownership documents. Registration certificates document rights over property. In addition, where titling or registration is not complete, documents including wills or sales receipts provide some form of documented claim.

392. If an ownership document exists for the asset, it should be recorded, independent of whether or not it includes the name of someone in the household. If there is more than one type of document, the one that is held by someone in the household should be recorded. For example, if there is a deed, but the household members do not have it in their possession, but instead have an invoice or sales receipt, these should be recorded rather than the deed.

393. The question that follows "Are you listed as an owner on the ownership document for this [asset]?" is then used to measure "documented ownership" of the asset. Documented ownership refers to the existence of any document that an individual can use to claim ownership rights in law over the asset by virtue of the individual's name being listed as an owner on the document. Because individual

[150] In respect of agricultural land, for a broader measurement, the question may also be formulated as follows: "Is there a formal document for any of the agricultural land you hold/have/use/occupy, issued by the land registry/cadastral agency?" This formulation accommodates situations in countries where strict ownership of agricultural land does not exist. Then the follow-up question can be: "Is your name listed as an owner or holder on any of the legally recognized documents?"

names can be listed also as witnesses on an ownership document, it is important to ask if the respondent is specifically listed "as an owner" on the document. While countries may want to ask the respondent to show the document for the enumerator so that the enumerator can confirm that the respondent's name is listed on it, these *Guidelines* recommend that the measure of documented ownership should not be conditional on the document being checked or kept within the home.[151]

394. The question, along with its answering categories, also measures the form of documented ownership of the asset; in other words, whether the respondent owns the asset exclusively or jointly with one or more persons. Because the benefits of ownership may differ if a person owns the asset alone or jointly, countries are encouraged to collect information on the form of documented ownership.

395. The third question in this group, "How many other people are listed as owners on the ownership document, including household members and non-household members?" obtains information on the number of joint documented owners. As mentioned above for questions on reported ownership of assets, a question is also asked on whether the spouse or partner of the respondent is among the joint owners of the asset.

5.2.2.7. Ownership rights

396. Ownership rights in the *Guidelines* refer to the right to sell and bequeath, which are important from a gender perspective as part of the bundle of rights (more information on this may be found in part one). Ownership rights are relevant for principal dwelling, agricultural land, large agricultural equipment and other real estate.

397. There are two questions under each ownership right. The first one asks: "Do you have the right to [sell/bequeath] this [asset]?" When respondents have the right to sell an asset, it means that they have the right to transfer the asset to another person or entity permanently for cash or in-kind benefits. When respondents have the right to bequeath an asset, it means that they have the right to give the asset by oral or written will to another person or persons upon their death.

398. To assess gender differences in the right to sell or bequeath the asset, it is useful to assess whether the right to sell or bequeath can be executed alone or jointly with others and whether, if the person does not have the right, someone else has the right or the asset cannot be sold or bequeathed because of cultural or legal rules or standards.

399. If respondents indicate that they have the right to sell or bequeath jointly with other persons, a follow-up question is put: "Is your spouse or partner one of the persons who jointly has the right to [sell/bequeath] the asset?"

400. Collecting information on whether the spouse or partner jointly has the right to sell or bequeath the asset makes it possible to analyse whether joint owners have the same rights to the asset. If countries choose to collect information on all joint reported and documented owners, then they can

[151] In the EDGE pilot study in Uganda, where respondents were asked to produce the ownership documentation, they were able to do so in only 25 per cent of interviews that reported documentation for at least one asset. The low prevalence may be due to the respondent's refusal or their inability to locate the document (Kilic and Moylan, *Methodological Experiment on Measuring Asset Ownership from a Gender Perspective (MEXA)*).

ask, in place of this question: “Which other household members also have the right to [sell/bequeath] this [asset]?” The personal identification codes assigned to household members in the household roster should be recorded for each household member who has the right to sell or bequeath the asset.

5.2.2.8. Asset acquisition

401. The question on asset acquisition helps in assessing how women and men acquire assets differently. The question is usually asked in the form: “How did you acquire this [asset]?” and the options for respondents include “purchased”, “inherited”, “received a gift”, “built it” (if relevant for the asset), “allocated by government programme” or “acquired through marriage”. The question refers to when the respondent first came into possession of the asset and presumably began deriving economic benefit from it. Because men and women often acquire assets through different means, understanding the modes of acquisition may provide insights for developing policies to ensure that women have the ability to acquire them. For that reason, national statistics agencies should include all relevant modes of acquisition and may want to add additional codes for the case where assets are received as an inheritance or as a gift, to indicate who gave the inheritance or gift (for example, the respondent’s natal family or the spouse’s family). This is particularly useful for gender analyses, since the information collected can indicate whether the asset was received from the husband’s family or the wife’s family.

402. Asset acquisition questions are relevant for principal dwellings, agricultural land, large agricultural equipment and other real estate.

5.2.2.9. Value of assets

403. As discussed in part one, the valuation of assets is important as it reflects a range of asset attributes. From the gender perspective, data on asset values assess the difference in the quality and quantity of assets owned by women and men. The question on valuation is usually phrased as follows: “If this [asset] were to be sold today, how much could be received for it?” For financial asset and liabilities, the question is the following: “What is the current value [or remaining amount to be repaid]?”

404. It is recommended that data on the valuation of assets are collected for most assets, including principal dwellings, agricultural land, other real estate, financial assets and liabilities, large agricultural equipment, non-agricultural enterprise assets and consumer durables. The full amount that would be received in the sale should be listed, regardless whether or not all of it would be kept by the respondent. If the respondent is not sure how to answer, enumerators should probe on this question by encouraging the respondent to consider the price received for similar assets sold in the community. It should be noted that questions about the price that would be received today refer to the current value. If there are large areas of the country with no market for the asset, other measures may be considered. For dwellings and other real estate, such measures could include the cost of constructing a similar asset (investigators should specify whether the cost of the stand should be included), or the amount that they could receive if they rented it out. Investigators may also want to use information on the characteristics of assets so that a value can be imputed.

405. With the exception of financial assets, values for all other relevant assets may be collected either at the household or individual level. If there are multiple respondents within the household, values of assets should be collected at the household level. This is to avoid complications and the need for reconciliation if different values are reported within the household for the same asset, such as a jointly owned principal dwelling. This recommendation follows the same logic as the approach recommended in determining the person from whom a roster of assets should be collected when there are multiple respondents within the same household.

406. Collecting information on the value of financial assets presents a great challenge because of its sensitive nature. Enumerators may think it is inappropriate to ask for account balances of financial assets and respondents may be reluctant to provide values. For example, the qualitative assessment of the EDGE pilot in Mexico revealed that information about savings tends to be a private matter, related to personal goals, and thus is not usually subject to questioning or public discussion.[152] In Maldives, where a fraudulent scheme involving bank accounts came to light during the period of data collection for the EDGE pilot, the National Bureau of Statistics opted not to ask respondents to provide account balances.

407. Given the sensitivity of asking about the value of financial assets, an alternative approach in collecting such sensitive data is to request a range of values as response categories and to use the average of the data obtained for calculation of the gender wealth gap. A response category: "Refuses to respond" should be included in both approaches.

408. Enumerators should be trained accordingly on how to solicit sensitive information. The training should include the need to emphasize to respondents the security and confidentiality with which such information will be treated. It is also recommended that the module on financial assets should be placed near the end of the questionnaire and that financial asset values should be reported at the individual level than the household level.

409. For small agricultural equipment and livestock the model questionnaire does not include any question on values. This is because it is so labour-intensive to itemize these types of assets (further details on this may be found in the discussion on the roster of assets above). It is suggested that, if a country is interested in collecting value for those specific assets because of their important contribution to the wealth of a significant proportion of individuals, a total value of each type of asset and the proportion that is owned by the respondent might be collected.

5.2.2.10. Within-household decision-making

410. As discussed in part one of these *Guidelines*, studies have found that women's asset ownership is correlated with a stronger role for women in household decision-making. To assess such correlation, a number of questions on within-household decision-making can be asked, which have been piloted in the EDGE survey in South Africa. The questions might include decisions on: how income is to be used, seeking heath care, making major household purchases, visiting family and relatives and

[152] United Nations Statistics Division, United Nations Entity for Gender Equality and the Empowerment of Women and National Statistics and Geographic Institute of Mexico, "Assessing Mexico's pilot survey on measuring individual level asset ownership and entrepreneurship from a gender perspective", EDGE final report (New York, October 2016).

domestic violence. These questions are standard and have been used in demographic and health surveys. The questions used in the pilot in South Africa are available online at https://unstats.un.org/edge and examples of those questions are also available in the annex to these *Guidelines*.

5.2.3. Specific considerations for the questionnaire design for selected assets

411. In designing questionnaires for collecting asset ownership at individual level, a few issues specific to certain types of assets need to be taken into consideration. These are further discussed in this section.

5.2.3.1. Principal dwelling

412. The dwelling structure may be owned separately from the land on which it sits, and the plot and the structure may have been acquired at different moments in time in different ways. For example, a person may have inherited the plot of land on which the dwelling is located and own it individually and then have built a house on it jointly with his or her spouse. Or the plot may not be legally owned, but a household member may own the dwelling. Countries should collect this type of information through qualitative research prior to designing the questionnaire. If the dwelling and the plot on which it stands are considered separate property, then the questions related to principal dwelling discussed in the above section should be also asked with reference to the plot of land on which the dwelling is located.

5.2.3.2. Agricultural land

413. One specific data item related to agricultural land relates to the security of tenure. The *Guidelines for the World Programme for the Census of Agriculture 2010 (FAO Guidelines)* define land tenure as "the arrangements or rights under which the holder operates the land".[153] The *FAO Guidelines* recognize that there are many different systems of formal and informal land tenure around the world and the distinction between legal and non-legal ownership (one of the keys to tenure security) is often blurred. Consequently, only four broad categories of land tenure are offered by the *FAO Guidelines* as follows:

- *Legal ownership or legal owner-like possession*: this refers to legal ownership obtained through either a formal land title system or customary land tenure arrangements that are registered or certified in some way. Such arrangements might include: possession of an ownership title by the holder; operation of the land by the holder under hereditary tenure arrangements; perpetual or long-term lease (with nominal or no rent) and; the land is held under tribal or traditional form of tenure recognized by the state.[154]
- *Non-legal ownership or non-legal owner-like possession*: this covers situations where the holder: operates the land without interruption for a long period of time without any legal form of legal ownership, title, long–term lease or payment rent; is operating land owned by the State

[153] FAO, *A System of Integrated Agricultural Censuses and Surveys*, vol. 1, para. 8.2.36, *World Programme for the Census of Agriculture 2010* (Rome, 2005).

[154] This was reported in Adriana Neciu, "Approaches to measuring asset ownership and control in agricultural censuses and surveys", paper prepared for the EDGE project, FAO, Rome, 2013.

without any legal rights; or is operating land held under tribal or traditional form of tenure which is not recognized by the State.

- *Rented from someone else*: land may be rented for an agreed amount of money or produce or both; for a share of the produce; or provided in exchange for services. Land may be also granted for free. The categories here are the following: rented for an agreed amount of money or produce or both; rented for a share of produce; provided in exchange for services; and provided under other rental arrangements.
- *Other types* of land tenure include the following: land operated on a squatter basis; land operated under transitory tenure forms such as trusteeship; land received by members of collective holdings for individual use; and land under inheritance proceedings.

414. Because the module proposed in these *Guidelines* collects information only on agricultural land considered to be owned by the respondent, the tenure status of the parcels reported by the respondent should fall under either legal ownership or legal owner-like possession or non-legal ownership or non-legal owner-like possession.[155]

415. The categories of land tenure identified in the World Programme for the Census of Agriculture are purposely broad as each country should use its own categories of land tenure, which allows for a more detailed analysis. For example, the categories used in the EDGE pilot study in Uganda were: "Mailo", "Customary", "Leasehold" and "Freehold",[156] while in South Africa, the categories were "Owns and farms the land", "Owns and rents out the land", "Owns and sharecrops out the land", "Tribal authority", "State land" and "Other". It should be noted that land rented or sharecropped should not be included in the module. These categories may be added to the list, however, if countries consider them relevant. The tenure status categories used by the countries can then be collapsed into the categories designated by the World Programme for the Census of Agriculture, as warranted by additional analysis.

416. Two questions on tenure security of agricultural land were piloted in South Africa. The first asked: "What is the tenure status of this [parcel]?" The second was formulated as follows: "What could make you lose ownership of this parcel over the next five years?"[157]

417. Sources of perceived tenure insecurity may include contestation from within households, families, or communities, or as a result of the actions of governments, companies or other private land

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[155] For the purposes of collecting data for Sustainable Development Goal indicator 5.a.1, the suggested list of legally recognized documents includes: title deed, certificate of occupancy or land certificate, legally recognized purchase agreement, legally recognized will or certificate of hereditary acquisition, certificate of customary tenure, certificate of perpetual or long-term lease or rental agreements, and certificate issued for adverse possession or prescription. It should be noted that, while the present set of guidelines focuses on ownership, the methodology under Sustainable Development Goal indicator 5.a.1 also covers use rights. Source: FAO, "Measuring individuals' rights to land: an integrated approach to data collection for SDG indicators 1.4.2 and 5.a.1" (forthcoming).

[156] These categories are official land tenure systems as enshrined in the 1995 Ugandan constitution (chapter 15, article 237). "Mailo" and "freehold" are forms of documented ownership, but "mailo" is essentially feudal in character, and recognizes occupancy by tenants, whereas "leasehold" is ownership for a particular period of time, and "customary" usually means ownership without land titles.

[157] The question proposed to measure perceptions of tenure security under Sustainable Development Goal indicator 1.4.2 identifies the likelihood of the respondent involuntarily losing ownership/use rights to the parcel in the next five years "on a scale from 1 to 5, with 1 being not at all likely and 5 being extremely likely". Source: Food and Agriculture Organization of the United Nations, "Measuring individuals' rights to land: an integrated approach to data collection for SDG indicators 1.4.2 and 5.a.1" (forthcoming).

claimants. Individuals holding land under customary systems may perceive their rights as secure despite the absence of legal recognition or formal documentation, while those with formal documentation may still perceive some insecurity depending on the robustness of the institutions enforcing documented land rights. National statistics agencies should customize the response categories according to their country context.

5.2.3.3. Non-agricultural enterprise assets

418. Collecting information on non-agricultural enterprise assets differs from data collection on all the other assets in many ways. Those differences have been covered in various places whenever relevant, in section 5.2.2. A summary of these differences is also presented below.

419. First, the scope of non-agricultural enterprise assets is limited to different categories of enterprise assets for unincorporated enterprises including the following: the current stock of physical capital, including all machinery, equipment, and furniture used for the business that were not listed earlier in any of the other modules; the current stock of inputs or supplies, including raw materials; and the current stock of finished merchandise (goods for sale). For each category of enterprise assets, the respondents will also report on the total value if all the assets in that category were to be sold today. While enterprises may be considered "assets" in the sense that holding the enterprises would bring a series of economic benefits to the owner, the System of National Accounts considers enterprises as economic institutional units, not assets.

420. Second, slightly different from all the other assets with reported ownership of asset as filter question, the data collection for non-agricultural enterprise asset starts with a few questions assessing whether the respondent owns a business and establishing the sector in which the business operates, distinguishing between agricultural activities and non-agricultural activities.

421. Once a respondent is identified as owning a business, a roster of enterprises – rather than a roster of assets – will be established. The roster should list each non-agricultural enterprise described by the respondent to create a respondent roster of non-agricultural enterprises. The roster of enterprises also includes two questions measuring whether the enterprise is incorporated (in other words, the production unit is a separate legal entity from its owners) or unincorporated. Consistent with the *2008 System of National Accounts* and the *OECD Guidelines for Micro Statistics on Household Wealth*, the assets owned by incorporated enterprises cannot be owned by the respondent and thus, in these *Guidelines*, are excluded from the measurement of wealth at the individual or household level. If the enterprise is a limited-liability enterprise and keeps formal accounts, it is an incorporated enterprise and the enumerator should skip to the next enterprise or the next module.

422. Last, only those assets that were not listed in the previous modules should be included here to avoid the double-counting of assets. Any motor-vehicles used for the enterprise should be listed and valued in the module on consumer durables. Any land and buildings used for enterprises should be listed and valued in the module on other real estate.

5.2.4. Specific considerations in questionnaire design for different survey instruments

423. Data on asset ownership at the individual level may be collected through appending questions to an existing household survey or a stand-alone household survey. Regardless of the type of survey

instruments, countries will need to customize them according to their local context. At a minimum, for many of the questions, each country will have to determine the appropriate response categories or coding. For example, under the question as to whether there is an ownership document for a given asset, each country should list the various types of ownership documents that are used locally. The possible modes of acquisition will also differ by country and by asset. To be more thorough, countries should draw upon qualitative research and prior quantitative research to customize the questionnaire, as discussed previously.

5.2.4.1. Appending a minimum set of questions on asset ownership and control

424. If the objective of the data collection exercise is to understand gender differences in owning specific types of asset, countries may choose to append a minimum set of questions to a nationally representative household survey.

425. These *Guidelines* recommend restricting the minimum set of questions to priority assets, including principal dwellings, agricultural land, other real estate and financial assets. The minimum set of questions ask about the reported and documented ownership and also the ownership rights over those assets, whenever applicable.[158] A roster of assets is considered unnecessary, given that the number of questions is to be minimized. Accordingly, the question to be asked on the ownership of dwellings and agricultural land is the following: "Do you own [this dwelling/any agricultural land]?", with the following answer categories: "Yes, exclusively"; "Yes, jointly"; "No". If the answer is "Yes, exclusively," or "Yes, jointly", a question will be asked at to whether there is a document for the dwelling or for any of the agricultural land owned by the respondent, followed by the question: "Are you listed as an owner on any of the ownership documents?" Ownership rights questions are also asked in relation to the asset owned by the respondent. It should be noted that, for principal dwellings, those questions make it possible to calculate the prevalence of reported and documented ownership and the right to sell and bequeath, and also the overlap of those different forms of ownership and rights over the dwelling. For agricultural land, however, the only estimates that can be produced are the prevalence of each single form of ownership and rights. There is no guarantee that the different forms of ownership or rights refer to the same agricultural parcel. It is not possible to study the overlap between different forms of ownership and ownership rights.

426. Incorporating the minimum set of questions for other real estate and financial assets is a more complex undertaking. Asking such questions as: "Do you own any other real estate?" or "Do you own any financial assets?" yields little information that is of policy relevance. In this case, a question on the ownership and rights could be formulated as follows, with the corresponding answer categories:

"Do you own any of the following categories of other real estate?"

- Dwelling "Yes, exclusively" "Yes, jointly" "No"
- Non-agricultural land "Yes, exclusively" "Yes, jointly" "No"
- Other categories considered important
- "Yes, exclusively" "Yes, jointly" "No"

[158] The applicability of the questions to different types of asset is discussed in section 5.2.1 below.

Similar questions can be formulated for the gathering of information on documented ownership rights to sell and bequeath. It should be noted, however, that for financial assets only the reported ownership is relevant.

427. Thus far the *Guidelines* have been recommending that agricultural land is treated as a distinct category, separate from land that may be used for non-agricultural purposes, which is classified as "other real estate". This recommendation is prompted by the importance which the ownership and control of agricultural land have for a range of policy issues, including, for example, agricultural production, food security and the development of rural communities. Land may also, however, be treated as a single entity, covering both agricultural and non-agricultural land. The question, therefore, would be formulated as "Do you own any land?", followed by other questions on documented ownership and the right to sell or bequeath.

5.2.4.2. Appending a module on asset ownership and control at the individual level

428. A more elaborative list of questions may be appended to an existing household survey if the objective of the data collection exercise goes beyond the calculation of prevalence rates of asset ownership. Countries may want to collect data on the full range of physical and financial assets included in the stand-alone survey, but limit the number of questions asked about each asset. For instance, some countries may wish only to ask questions about the types and forms of ownership rights for each asset, which would enable countries to begin to monitor gender patterns of asset ownership and to assess the extent to which the full range of rights is correlated with ownership in the country. Other countries might wish to also ask questions about the value of assets, making possible an analysis of gender wealth gaps, since the value of men's and women's assets may differ. Lastly, some countries may wish to collect data only on a few key assets, such as principal dwellings, agricultural land and other real estate, but to ask the full set of questions for each asset.

429. Once a national statistics agency has a clear understanding of the survey's objectives, as discussed earlier in part three of these *Guidelines*, it can refer to table 8 above to design a module on asset ownership and control. A careful assessment of the host survey questionnaire should be carried out to avoid any duplication of questions. For example, a household roster and individual characteristics are usually already collected in most household surveys. The roster and characteristics of assets are also included in some household surveys and should not be asked again. Given its sensitive nature, information about financial assets should always be sought at the individual level.

430. To minimize the complication resulting from the need to reconcile asset ownership within the household when multiple respondents are selected and provide information, efforts should be made to ensure that the roster of assets (with the exception of financial assets) and their characteristics is collected at the household level. If there is only one respondent randomly selected from each household, questions on the roster of assets and their characteristics can be collected from respondents at the individual (referring only to assets that they own) or household level (referring to assets owned by each household member).

5.2.4.3. Stand-alone survey

431. Collecting asset ownership at the individual level through a stand-alone survey should serve all three objectives: deriving estimates on the gender asset gap and the gender wealth gap and conducting an intrahousehold analysis of asset ownership. The survey should collect all information that is outlined in table 8.

432. As is standard in household surveys, the questionnaire should start with a statement of purpose that explains the survey to the households selected for interview. The statement of purpose should be read before the household questionnaire is administered and again to the adult household member randomly selected for the individual interview if this is a different person. Before proceeding to the questionnaires, respondents should be given time to ask follow-up questions about the survey.

433. Below is a template for a statement of purpose for a survey on asset ownership and control. Each country should customize it, accordingly, and translate it into local languages, as warranted, ensuring that the term "asset ownership" is understood. It is recommended that countries do not describe the survey as a survey on gender or gender equality as this may be off-putting to some respondents.

> *The [name of NSO] is conducting a survey of households across [country] to better understand asset ownership in the country. The findings from the survey will provide important information to the Government for developing policies and programmes to improve the lives of men and women in [country]. Your household was selected as one of those to which the survey questions will be put. You were not selected for any specific reason. Rather, your household was selected randomly from a list of all of the households in this village.*
>
> *All the information that your household provides is strictly confidential. It will not be shared with any other government agency, and it will only be used for statistical purposes by the [NSO] or under its supervision. To ensure that the most accurate information is collected, it is very important that we interview the specific household member selected for the interview and that we interview him or her alone, without family or neighbours present. If, during the interview, any family members or neighbours come within hearing distance of the interview, please ask them kindly to come back later after the interview has been completed. Please spare some time to answer the questions. We thank you in advance for your time.*

434. The stand-alone survey also includes a household questionnaire and an individual questionnaire. The household questionnaire comprises the household roster, which captures key sociodemographic information about all members of the household, and a roster of key assets, together with the characteristics of those assets. As more than one respondent will be selected from each household, the inclusion of the roster and characteristics of assets at the household level will eliminate the complication of reconciling assets reported by multiple respondents. The household questionnaire can be completed by any household member, but ideally should be administered to a person knowledgeable about the characteristics of all household members and the assets that they own. The last component of a stand-alone survey questionnaire is the individual-level questionnaire that is administered to selected respondents within household, following the selection protocol

described in section 4 of part three, on sample design. It is noted again that, given its sensitive nature, information on financial assets should always be collected at the individual level.

5.3. Testing the questionnaire

435. As previously noted, countries are encouraged to conduct their own background research for the purpose of customizing the model questionnaire presented above to their country context. After the questionnaire has been customized, several methods for testing the questionnaire should be considered, including expert reviews, cognitive interviewing, field pretests and randomized experiments. The decision as to which testing methods to employ will be based on the available survey budget and whether the survey questions are being used for the first time. At a minimum, statistics offices should use expert reviews and field pretesting of the questionnaire. When, however, a survey on asset ownership is being implemented for the first time, with a new questionnaire, focus groups and cognitive interviews should also be conducted.

436. Testing of the questionnaire should assess three aspects: first, whether it covers the assets and aspects of asset ownership that are relevant in the country context and uses terms that are clearly understood by the respondents (referred to as content standards); second, the ability of respondents to formulate answers to individual questions (cognitive standards); and, third, the ability of interviewers and respondents easily to complete the entire questionnaire (usability standards).[159] National statistics offices can use several methods to evaluate draft survey questionnaires, as described below.[160]

5.3.1. Expert reviews

437. Expert reviews ensure that the questionnaire collects the information needed to achieve the objectives of the survey and in the form needed, including the proper structure of the questionnaire and flow of the questions, wording of the questions, response categories, instructions to interviewers and skip patterns. This method is easiest to carry out at minimal expense and was implemented by all the EDGE pilots. Reviewers should be questionnaire design experts and subject matter experts, some of whom may be in the group of stakeholders involved in the planning and implementation of the survey. Subject matter experts and research analysts can have a key role in identifying aspects of asset ownership that are relevant in the country context but that have not yet been included in the questionnaire. They can also ensure that the data are collected in the format and detail needed to achieve the objectives of the survey.

438. Potential problems in formulating questions and categories of answers can also be revealed, including: unclear purpose; reference to information that respondents are unlikely to know or recall; complex syntax; vague, ambiguous or imprecise terms or unfamiliar technical terms; misleading or incorrect presuppositions; and mismatch between the questions and the answer categories.[161]

[159] Groves and others, *Survey Methodology*.

[160] Ibid.

[161] Ibid.

5.3.2. Focus groups

439. Focus groups may be involved even before a survey questionnaire is developed and when the customizing of a given model questionnaire is being considered. Focus group discussions can explore what members of a target population think about asset ownership and what terms they use in talking about them. Focus groups consist of a small number of participants (six to ten) and a moderator. Usually, the participants are selected to form a homogeneous group, and more than one focus group should be mounted to cover different subpopulations in the country. During discussions, the moderator follows a set of pre-identified topics (but no scripted questions or probing questions) and the participants are encouraged by the moderator freely to express their point of view on those topics.

5.3.3. Cognitive interviews

440. Cognitive interviews are conducted with individuals for the purpose of understanding how respondents understand the questions in the draft questionnaire and how they formulate their answers. The person conducting the cognitive interview may be a research scientist, cognitive psychologist, expert in survey question methodology, or an interviewer with special training or experience in question evaluation. Cognitive interviewing may involve different techniques, including requiring respondents to think aloud and verbalize their thoughts as they answer a question or after they have answered a set of questions or a section of a questionnaire; to paraphrase some questions in their own words or even provide definitions for key terms in the question; to answer additional probing questions to reveal why specific answers were given; and to rate how confident they were in giving answers to specific questions. Cognitive interviews may be recorded by video or audio; alternatively, interviewers may take notes. The information obtained can be used to revise the questions and the answer categories.

5.3.4. Field pretests

441. Field pretests consist of a small number of interviews, typically up to 100, using field procedures similar to those of the full-scale survey. The purpose is to evaluate the entire questionnaire in different settings (for example in large cities, small towns, rural areas or other areas of the country that have different tenure systems or different marital regimes). Interviewing protocols may also be tested at the same time. The pretest interviews may be conducted by statistics office staff or field supervisors. At the end of the field pretests, the interviewers should be debriefed on which questions worked in the field and which did not. Interviewers can often offer suggestions on how to improve questions and categories of answers. Data obtained during the pretest may be entered and tabulated to identify items with high rates of missing data that may need to be revised or removed.

442. In some field pretests the observations on how questions are asked and answered may be more systematic, using the technique known as behaviour coding. Interviews may be recorded, with the permission of the respondent. After the field pretest the behaviour of the interviewer and that of the respondent are coded consistently across interviews using the same categories of assessment. Alternatively, the coding is carried out during the interview by a third person present while the questionnaire is being administered. The technique makes it possible to tabulate rates of specific respondent behaviour, such as seeking clarifications, giving answers that inadequately respond to the

questions, or interrupting the reading of questions, which may indicate that the questions were poorly phrased. At the same time, the technique provides information on the interviewer's behaviour (such as whether the question was read in such a way that its meaning was altered), which may be controlled for when analysing information on respondents' behaviour.

5.3.5. Randomized or split-ballot experiments

443. Generally, randomized or split-ballot experiments can be conducted for the purpose of comparing different versions of the questionnaire or different methods of data collection and field procedures. These different questionnaires or procedures are covered separately in random portions of the sample. One example may be seen in the Methodological Experiment on Measuring Asset Ownership from a Gender Perspective, known as MEXA, implemented in Uganda as part of the EDGE project. As described in box 3 in part one of these *Guidelines*, MEXA tested the relative effects of five different approaches to survey respondent selection on individual-level measurement of asset ownership. One of the key findings that informed these *Guidelines* was that information on individual-level ownership by proxy from the household head yields estimates of women's and men's asset ownership that differ from those obtained by asking respondents to self-report their ownership status.

444. Nevertheless, randomized experiments can be costly and they need tight supervision in the field to control for other factors that may influence the results obtained in the different samples. More important, although these experiments can demonstrate that the different versions of the instruments or procedures produce different results, they cannot resolve the question as to which version produces better data, unless external validation data can be used to check survey responses or strong theoretical reasons form the basis for decisions that one version of the questions is better than another.

5.4. Designing and testing the CAPI questionnaire

445. This section presents general issues related to the design and testing of the CAPI questionnaire. As discussed in the section on modes of data collection, an increasing number of countries are considering using computer-assisted interviewing for the purpose of increasing the quality and timeliness of data. In countries choosing the CAPI approach for the collection of data on asset ownership, the designers of the questionnaire should pay particular attention to two aspects. First, they should ensure that the complexity of the questionnaire, given by the multiple units of observation and rosters, is reflected in the CAPI questionnaire, through the proper nesting of various sections and subsections. This aspect should also be verified at the testing stage. A second consideration relates to the use of automatic procedures for the random selection of the person to be interviewed about own assets.

5.4.1. Designing the CAPI questionnaire

446. Designing a CAPI questionnaire involves more than simply replicating the paper questionnaire on the screen of a handheld device.[162] The CAPI questionnaire should be developed after the paper

[162] For more information on CAPI design see World Bank, *Survey Solutions. Questionnaire Designer-User's Guide* (Washington, D.C., World Bank Group, n.d.). Available at http://siteresources.worldbank.org/INTCOMPTOOLS/Resources/8213623-1380598436379/designer.pdf.

questionnaire is finalized and it should include all the information planned to be collected and covered in the paper questionnaire. It should be noted, however, that what might appear as a single question in a paper questionnaire may correspond to one or more questions in the CAPI questionnaire. For that reason, CAPI designers should have a good understanding of the types of variables in the database that will correspond to each question in the questionnaire.

447. Most of the questions included in the CAPI questionnaire are for the purpose of information gathering during the interview and, once the interview starts, those questions are the only ones displayed. Some questions, however, may have different purposes. Some are prefilled with information that are useful for enumerators in completing their field assignments, such as the identification of enumeration area, household address, household identification number and identification number for the enumerator. Other questions are to be completed by the supervisors, once the enumerator completes the interview and sends it for checking and approval, while others have the sole purpose of being used in validation and enabling conditions.

448. How information is displayed on the device screen is important. More than one question should be displayed at a time, to help orient the interviewers in the overall flow of the questionnaire. The interviewers should be able to navigate easily through the questionnaire and immediately understand, for example, which text they should read out loud and which contains instructions for them. This task can be accomplished by using different graphic characters and colour variation in displaying information that has different purposes. Interviewers should also be able to spot immediately messages generated by the software application when some questions have been left unanswered or the answers given are not within the range expected.

449. One of the most important tasks in designing a CAPI questionnaire is the proper implementation of skip patterns and validation checks. In a survey on asset ownership, not every respondent will be asked every question in the questionnaire. Depending on the answers to some questions, other questions will be skipped. For example, if a person does not own a particular asset, questions related to the mode of acquisition or value of that asset are skipped. In CAPI questionnaire design, skip patterns are implemented through the use of enabling conditions for a question, which determine whether that question is displayed or not contingent on answers in one or more previous questions. It should be stressed that, once errors are made in the structure of the CAPI questionnaire, enumerators have no power to correct them in the field. For that reason, care must be taken to ensure that skips are correctly placed, so that relevant questions are not excluded in the interview. This requires a thorough review of the logical conditions implemented in the CAPI questionnaire design and testing of the questionnaire.

450. Implementation of validation conditions, which determine whether an answer recorded is acceptable, in other words, whether it is within the expected range of values, is particularly important in the CAPI questionnaire design. Control rules that would be performed during the data entry stage in a survey using a paper questionnaire can be implemented in the design of the electronic questionnaire. There are two types of errors that can be managed: range errors (for example, a person’s age being recorded as 157) and inconsistency errors (for example, a person’s age not being equal to the difference between the current date and that person’s date of birth). When errors occur, error messages

can be displayed to alert the interviewer to the need to probe the respondent or to correct the answer that has been wrongly entered.

451. Another important aspect is the flow of the questionnaire, in other words, the order in which the questions appear on the screen and are administered to the respondent. This aspect is particularly relevant in the context of complex questionnaires dealing with multiple interrelated sections and rosters (including a household members' roster and potentially several separate rosters of assets owned). This is the case of the questionnaire on asset ownership. When designing the CAPI questionnaire, the nesting of sections, subsections and questions needs to be carefully managed, to ensure that the questions appear on the screen as planned. Similarly, when more than one person is interviewed in each household, adequate nesting is also required so that it is only possible to proceed to the next individual interview once the previous individual interview has been completed. Lastly, some elements of design may involve using more complicated macros or developing new functions. This may be the case, for example, when using automatic procedures for the random selection of the person to be interviewed about own assets.

5.4.2. Testing the CAPI questionnaire

452. An initial test of the CAPI questionnaire should be conducted by survey team members who are familiar with the questionnaire. This will help to resolve the most obvious errors prior to the field pretest. A key aspect to be verified at this stage is whether the questionnaire flows in the intended order, in other words, whether proper nesting was used to integrate the multiple rosters and sections of the questionnaire on asset ownership.

453. The field pretest will be the first opportunity to test the entire CAPI-based data collection system in the environment in which it is to be used. All components of the system should be checked, including synchronization with the headquarters, access to work assignments, the completion of several interviews with real households, the transfer of completed questionnaires, making provision for supervisors' checks and approval, the receipt of the data at headquarters and the conduct of additional checks, the implementation of additional validation rules and the testing of the database structure.

454. The questionnaire incorporating the revisions suggested by the field pretest should be used to train the interviewers and supervisors, including in the field practice. The field practice will also test the communication and data transfer procedures and the entire network infrastructure. Complete interviews implementing the interviewing protocol established for data collection in the field should be followed. A final questionnaire should be prepared based on observations from the field practice.

5.5. Survey manuals

455. For face-to-face interviews, a detailed instruction manual should be prepared for supervisors and interviewers, covering all aspects of the survey. When the interview is to be conducted using CAPI, practical guidance should also be prepared on how enumerators and supervisors can perform CAPI-related tasks.

5.5.1. Manual of instructions for fieldworkers

456. As with any survey conducted by the national statistics agency, a detailed instruction manual should be prepared for supervisors and interviewers prior to the start of field training. The manual should be prepared in a language that a typical interviewer can easily understand and serve as guidance during training, along with a reference document during field operations.

457. All aspects of the survey should be covered in the manual. Some components will be similar to those of other surveys, including, for example, administrative responsibilities of interviewers, rules of proper behaviour and dress, and strategies for minimizing non-response in the survey. Other aspects, however, should be specific to data collection on asset ownership. The manual for interviewers should cover the following aspects: [163]

(a) General background and purposes of the survey, the scope of the information, and the general type and coverage of the sample;
(b) Administrative responsibilities of interviewers in terms of managing materials, proper planning and organization of their workload, procedures for reporting progress and problems and preparation of necessary administrative forms;
(c) Basic interviewing rules in terms of proper behaviour and dress, the need for proper identification, courtesy in interviewing persons in all walks of life and appropriate ways of introducing the survey;
(d) Instructions for the selection of households and appropriate respondents in each household;
(e) Importance of and strategies for minimizing non-response in the survey, including arranging for return visits and procedures for dealing with refusals;
(f) Detailed instructions and specifications for each item in the questionnaire, permissible types of probing, tactful ways of dealing with inconsistencies, methods of recording information, types of notes and explanations needed.

458. Additional information is required for field supervisors, to aid them in their supervisory responsibilities.[164] These include:

(a) Procedures for organizing and controlling the flow of materials to and from the field;
(b) Means of monitoring fieldwork, importance of adherence to timetables, procedures for the field review of completed questionnaires and application of quality control procedures;
(c) Steps to take when serious errors are discovered;
(d) If supervisors are involved in the recruitment and training of interviewers, additional provisions on these matters should be covered.

459. In addition to the manuals, other training materials may be developed, including: materials that interviewers can study at home before attending training sessions, including instructional materials and test exercises; materials for group training sessions, including test exercises, recordings of illustrative interviews, slides and other visual aids that can show mapping materials, questionnaire forms and the like.

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[163] *Handbook of Household Surveys.*

[164] Ibid.

5.5.2. CAPI manuals

460. In addition to the manuals of instructions for fieldworkers, manuals should be developed that provide practical guidance on how enumerators and supervisors can perform CAPI-related tasks.[165] These manuals may cover practical issues on how enumerators should sign in and out of the software application used (thus barring access by others to the sensitive data recorded on the device), and how to use the tablet for the purpose of opening and managing their work assignment. Information on managing work assignments may include details on how to check the status of each assignment (including whether or not the assignment has been completed by the enumerator and approved or rejected by the supervisor); how to open, close or resume an assignment; and how to transfer completed questionnaires and receive new assignments through a synchronization procedure. A section of the manual may be dedicated to examples of key issues to which the enumerators should pay particular attention in the field, including, for example, types of questions that are more complicated and how to use rosters. A separate section may also be dedicated to quality checks, including checking that all questions have been completed and answers are valid, and how to leave comments that supervisors can check.

461. Practical guidance tailored to supervisors should also be included. Supervisors have a key role in the survey workflow. They receive the survey assignments from headquarters and allocate them to the interviewers in their team. Once the questionnaires have been completed by the interviewers, the supervisors review those questionnaires to confirm that all questions are answered and the answers are coherent and plausible. This review may result in the questionnaire being approved (and therefore transferred to headquarters) or rejected (and therefore returned to the interviewer for corrections, completion, or explanatory notes). The manual may illustrate how the software application can be used by supervisors at each step of this process. The manual should also illustrate how the application should be used, to conduct regular checks of the overall status of the fieldwork and manage actively the workload distribution of the team members through assignments and reassignments. Lastly, the manual should provide support on how to troubleshoot problems that interviewers may have, including, for example, with synchronization of their tablets, checking for the updates and manually backing up the data collected.

5.6. Translating the survey instruments

462. Countries are likely to have in place translation protocols for their national survey programme and these protocols can be followed for collecting individual-level data on the ownership of assets. In general, if the data are to be collected in more than one language, best practice indicates that the survey questionnaire should be translated into the main languages spoken where the survey will be implemented and then back-translated to ensure proper translation. This should occur prior to the training of enumerators so that enumerators are accustomed to the translated materials. If countries choose instead to rely on oral translation by enumerators in the field during interviews, they may wish

[165] See World Bank, *Survey Solutions Interviewer Manual* (Washington, D.C., World Bank, n.d.), available at http://siteresources.worldbank.org/INTCOMPTOOLS/Resources/8213623-1380598436379/Interviewer_manual.pdf, and World Bank, *Survey Solutions Supervisor Manual* (Washington, D.C., World Bank, n.d.), available at http://siteresources.worldbank.org/INTCOMPTOOLS/Resources/8213623-1380598436379/Supervisor_manual.pdf, for an illustration of issues that may be covered in a CAPI manual.

to prepare a small packet of translated materials prior to the training of enumerators to aid them in the field. This may include translations of the glossary definitions found in the manual of instruction, the statement of purpose to be read at the start of each interview and key questions that appear throughout each module. It is particularly important that terms related to ownership and control of assets are thought out in each language to ensure consistency in data collection across all interviewers.

Key points:

- A generic set of questions is proposed for countries to collect data on asset ownership. Countries are encouraged to conduct their own background research for the purpose of adapting the generic set to the country context.
- After the questionnaire has been customized, several methods for testing the questionnaire should be considered, including expert reviews, cognitive interviewing, field pretests and randomized experiments.
- In countries choosing the CAPI data collection method for asset ownership, the designers of the CAPI questionnaire should pay particular attention to two aspects. First, they should ensure that the complexity of the questionnaire, consisting in the multiple units of observation and rosters, is reflected in the CAPI questionnaire, through the proper nesting of various sections and subsections. This aspect should also be verified at the testing stage. A second aspect is related to the use of automatic procedures for the random selection of the person to be interviewed about own assets.
- A detailed instruction manual should be prepared for supervisors and interviewers prior to the start of field training. The manual should be prepared in a language that a typical interviewer can understand easily and serve as guidance during training, along with a reference document for use during field operations. All aspects of the survey should be covered in the manual.

6. Field operations

463. Guidance on field operations in these *Guidelines* covers the following aspects: field organization, training of field staff and various aspects of the field work. While such guidance is typical of household surveys, aspects that are particularly relevant for the collection of data on asset ownership from a gender perspective are highlighted.

6.1. Field organization

464. The organization of fieldwork can greatly affect the quality and cost of the survey and the staff involved in planning the survey should give considerable attention to these activities. This section addresses issues related to four key activities: the recruitment of the field staff, publicity, the use of geospatial information to support enumeration and printing of the field materials. In addition to aspects that are typical of the field organization in any household survey, the section includes details on three aspects specific to implementing a survey on asset ownership: the organizing of the field staff

in small teams with a high ratio of supervisors to enumerators; assessment of the necessity to match the genders of the interviewers and the respondents; and the content of the publicity material.

6.1.1. Recruitment and organization of field staff

465. Field staff typically comprise supervisors and interviewers. Field supervisors may be full-time statistics officers or other employees assigned to posts related to survey operations in central or regional offices, or they may be employed on a temporary or part-time basis. In the latter case, they may be selected from the ranks of those interviewers who have experience and exhibit the ability and willingness to take on more responsibilities.

466. Interviewers are less likely to be permanent staff of statistics offices and most of the time they are selected and employed for fieldwork in specific surveys. Statistics offices usually develop a network of experienced interviewers who can be called as needed.

467. Desirable traits for interviewers in household surveys would typically include:[166]

- Sufficient education (the exact requirements may vary from country to country)
- Absence of highly opinionated views, in particular with regard to the subjects covered by the survey
- Willingness to accept instructions and to adhere to rules
- Knowledge of local languages and dialects used in the areas where they are going to conduct interviews
- When using CAPI, familiarity with computers and keyboard skills
- Availability for travel and work in the evening and at the weekend, when the respondents may be available for the interview

468. Costs related to field staff are one of the largest components of the survey budget; accordingly, decisions related to the number of interviewers and supervisors and their selection should be made early in the planning stage of the survey. The number of interviewers who need to complete the fieldwork within the specified survey period should be estimated on the basis of the size of the sample, its geographical distribution and the number of interviewers needed per household. The number of interviews per interviewers may vary across areas where the survey is implemented, depending on differences in travel distances and time, access, and the likelihood of finding respondents at home.

469. How the interviewers are selected also has implications for the survey budget. The interviewers may be selected locally, which may minimize the travel costs. In that case, it is important that all interviewers have access to the same type of training to ensure consistency in data collection. It should be noted, however, that the use of locally based staff, in particular in small areas towns and rural areas, increases the probability that the interviewers and respondents are acquainted, which may affect the survey results.

[166] *Handbook of Household Surveys.*

470. The ratio of supervisors to interviewers depends to some extent on the geographical spread of the fieldwork and the complexity of the survey operations. It is generally considered that, in situations where the sample is widely dispersed, difficult communications and complex field protocols, the ratio should not exceed 6 or 8 to 1.[167] Where close supervision is required, higher supervisor-interviewer ratios should be considered. In EDGE pilot surveys, the ratio was one supervisor for every four enumerators or less.

471. Similarly, the organization of interviewers and supervisors in teams may vary depending on the complexity of survey operations, in particular the interviewing protocols used. There are two extremes that can be described, with various arrangements in-between:

(a) Small mobile teams consisting of one supervisor and a few interviewers which move from one area to the next as fieldwork proceeds. In this case, the supervisors have a key role in assigning work for each of the team members within each approached area, and planning and scheduling interviews. The use of mobile teams is generally conducive to better supervision and control of fieldwork. It can also permit a more efficient sample design since, with mobility, a given number of interviewers can cover a more dispersed sample. The organization of field staff in small teams is particularly suitable for data collection based on interviewing more than one person in each sampled household and when gender matching between interviewers and respondents is required. Use of small teams, however, may be associated with higher travel costs, which may have to cover transport facilities for the use of each team and temporary accommodation in areas covered by the sample;

(b) Use of fixed interviewers, often recruited locally, each working singly in a fixed sample area for an extended period. With fixed interviewers, the supervisor may be located elsewhere and visit each interviewer periodically. In this case, it is important that the interviewers are experienced and can function independently, as close supervision is not available on a daily basis. This arrangement is more suitable for simple interviewing protocols, in which only one respondent is selected for each sampled household and gender matching between interviewers and respondents is not required.

472. Another aspect for consideration when selecting and assigning interviewers is whether customs and traditions make it necessary to match interviewers and respondents in terms of ethnicity, tribal affiliation, gender or other characteristics. There may be situations where cooperation cannot be obtained unless the two parties are matched based on those criteria. In general, statistics offices should follow the protocols that they have developed for this matter. In particular, it is important to assess whether gender matching between interviewers and respondents is required, given that the data collection focuses on measuring asset ownership from a gender perspective and both women and men are going to be interviewed. In some contexts, for example, some male respondents may not be willing to talk to female interviewers, or female respondents may not be allowed to talk to male interviewers. There are, however, other considerations to be borne in mind, including the safety and security of both interviewers and respondents. For example, in some contexts, respondents may feel safer and may be

[167] Ibid.

more willing to share information when the interviewer is a woman. In other contexts, it may be less safe for a woman than a man to be a field staff member and to travel alone.

473. Gender matching between interviewers and respondents requires a balanced distribution by sex of the overall number of interviewers and within each team dispatched in the field. Some of the EDGE pilots show that this matching is feasible. In Uganda,[168] for example, the field staff consisted of 16 men and 14 women organized in 7 mobile teams, comprising 1 supervisor and 2–4 interviewers. Gender match-up was encouraged on the basis of qualitative fieldwork conducted prior to the survey by experts on gender and land rights, which showed that respondents were more comfortable disclosing information on asset ownership when the interviewers were of the same sex as them. The gender match-up had a high success rate. Overall, about 75 per cent of male respondents were interviewed by male interviewers and 82 per cent of female respondents were interviewed by female interviewers.

474. In other countries, women constituted the majority of interviewers and high rates of gender matching were obtained for female respondents only. In Georgia, 91 per cent of female respondents were interviewed by female interviewers, while only 18 per cent of male respondents were interviewed by male interviewers. In Mongolia the corresponding proportions were 74 and 40 per cent, and in Cavite, Philippines, 76 and 24 per cent, respectively.

475. Similarly, in Mexico, 68 per cent of female respondents were interviewed by female enumerators and 31 per cent of male respondents by male enumerators. An analysis of several dimensions of quality of interviewing, including enumerators' perceptions of fluidity of the interview and resistance to the interview and the proportion of incomplete interviews, showed that, in the Mexican context, the less satisfactory gender match-up had no significant impact.

6.1.2. Publicity

476. A survey requires the cooperation of the households selected to be interviewed, and an effort should be made to inform those households in advance about the survey. To this end, the national statistics office may undertake a selection, as appropriate, of the following tasks:[169]

(1) Preparation of materials that interviewers can share with respondents, including pamphlets or articles, in local languages.
(2) Newspaper publicity about the survey; in this case, the interviewers should be provided with copies of the newspaper article.
(3) Radio or television announcements that may be referenced by the interviewers in the field.
(4) Information disseminated through local government bodies, professional associations or similar groups.
(5) Securing the approval of local officials, such as village heads, chiefs of nomadic tribes, including through personal contacts. If the statistical agency has a regional office structure, these local contacts might more readily be made by the regional officials.

[168] Kilic and Moylan, *Methodological Experiment on Measuring Asset Ownership from a Gender Perspective (MEXA)*.
[169] *Handbook of Household Surveys.*

(6) Where literacy levels are reasonably high, sending advance letters to selected households, describing the survey briefly and announcing the approximate time period for the data collection. Caution must be exercised with this approach, however, as, in some contexts, depending on local conditions and customs, such notices may create suspicion and hostility.

477. Where content is concerned, national offices should assess the sensitivity of the topics that would be covered in the publicity materials. In some communities, mentioning issues such as asset ownership or women's empowerment may create negative reactions and lead to non-participation in the survey. If these issues are perceived as sensitive, the publicity materials should avoid them. Instead, they may refer to non-controversial issues, such as how the findings of the survey would provide important information for developing policies and programmes to improve the lives of women and men, and they must emphasize the confidentiality of the information provided. Furthermore, it is important that the materials are translated into the local languages of the households covered by the survey, to make sure that their messages will reach the intended audience.

6.1.3. Role of geospatial information in supporting data collection operations

478. In surveys based on face-to-face interviews, maps and other geographical information (such as the geocodes of buildings and dwelling units) may need to be developed for the purpose of sample selection and field administration. Comprehensive geographical information, including maps, are usually prepared and updated in the course of population and housing censuses, typically by geographers, cartographers, geospatial information specialists and support staff. Census geography can serve as the starting point for meeting mapping needs for survey purposes. When census maps are incomplete, inadequate or substantially out of date, however, they may need to be updated for the current exercise, or new ones may need to be produced. For this purpose, additional geographical information from other sources (mapping agencies, civilian and military agencies, or other agencies associated with the national spatial data infrastructure, if one exists) should be obtained.

479. Once maps are assembled from the census and other sources, the next step is to appraise and validate them from the standpoint of completeness, accuracy and currency. This may be done by comparison of different maps and imageries (such as those from satellites and aerial photography) for the same area, or through on-the-spot field checks. Geographical information obtained from satellite imageries should be field-validated before use in data collection operations. The knowledge and experience of geographers, cartographers and the geospatial information specialists of regional and local offices is important for appraisal and validation. Special training may also be needed on use of the maps, or the updating of old listings from previous surveys, or the collecting of new geographical information, if this is included in the survey operation. The training of fieldworkers is especially important when data collection is carried out with handheld electronic devices such as tablets. Geospatial information collected as part of a survey operation could be useful for updating the national geographic information database.

6.2. Training of field staff

480. Training plays a key role in obtaining good-quality data in household surveys. Typically, during training, interviewers will learn about the purpose and the structure of a survey, the key

constructs and concepts used, and the role of each question in measuring them. They will also learn (or will be reminded) about how to approach communities and households, correctly select the persons to be interviewed, and successfully schedule and complete the interviews with those persons.

481. The training of interviewers for the collection of data on asset ownership from a gender perspective should follow similar principles, while emphasizing issues specific to the topic. While many interviewers may have experience collecting household-level data on asset ownership, they may have no prior experience of collecting data about asset ownership at the individual level and they may not be familiar with some of the concepts employed such as "rights to" an asset. It is recommended that training be designed on the premise that interviewers have little pre-existing knowledge of the topic, and that it is always useful to cover general data collection techniques such as approaching communities and households and successfully conducting an interview.

482. The following set of issues specific to surveys on asset ownership should be emphasized during the training: first, what assets are measured and how they are defined; second, how the ownership rights to assets are defined and measured; third, guidance on how to refrain from assuming answers based on gender-biased presumptions on ownership of assets; fourth, systematic guidance on refraining from assuming answers to questions on ownership when moving from one type of ownership to another and refraining from attempting to reconcile responses in the field when more than one person is interviewed in the same household; fifth, delivering the statement of the purpose of the survey; and sixth, how to select the eligible respondents.

483. This section includes two parts. The first addresses training in the paper questionnaire, including the content of the training and training approaches. The second addresses training in CAPI-specific issues. In countries using a CAPI questionnaire, the training should be organized in two parts, starting with the training in the paper questionnaire and continuing with the training in the CAPI questionnaire. Training in the paper questionnaire should cover topics such as: overview of objectives of the survey; content of the questionnaire, including organization of the questionnaire, key concepts and a detailed review of the questionnaire; and operational procedures regarding approaching communities and households, identifying eligible household respondents for interview and conducting successful interviews. For this part of the training, as much as one week should be reserved in a stand-alone survey. Training in the CAPI questionnaire should follow and cover CAPI-specific issues, while recapitulating the key points made during training in the paper questionnaire. This part of the training may also continue for as long as one week. Lastly, separate training sessions for supervisors should be scheduled.

6.2.1. Training in the paper questionnaire

484. The section covers the content of trainings based on a paper questionnaire as well as different approaches that can be used to ensure that training materials are fully grasped by supervisors and interviewers. If the survey is conducted using CAPI, additional training about the CAPI platform should also be performed (section 6.2.2).

6.2.1.1. Content of the training

485. The following content should be covered in the training in the paper questionnaire.

486. *Overview of objectives of the survey*: Understanding the objectives of the survey will enable the interviewers to introduce the survey to the respondents and answer their questions with confidence. If applicable, a session on objectives of the survey should discuss how asset ownership data have been routinely collected in the past at the household level (highlighting that some interviewers participating in the training may have that experience) and explain why it is important to collect these data at the individual level – reaffirming the policy relevance of measuring asset ownership from a gender perspective, as presented in the introductory section of these *Guidelines*.

487. *Introduction of key concepts*: Two sets of issues lie at the core of the training on key concepts: first which assets are covered in the survey and how they are defined; and, second, how the ownership of assets is defined and measured. Understanding these issues is key to ensuring the accuracy of data collected. The main objective of a session covering key concepts is to familiarize interviewers with these concepts, so that they recognize them and understand why they are being asked during the detailed review of the questionnaire later in the training. A session on this topic should first define "assets" and introduce the interviewers to the range of assets covered by the survey. The session should continue by covering concepts related to asset ownership. These, as explained in part one of these *Guidelines*, relate to types of ownership – including reported ownership, documented ownership, and the rights to sell and bequeath the asset; and to forms of ownership – exclusive and joint ownership; modes of acquiring assets; and valuation of assets.

488. *Detailed review of the questionnaire*: The detailed review of the questionnaire may be covered in one or more sessions, depending on the length of the questionnaire. During these sessions the interviewers should learn about the structure and organizations of the questionnaire, the way in which its different sections relate to the survey objectives, and the purpose of each question. With regard to ownership questions, interviewers should receive systematic guidance on the importance of not assuming answers relating to ownership when moving from one type of ownership to another and of not attempting to reconcile responses in the field when more than one person is interviewed in the same household. The interviewers should also understand the logic of the filter questions and skip patterns, and should be aware of which questions may require more probing and how to engage in such probing without prompting or suggesting the response to the respondent, and of what strategies to pursue when some questions are perceived as sensitive, including by emphasizing the confidentiality of information. During these sessions the facilitators should emphasize possible stereotypes on the part of interviewers that may affect the way in which questions are asked and the answers are noted, including, for example, the view that men are the owner of all the assets held in the household, or, that the wife is by default a joint owner.

489. *Approaching communities and households and conducting successful interviews*: Training in this issue is crucial to obtaining high response rates from the households and respondents in each household. Topics to be covered should include: avoiding conflicts at the community and household levels in the context of soliciting sensitive information; introducing the survey to respondents, including respondent awareness-raising and consent forms; building rapport; interviewing selected respondents alone; scheduling callbacks if selected respondents are not available when first approached; and dealing with difficult scenarios, such as how to respond if respondents refuse to

participate. The training may stimulate discussions and participatory formulation of solutions that could be employed in the field, as was the case in the Uganda EDGE pilot.[170]

490. All interviewers should be able to deliver the statement of purpose of the survey, which should be read or presented to all respondents in all households sampled. All EDGE pilots emphasized its importance, and also the problems faced by some interviewers in delivering it. A statement of purpose may refer to non-controversial issues, for example, how the findings of the survey would provide important information to the Government for the development of policies and programmes to improve the lives of men and women, and it should emphasize the confidentiality of the survey, indicate how that particular household was selected in the study and stress that the interview should be conducted alone, without family or neighbours present. Issues known in the community to create negative reactions, including for example women's empowerment or asset ownership (in particular the ownership of land), and therefore negatively influence participation in the survey, should not be mentioned.

491. *Identifying eligible household respondents for interview*: This session should provide a detailed explanation of how interviewers will identify eligible respondents in each household. Interviewers should understand the difference between the household questionnaire and the individual questionnaire and who is eligible to complete each one. As mentioned before, the household questionnaire will be completed by a single person, ideally, a person knowledgeable about the topics covered in the household questionnaire, including for example, sociodemographic characteristics of the household members or, where applicable, the assets owned by members of the household. The respondents for the individual questionnaire are one or more persons randomly selected in each household or all adult household members (for details, see section 4.2 of part three, on selecting individuals from households).

492. If the survey is administered on the basis of a paper questionnaire, and one or more persons need to be randomly selected, sufficient time should be dedicated to learning how to apply correctly the selection method used in the survey.

493. *Supervisor training*: Field supervisors will need to understand all aspects of the interviewing and data collection processes and must therefore receive extensive training so that they are prepared to manage the workload and to monitor and support interviewers during the data collection process. In some countries and surveys, the training of supervisors precedes interviewer training, in others the supervisors will be trained at the same time as interviewers. It is very important, however, to plan separate training sessions for field supervisors.

494. The following topics should be covered: their roles and responsibilities in the field; the process for distributing assignments; the protocols for non-responsive households; data quality assurance, including the importance of reviewing questionnaires to ensure that all questions have been asked and answers have been recorded; the steps to take if mistakes are found in completed questionnaires; how to deal with problems that may arise in the field; maintaining contact with the national statistics office headquarters, and so forth.

[170] Kilic and Moylan, *Methodological Experiment on Measuring Asset Ownership from a Gender Perspective (MEXA).*

495. If countries are collecting data based on a CAPI questionnaire, the sessions targeted to the supervisors should be scheduled after the CAPI-specific training has been conducted and some should be focused on how to use electronic tools to manage the workload of their teams and perform quality checks.

6.2.1.2. Training approaches

496. To ensure that interviewers and supervisors fully understand the objectives of the survey, the questionnaire, and their roles and responsibilities in the field, three main types of training approaches should be used. First, interactive plenary presentations and discussions ensure that all key elements regarding the content of the questionnaire have been emphasized by the facilitators and understood by the interviewers. Second, role plays and mock interviews are an effective technique for developing interviewing skills and the ability to recognize and react effectively and professionally to challenging situations. They provide opportunities to observe and rehearse a variety of scenarios and to discuss strategies for meeting challenges. Finally, field practice is key to enabling interviewers to experience typical interview situations in the process of survey data collection.

497. In countries where multiple languages are used for data collection, the statistics offices may find it useful to translate the questionnaire and the manuals into those languages. At a minimum, a glossary should be prepared with key terms used in the questionnaire. During training, after the concepts have been understood in the primary language, additional explanations and exercises in other major languages should be considered.

498. Quizzes may be used to evaluate interviewers' learning and, where appropriate, to select the top performers if more interviewers participate in the training than are needed for the field operations, or for the purpose of identifying supervisors.

6.2.2. Training in CAPI-specific issues

499. Training in CAPI-specific issues should be conducted immediately after the training in the paper questionnaire. The training in CAPI should focus on all practical steps that interviewers will typically have to follow in the field, starting from signing into the software application used, accessing their work assignment, using the information given in the work assignment to identify the next household to be visited, completing the questionnaire, transferring the completed questionnaires to supervisors, and signing out of the application.

500. Training in how to complete the CAPI questionnaire should be allocated sufficient time (three to five days in a stand-alone survey). During this time, interviewers should become familiar with the display of the electronic questionnaire on the device and the formulation and flow of questions. They should know the significance of the different formatting standards used across the questionnaire, including for the information that needs to be read, information that contains instructions for them and potential probing questions or further explanations, and error messages. Key concepts learned during the training in the paper questionnaire should be recapped during the CAPI training and the similarities and differences in the formulation of questions in the paper questionnaire versus the CAPI questionnaire should be emphasized. If applicable, the feature of automatically selecting one or more persons to be interviewed should be explained.

501. Additional training for supervisors is crucial. It will emphasize their role in managing the workload in the field and will enable them to use specific case management tools. The following practical steps should be covered: how to synchronize with the headquarters server to receive the workload for which they and their team are responsible and to transfer completed and supervisor-approved questionnaires; how to review the questionnaires completed and submitted by the interviewers and to decide whether they should be approved and sent to the headquarters or rejected and sent back for proper completion to the interviewers; how to troubleshoot problems that interviewers may have with their devices; and how to manage the assignments and reassignments of the total workload, so that all interviews planned to be completed have indeed been completed, reviewed, and approved by both the supervisors and the headquarters, by the end of the fieldwork period.

6.3. Fieldwork

502. This section discusses aspects of the fieldwork that are typical of household surveys, including workload distribution, information and management flow, and quality assurance during field observations. It also addresses the interviewing protocol that should be used in surveys collecting data on asset ownership, including specific issues such as identifying eligible respondents in the household, interviewing respondents alone, and interviewing respondents consecutively when more than one person per household is interviewed.

6.3.1. Workload distribution and information and management flow

503. In order to establish efficient and effective survey control, a management information system or survey management system should be set up, and measures must be taken to ensure that the workload is distributed efficiently.

6.3.1.1. Setting up a management information system

504. An element that is key to the successful monitoring of field activities is an efficient management information system that integrates all types of information required for field operations and connects multiple members of the project team. The system relies on the continuous exchange of information between the coordinating office and field supervisors and between supervisors and interviewers. It enables the coordinating office to evaluate if the field operations are proceeding according to schedule, to make necessary adjustments to the distribution of the workload across the teams, and to correct some of the problems detected in the field, almost in real time.

505. Close control over the flow of materials and information to and from the field is essential for a rapid and orderly progress of data collection in the field. This task is usually performed by some central administrative unit in the statistical agency. This central unit is responsible for sending instructional and training materials, blank forms and questionnaires and other necessary supplies to field personnel. This same unit should be responsible for receiving completed questionnaires and other materials from the field. Records must kept of what has been sent and to whom and what has been received and from whom. Of particular importance is a control record identifying each and every unit

(household) in the sample that should be interviewed and the outcome of the interview. Where regional offices exist, the material and information can flow back and forth between the central unit and supervisors and interviewers through these offices. It is important that each intermediate channel (regional officer or supervisor) maintains careful control records of its own.

506. A convenient way of controlling survey materials is to prepare a folder for each final sample cluster, identifying the corresponding geographical unit and indicating the supervisor or interviewer to whom it is assigned. This folder can include the relevant maps, the blank questionnaires and forms to be used and any special instructions. When the completed materials are received back by the administering unit, they should be checked against the control records. The most important step is to account for every ultimate sample unit either as interviewed or not interviewed for some specific reasons. Where there are discrepancies, the matter must be followed up immediately with the field personnel.

6.3.1.2. Methods of communication and feedback loops

507. The management information system may use a variety of methods of communication and feedback loops, including telephone helplines, instant messages or text messages, online forums, or social media. For example, in the Mexico EDGE pilot, the National Institute of Statistics and Geography employed a web-based platform (forum) to facilitate communication between supervisors in the field and the central and state office staff involved in the survey. This forum is a standard approach in surveys implemented by the Mexican National Institute of Statistics and Geography. It is used to access survey materials, such as manuals, coding catalogues, training presentations or other support materials, informant collaboration certificates, work schedules and progress reports. It is available continuously during the field operations and accessed on a regular basis by both supervisors and office staff to ensure close to real-time responses to supervisors' queries and optimization of the fieldwork.

6.3.1.3. Survey management system in surveys using CAPI

508. Alternatively, in countries using a CAPI questionnaire, a survey management system could be designed to control the flow of information through the use of electronic tools available for each level of survey staff, including on the handheld electronic devices of interviewers and supervisors and on the headquarters' computers to which the field managers have access. Data and information received from the field through the synchronization procedures can be easily aggregated and used to generate progress reports feeding into the survey management system. Thus, one of the biggest advantages of such a system is the ability to continuously track the progress of data collection and identify immediately the teams that encounter challenges in the field.

6.3.1.4. Workload distribution

509. The workload for each interviewer may be decided by the coordinating team of the survey, regional offices involved in field operations, or the field supervisors. Before starting the fieldwork, interviewers should have available all necessary materials and information, including a list of households where they should conduct interviews and rules for the development or updating of such lists. In cases where a recent census has been conducted in a country, the list of households to be

approached by interviewers in an enumeration area may already have been established by the coordinating unit. When the census is not recent, however, the listing of households in the enumeration area may need to be developed or updated. The new listing will be the basis on which the set of households to be interviewed will be extracted or updated, respectively. The supervisors may also have a role in assigning interviews to the interviewers, in particular when the field staff is organized into small teams and when more than one person is interviewed in each household. As the fieldwork is progressing, some interviews may also be reassigned by supervisors or the coordinating unit, in order to complete the fieldwork in the time allocated for data collection.

6.3.2. Interview protocol

510. The section aims to provide practical guidance on interview protocols that follow the principles and recommendations outlined throughout the set of guidelines, including respondent selection procotols, sampling strategies to selecting individual respondents, and minimizing contamination bias when multiple respondents within the households are selected for interview. Discussion also takes into consideration situations under different data collection strategies (minimum set of questions, appending modules or stand-along surveys).

6.3.2.1. Identifying eligible respondents in the household

511. After successfully approaching a household, an interviewer must then identify the members of the household who should be interviewed. The basic rules for selecting the eligible respondents in each household should be formulated in advance and emphasized during the training, to ensure that interviewers encounter no problems when following them in the field. The following discussion highlights some considerations for the data collection strategies and related respondent selection protocols described earlier in these *Guidelines*.

6.3.2.2. Minimum set of questions or appended module administered to one randomly selected adult household member

512. When data on asset ownership are collected through a minimum set of questions or a module attached to a main survey, and one adult respondent is randomly selected for interview, the eligible respondent will only be identified after the household questionnaire has been completed and a listing (or roster) of all the household members has been obtained. The household questionnaire is typically collected during the main survey and the respondent who completes the household questionnaire is selected on the basis of the rules established in the main survey. The listing of household members should include information on the age and sex of the household members, among other characteristics, as it is the basis used by the interviewer (or by a software routine when using CAPI) to select the adult household member for interview on asset ownership. A method of selection such as the Kish method should be consistently applied across all households to ensure a probabilistic selection of the respondents, as explained in section 4 above, on sampling design.

6.3.2.3. Appended module administered to more than one adult household member

513. When an appended module is administered to more than one adult household member, respondents eligible for individual interviews will only be identified after the household questionnaire

has been completed, as described above. The listing of household members should include information on the age, sex and marital status of the household members, as this is the basis for selecting either one randomly selected adult household member and that member's spouse or partner or one couple and an additional randomly selected adult household member for individual interviews, as presented in section 4 on sampling design.

514. At the same time, however, a roster of assets will also need to be collected at the household level, as discussed in sections 2 and 4 of part three of the *Guidelines*, that the interviewer will then feed forward into the individual interviews. When the roster of assets is constructed at the household level and incorporated in the household questionnaire, it is important that a member knowledgeable about assets owned by all household members is specifically chosen as the respondent. This person should be identified by the interviewer immediately after establishing contact with a household and obtaining their consent to conduct the interview. A simple direct question may be used, such as "Who in the household is most familiar with (or knowledgeable about) assets owned by all household members?" If this household member is different from the respondent selected to complete the household questionnaire for the main survey, then efforts should be made to build the household roster of assets with the knowledgeable member, upon completion of the household questionnaire.

6.3.2.4. Stand-alone survey administered to all adult household members

515. When a stand-alone survey on asset ownership is implemented, a household questionnaire comprising a household roster of respondents and a household roster of assets should be administered to one adult household member and the individual questionnaire on asset ownership should be administered to all adult household members.

516. As described above, when the roster of assets is constructed at the household level and incorporated in the household questionnaire, it is important that a member who is knowledgeable about assets owned by all household members is chosen as the respondent. The entire household questionnaire should be administered to that person.

517. The individual-level questionnaire, which includes questions related to asset ownership that require self-reporting, as discussed in section 4, will be administered to all household members aged 18 or older. The suggestion that all adult household members should be interviewed is aimed at reducing costs when a stand-alone survey is conducted. Other options of respondent selection are possible, such as interviewing a couple and a third randomly selected adult if there is a sufficient number of households. A more extensive discussion of within-household respondent selection may be found in section 4. The interviewer will be able to identify the persons to whom the individual-level questionnaire is to be administered only after the household questionnaire has been completed and a listing (roster) of all the household members has been obtained. This listing includes information on the age and sex of each household member and it is the basis used by the enumerator (or by a software routine when using CAPI) to select the adult household members for interview.

6.3.2.5. Interviewing respondents alone

518. As discussed earlier in these *Guidelines*, questions about asset ownership can be sensitive and interviewers should make every effort to establish an interview setting that is conducive to disclosure

of information. It is very important that interviews on the individual questionnaire should be conducted with each respondent alone. When other people are around, the respondent may be less inclined to report owning certain types of assets or other people may try to influence the respondent's responses. For example, in the EDGE pilot in Cavite province in the Philippines, when wives were interviewed while their husbands were home the husbands often tried to intervene in the interviews. Even neighbours may be curious and want to be present at an interview, in particular if the interview is being implemented on a handheld CAPI device with which community members are not familiar. A good deal of tact on the part of the interviewer will be required to operate in these kinds of situation and tips for conducting interviews alone should be discussed during the training of field staff. For example, the interviewer should state clearly that the interview needs to be conducted alone and encourage the respondent to ask other persons to leave the interview setting, if possible. In some cases, the interviewer may choose momentarily to stop asking questions until all other persons have withdrawn.

6.3.2.6. Interviewing multiple household members consecutively

519. When the sample design requires more than one adult household member to be interviewed, countries should aim to interview respondents consecutively. As discussed earlier in these *Guidelines*, consecutive interviewing mitigates the potential contamination of answers from one respondent to another in the same household; its success will largely depend, however, on the number of respondents to be interviewed per household and the number of interviewers deployed per household.

520. When two household members, such as one randomly selected respondent and that respondent's spouse or partner are interviewed, it should be fairly easy for one interviewer to interview the respondents consecutively, assuming they are both home at the same time. If three respondents are to be interviewed, such as the members of a couple and an additional, randomly selected adult, two interviewers will have to be dispatched to the household and the task of ensuring consecutive interviewing may be further complicated by the need to match the genders of the interviewer and respondent. If any more adult household members are interviewed, for example, when a stand-alone survey is being conducted and all adult household members are to be interviewed, consecutive interviewing of all adult respondents will not be possible. In addition, in many instances, multiple respondents will not be home at the same time and available for consecutive interviewing when the interviewer calls at the household. In such cases, together with their supervisors, interviewers will have to decide whether to schedule a return visit to the household when interviews can be conducted consecutively or to proceed to interview the respondent who is at home and forgo connective interviewing. While there are no set rules, field staff should be trained in these issues and data specialists should be aware of the potential biases introduced to the data when consecutive interviewing is not possible.

6.3.2.7. Gender match-up

521. Gender matching between the interviewer and the respondent may also be important in some countries. As explained earlier, an assessment should be made by the core team in charge of planning and implementing the survey regarding whether gender matching will have an impact on the level of unit non-response and the quality of responses obtained. If the assessment concludes that gender

matching is important, teams including both female and male interviewers will have to be deployed to the same enumeration area so they can cover female and male respondents. In this case, supervisors will have a key role in distributing efficiently the assignments across households between the different team members.

6.3.2.8. Callbacks

522. Every effort should be made by interviewers to successfully interview all the units in the sample. If a significant proportion of households are missed by interviewers, the probability sample chosen may lose its representative character, because households (and individuals) that are not interviewed may be different from those interviewed. Even if procedures exist for the adjustment of non-response (as presented below, in section 4 of part four, on weighting), the survey results are likely to be biased if more than a small percentage of cases is omitted.[171]

523. One of the most frequent reasons for non-response at the household level is the inability to find anyone at home in certain households. The usual approach in this instance is to plan a return visit on a different day and or at a different time of the day when it is likely that somebody in the household will be present. Interviewers may be able to obtain information from neighbours or landlords on a more suitable time for a repeat visit. It is recommended that at least two repeat visits should be attempted, unless excessive costs are involved.[172] Statistical agencies should follow their typical protocol with regard to the number of callbacks allocated for each household and the time that a team can allocate to an enumeration area. In the EDGE pilot surveys, for example, the interviewing protocols required the interviewers to have a minimum of three callbacks before considering a case to be a non-response. Information on the reasons for non-response was also collected.

524. There may be cases where respondents refuse to be interviewed. Interviewers should attempt to provide further explanations of the survey's purpose and reiterate the guarantees of confidentiality. They should also offer to schedule or reschedule interviews at a more appropriate time. Interviewers should also refer the case to the field supervisor, who may then make an attempt to obtain cooperation.

6.3.3. Quality assurance during field operations

525. Quality management in any household survey should be comprehensive and applied at all stages of survey implementation, including planning, sample design, questionnaire design, field operations and data processing and analysis. Each stage of survey implementation plays an important role in obtaining quality data. Field operations, in particular, have a great impact on the accuracy of data, which is defined as "the degree to which the information gathered correctly describes the phenomena it was designed to measure".[173] Training and quality control mechanisms during the fieldwork (such as the supervision and monitoring of interviewers' activities) enable the achievement of key quality standards, including high response rates from household and individuals (unit response rate), high response rates for all questions asked (item response rate) and consistency in asking

[171] *Handbook of Household Surveys.*

[172] Ibid.

[173] Statistics Canada, *Statistics Canada Quality Guidelines*, 4th ed. (Ottawa, 2003).

questions and recording answers. Achieving these standards is very important. Unit non-response will affect the statistics obtained in the survey, because those who are not immediately available for an interview or who refuse to participate may differ from those who agree to participate on characteristics that are relevant to the topic of the survey. In other words, the sample will not be representative of the population from which it was derived. Item non-response and errors in asking the questions and coding the answers received will also affect the accuracy of the data, because they provide a partial or biased representation of what the survey tried to measure.

526. Quality assurance procedures may be used before the fieldwork starts and during the process of field data collection, while assessments of the quality of data collection may be conducted during the data collection exercise or after it has concluded. Various strategies may be involved in reducing non-response rates before the fieldwork starts. To ensure high item response rates and consistency in administering the questionnaire, training of the interviewers and supervisors plays a crucial role, as described in section 6.2. In order to achieve high unit response rates, several strategies may be employed by national statistics offices in addition to training, including the use of publicity (see section 6.1.2), sending advance letters to inform potential respondents about the upcoming survey, and offering incentives.

527. During data collection, field supervisors have a key role to play in quality control. They monitor all aspects of data collection in the field on a daily basis. They check the questionnaires submitted by the interviewers for completeness and errors in coding answers and may observe some of the interviews. Supervisors also play a key role in identifying interviewers who underperform and seeking a solution by supporting or replacing those interviewers. For example, item non-response, relating to questions that are not answered, may occur as a result of the respondents' lack of knowledge or ambiguity about the questions, which cannot be addressed while in the field. But it may also indicate that interviewers have skipped questions or respondents have become disengaged because the interviewer has failed to create any rapport with them.

528. Observation of interviewers is particularly important in a survey on asset ownership and supervisors should schedule this activity at the beginning of the fieldwork. Working only on the basis of completed questionnaires it is difficult to judge whether interviewer have correctly asked the questions on different types of ownership or whether, on the contrary, they have assumed information about ownership or tried to reconcile answers with information on asset ownership obtained from other household members.

529. In this regard, countries may use an additional mechanism for quality control, in particular when the country is conducting a data collection exercise on asset ownership at the individual level for the first time. For example, in some EDGE pilot studies, teams of national statistics office headquarters staff who were participating in the training process as trainers and facilitators were deployed during the first week of data collection to observe the teams in the field, discuss challenges and provide additional guidance where necessary.

530. Lastly, supervisors should make sure that field assignments progress as planned and all respondents are reached and interviewed, therefore ensuring high unit response rate. Interviewers are responsible for correctly identifying households and individuals who should be interviewed, and ensuring their participation in the survey, including through a proper introduction of the survey. When

the respondents are not immediately available for interview, interviewers should be flexible in scheduling and rescheduling interviews. Their efforts to this end may not always be successful, however. In cases where respondents are more reluctant to participate, the supervisors may step in. In addition, a sample of each interviewer's work should be spot-checked to verify that the interview has been implemented only in the units in the sample.

531. At the end of the fieldwork, countries should make an overall assessment of its quality, based on supervisors' quality checks and observations during the fieldwork. They may also consider conducting repeat interviews on a small subsample of households and comparing the responses obtained with those obtained during the field data collection for the same subsample. This will give an indication of response reliability and help in assessing the work of particular interviewers. For example, in the EDGE pilot in Georgia, 12 per cent of the household sample, or two households per interviewer, were reinterviewed after the fieldwork, by staff from the national statistics office. The reinterview survey covered both urban and rural areas and used a subset of items from the questionnaire administered during data collection.

Key points:

- It is important to assess whether gender matching between interviewers and respondents is required, given that the data collection processes covered in these guidelines focus on measuring asset ownership from a gender perspective and that both women and men are going to be interviewed. If the assessment concludes that gender matching is important, teams including both female and male interviewers will have to be deployed to the same enumeration area so they can cover female and male respondents.
- The following set of issues specific to surveys on asset ownership should be emphasized during the training:
    - Which assets are measured and how they are defined
    - How the ownership rights to assets are defined and measured
    - Guidance on how to refrain from assuming answers based on gender-biased presumptions on ownership of assets
    - Systematic guidance on refraining from assuming answers to questions on ownership when moving from one type of ownership to another and refraining from attempting to reconcile responses in the field when more than one person is interviewed in the same household
    - Delivering the statement of the purpose of the survey
    - How to select the eligible respondents.
- Special interviewing protocols should be used in surveys collecting data on asset ownership, covering such areas as identifying eligible respondents in the household, interviewing respondents alone, and interviewing respondents consecutively when more than one person per household is interviewed.

Part four.
Data processing, analysis and dissemination

1. Data processing

532. Data processing refers to a range of activities aiming to convert the information collected in the field through the survey instrument into a database that can be used for tabulation and analysis of the data. Typically, it includes data entry, data editing, data imputation and an assessment of data quality and the precision of the survey. Data processing has an impact on the quality of the final survey results and its efficiency is key to obtaining those results within a reasonable time period after data collection.

533. The overall processing plan should be developed early in the stage of planning the survey and the data managers involved should have a good understanding of the survey's objectives and the questionnaire design. They will be key decision-makers on the data processing activities to be implemented, the timetable for each activity, the required personnel, equipment and computer software packages, and how best to organize the data in an electronic format.

534. Countries are encouraged to follow their typical protocol for data processing in household surveys when conducting a survey on asset ownership and control from a gender perspective. Two aspects of data processing need particular attention, however. First, the data structure is complex, dealing with several statistical units of observation and analysis, including households, individuals, and assets (for those assets that are itemized, such as land, large agricultural equipment, other real estate, financial assets and unincorporated enterprises). It is important that the structure of the survey data set reflects the hierarchical relationships between the different statistical units, minimizes the storage requirements and interfaces well with statistical software at the analytical phase.[174] This issue is detailed in section 1.1, on data entry and organization of the data sets. Second, it is important that no gender bias is introduced in any of the data processing steps, including any data adjustment activities undertaken to increase the consistency of data and ensure that the survey sample results are representative for the population targeted. This issue is covered in sections 1.2, 1.3, and 1.4 on data editing, imputations and weighting, respectively.

1.1. Data entry and organization of the data sets

535. Data entry refers to the recording of the information collected on the paper questionnaire into an electronic file that can be used for data tabulation and analysis and data sharing. A more general term for the process is data capture, which, in the case of a paper questionnaire, may consist of manual data entry by clerical staff, mark-character recognition and optimal-character recognition. In computer-assisted interviewing, the processes of interviewing and the electronic data capture occur simultaneously, which is one of the advantages of using computer-assisted interviewing.

[174] Juan Muñoz, "A guide for data management of household surveys", in *Household Sample Surveys in Developing and Transition Countries* (United Nations publication, Sales No. E.05.XVII.6).

536. In surveys using paper-based data collection, data entry may be done centrally or in the field. Data entry in the field, while enumerators and supervisors are still in an enumeration area, can improve the quality and timeliness of the data. Errors and inconsistencies identified during data checking and entry may be resolved by revisiting the households in that area. By comparison, office data entry may not as accurately reflect the realities observed in the field. Data capture in the field may also shorten the process of preparing the data for tabulations and analysis. Field staff must, however, be organized into teams that can ensure both data collection and data entry and these teams must be trained in data entry before the start of data collection. The approach also requires that the data entry and editing program has been developed, tested and finalized before field operations commence.

537. Data entry programs and the structure of the resulting data sets should be carefully considered. A household survey on asset ownership and control is a complex survey that collects information about a major statistical unit – the household – along with a variety of subordinate units within the household – persons and itemized assets, including land, large agricultural equipment, other real estate, financial assets and liabilities, and unincorporated enterprises. Data entry and editing programs should be able to handle properly this complexity and provide additional capabilities related to data tabulation, data analysis and conversion of the data files into the most commonly used statistical programs, such as CSPro, SAS, SPSS, R and Stata.

538. The structure of the survey data sets must reflect the hierarchical relationships between the different statistical units in a survey on asset ownership and control. Most of the questions on asset ownership refer to subordinate statistical units that appear in variable numbers within each household, including persons and different types of assets. The individuals are units of both observation and analysis nested within the units of households and the assets held by individuals are both units of observation and analysis nested within the units of individuals. The number of persons in a household varies across households and the number of assets owned by an individual varies across individuals and households.

539. The data corresponding to the three units of observation and analysis (households, individuals, assets) should not be stored in one simple rectangular file (called a “flat file”), with one row for each household and columns for each of the fields on the questionnaire. A flat file is adequate only if all the questions refer to the household as the statistical unit, but this is not the case in a survey that measures asset ownership at the individual level. Storing information related to individual persons and assets at the household level would be wasteful and extremely cumbersome at the analytical stage.

540. Instead, the data structure should maintain a one-to-one correspondence between each statistical unit observed and the records in the computer files, using a different record type for each kind of statistical unit. For example, to manage the data listed in the household roster, a record type would be defined for the variables in the roster and the data corresponding to each individual would be stored in a separate record of that type. A similar logic is applied to the roster of assets. For example, to manage the data listed in the agricultural land module, a record type would be defined to include the variables in the module on agricultural land and the data corresponding to each parcel of land would be stored as a separate record.

541. Across the data sets, each record would be uniquely identified by a code in four parts:

(a) Part 1, denoting the record type, appears at the beginning of each record: it indicates whether the information is from the cover page, the household roster, or one of the asset modules (agricultural land module or the financial asset module, for example);
(b) Part 2 refers to the household number;
(c) Part 3 refers to the household member's identification number;
(d) Part 4 refers to the code of the asset item listed.

542. The survey data sets may need to be organized as separate flat files, one for each record type, for dissemination purposes. For example, one flat file would comprise records of all agricultural parcels owned by the respondents in the survey, while another flat file would comprise records of all financial assets owned by respondents in the survey. The identification codes for individual records described above will enable the linking of the data across the flat files.

543. When using a CAPI questionnaire, the organization of data follows the structure of the CAPI questionnaire design, reflecting the specified hierarchy and nesting of the different units of observation. After data collection has concluded and all the questionnaires have been accepted at headquarters, data may be exported into formats compatible with the most commonly used statistical programs. For example, when using Survey Solutions (as was used in the EDGE pilots in Uganda and South Africa), the data may be exported in .sav (for SPSS), .dta (for Stata) or .tab files. The number of files is one for each distinct level of hierarchy and unit of observation in the questionnaire.

1.2. Data editing

544. The files obtained at the end of the data entry may be further checked and improved by means of data editing, imputations and weighting for the purpose of obtaining a database that can be analysed or shared.

545. A field review of questionnaires by supervisors, as discussed in part three of these *Guidelines* on field operations, should identify and rectify many of the problems and errors in the data. At the same time, some further checking is nearly always needed at the data processing stage to catch remaining errors. The general types of content errors likely to be found at this stage are omissions, inconsistencies across different questions and variables, unreasonable entries and impossible entries.[175]

546. Generally, the best procedure is to resolve the problem on the basis of the information in the questionnaire. Some errors may have occurred in the course of data transfer and the correct information may actually appear in the questionnaire. In other cases, the information that appears to be incorrect may be corrected in the light of other information recorded in the questionnaire. For example, omissions for the variable on sex may be resolved from the name of the person, or omissions in age from information on date of birth. Inconsistencies can sometimes be resolved by considering the whole range of information and deciding which of the conflicting entries appears most reasonable. For example, from data on education, marital status and occupation, it may be evident that a 13-year-old tertiary-educated married person working as a wage employee is more likely to be 31 years of age.

[175] *Handbook of Household Surveys*, revised edition (United Nations publication, Sales No. E83.XVII.13).

547. Using information from the questionnaire to resolve errors is the procedure typically applied for variables relating to the demographic characteristics of household members. It should also be applied for questions on asset ownership and control when errors have occurred during data transfer and the correct information may be found in the questionnaire. This procedure should not be applied, however, when it comes to ambiguities, inconsistencies, or omissions relating to types and forms of ownership. Different answers given to questions on different types of ownership for a given asset should not be treated as inconsistencies. Similarly, omissions of answers to questions on certain type of ownership (for example, documented ownership) should not be remedied by reference to information on other types of ownership (for example reported ownership and rights to sell and bequeath).

548. Data editing processes should also aim to obtain a clear distinction between sample units (households and individuals) that are respondents, eligible non-respondents, ineligible units or non-responding units of unknown eligibility. A clear account of the status of each household and individual in the sample is required for the computation of survey weights, as described in section 1.4 on weighting. For the purpose of weighting, it is also important to ensure that the sampling information – such as respondent unit, primary sampling unit and stratum – is available for each respondent data record.

1.3. Imputations

549. Imputations refer to the process of placing estimated answers into data fields that have missing information or information that is assessed to be incorrect or implausible. In general, decisions on whether to impute values or to work with answer categories of "unknown" depend on a number of circumstances. A general rule of thumb is to make imputations for certain basic demographic items that are essential in analysis and also where the error rates are comparatively low. Another rule of thumb is to impute responses or values where considerable prior complementary information is available corresponding to the record or observation but otherwise to assign a value of "unknown" when such information does not exist.

550. The decision as to whether to impute values has implications. On the one hand, when the statistics agency does not use imputations, users are induced to make their own imputations for the "unknown" categories and do so on the basis of less adequate information than is available to the statistics agency. On the other hand, imputed values may be perceived as made-up data, regardless of how well the imputation might be carried out.

551. Examples of imputations typically used include, first, replacing the missing value with the mean or median for that variable, preferably at the level of a population subgroup with characteristics similar to those of the respondent with missing values, or a value estimated on the basis of a regression procedure; and, second, borrowing a replacement value from a case in the data set that is most similar to the case with missing data on a set of relevant variables (a process known as "hot-deck" imputation). In any of these methods it is particularly important that the estimates of replacement values are based on responses from respondents of the same sex as the respondent with missing data. In addition, when subgroups of a population or a regression-based method are considered to estimate the replacement value, individual characteristics that may be associated with

one or the other sex (such as marital status or education) should be taken into consideration among other variables that may be relevant.

552. Alternative methods of imputation, including the use of information collected from other sources of data, may be carefully considered for items with a high non-response rate. For example, a variable crucial for the calculation of the gender wealth gap is the value of assets owned. Yet, as shown by the results of the EDGE pilots discussed in part one of these *Guidelines*, valuation questions have a high non-response rate.

553. It should be noted that removing cases with missing values for variables in the analysis is equivalent to an implicit imputation. In this case, it is assumed that the results obtained for the respondents apply to the non-respondents as well, which is not necessary the case. The alternative is to make the imputation explicit and transparent, informing the users about the method for imputation. In this case, the analyses presented in a publication will be consistently based on the same number of cases, and all the data collected are used in the analysis.

554. Where imputations are made, it is important to provide information on the extent of imputation (the proportion of item non-response) and the method used. It is also valuable to create an imputation flag variable. Thus, tabulations can be made with and without the imputations, and external users are given the opportunity to decide for themselves whether they want to use imputed values or not, based on the objectives of their analyses.

1.4. Weighting[176]

555. Weighting is a process to adjust for, first, unequal probability of selection and, second, unit non-response. Post-stratification weights could also be used to align the sample population distribution with a target population distribution. The purpose of using weights in estimating asset ownership is to produce estimates that correspond as closely as possible to the real values in the target population. When weights are not used to compensate for differential selection rates and for the sample imperfections due to issues such as non-response, the resulting estimates of population parameters will, in general, be biased.

1.4.1. Adjusting for unequal probability of selection

556. The first step in constructing weights is to adjust for unequal probability of selection of sampling units, at different stages of sample selection. The selection probability is determined by the sample design and the base weight of a respondent is calculated as the reciprocal or inverse of its probability of selection. For example, a respondent selected with probability 1/100 represents 100 in the population from which the sample was drawn. Thus, the base weight assigned to the respondent would be 100, the inverse of its selection probability. The sum of the sample weights provides an unbiased estimate of the total number of people in the target population.

[176] Guidance on constructing sample weights is beyond the scope of these guidelines. Readers interested in such guidance should consult Groves and others, *Survey Methodology*, 2nd ed., Wiley Series in Survey Methodology (Hoboken, New Jersey, 2009), and Richard Valliant, Jill Dever and Frauke Kreuter, *Practical Tools for Designing and Weighting Survey Samples* (New York, Springer, 2013).

557. For a multistage stratified sampling design for surveys of asset ownership from a gender perspective, the base weights must reflect the probabilities of selection at each stage of selection, including the last stage in which individual respondents are selected from households.

558. As discussed in part three of these *Guidelines*, two main within-household respondent selection protocols are recommended for measuring asset ownership from a gender perspective: first, randomly selecting one adult household member for interview; second, interviewing multiple household members. In the first approach, the weight assigned is the inverse of the selection probability within the household. For example, if there are four adult members in the households then the probability of selecting one person would be 1/4 and the within-household weight adjustment should be 4. In the second approach, if all eligible persons in a household are selected, no weighting adjustment is required because everyone in the household has a conditional selection probability of 1.

559. With the alternative option of selecting one couple randomly from all couples in the household and an additional person randomly from the remaining non-coupled adult household members, the selection probability of both members of the couple is 1 over the total number of the couples in the household. If there is only one couple in the household then both member of the couples have a selection probability of 1. If there are two couples in the household, then selecting one couple gives both member of the selected couple a selection probability of 1/2. The selection probability for the additional adult is 1 out of the total number of non-coupled adult household members. The weight to adults for unequal selection probability within the household is the inverse of their selection probability.

560. For the within-household selection design that selects one adult member randomly and selects the spouse of this person for interview if present, the selection probability varies depending on whether there is a spouse to be interviewed. For example, if there are four adult members in the household; one person is randomly selected and this person does not have a partner. Then the selection probability for this person is 1/4. If this person has a spouse to be interviewed, the selection probability for both members of the couple is 1/2. Weights assigned to each respondent would be the inverse of their selection probability.

561. If more than one adult member is selected randomly from the household, the selection probability for each can be calculated accordingly. For example, if three out of five eligible household members are selected randomly from a household, the selection probability should be 3/5 and the weight should be 5/3.

1.4.2. Adjusting for unit non-response

562. A second step in the weighting procedure is to adjust for unit non-response. If this is not done, the estimates may be biased in some way by the undercoverage or overcoverage of certain groups in the target population. The magnitude of bias due to non-response is associated with two factors: the overall non-response rate and the size of the difference in asset ownership between the respondent group and the non-responding group.

563. As in many household surveys, evidence from the EDGE pilot surveys showed that people living in urban areas tend to have higher non-response rates than those in rural areas and males are

more likely to be non-respondents than females (Georgia, Mongolia and Cavite, Philippines). The Uganda pilot also showed that respondents are on average older. A similar pattern may be observed in the three Asian pilot countries. Overall, when compared to the original selected sample, there is an overrepresentation among the respondents of females, inhabitants of rural areas and older people.

564. To compensate for such overrepresentation due to non-response, an assumption is made in survey non-response weighting that generates the same kind of weighting adjustment as that discussed for the unequal probability of selection. It is assumed that respondents are in some sense a random sample of the overall selected sample. Depending on the nature of the assumption, the inverse of the response rate can be used as a weight to restore the respondent distribution to the original sample distribution.[177]

565. The variables that are used to align the distribution of the respondent sample and the original sample should be correlated with outcome variables and they should be available for both the respondents and non-respondents. For this reason, in surveys on asset ownership at the individual level, the response status of each household and selected person within the household must be carefully recorded. Data should be collected about both responding and non-responding households in order to aid household non-response adjustment later. Data on key sociodemographic characteristics of household members should also be collected in the household roster before selecting individual respondents, in order to facilitate non-response adjustment at the individual level.

566. For the measurement of individual-level asset ownership, variables that are collected on the household questionnaire are good candidates. They should include sex, among other characteristics such as region, urban or rural residence, age, relationship to head of the household, marital status, education, and economic activity.

567. As an illustration, table 10 shows how non-response adjustment weight can be calculated using auxiliary variables such as sex, education and age. Data for the table are drawn from the Mongolia pilot survey. From the table, it is evident that younger persons, in particular young men, are less likely to respond than older ones and those with lower education levels. If we can assume that, within these classes disaggregated by sex, education and age, the respondents are a random sample of all sampled persons – in other words, the non-respondents are also missing at random – then the non-response adjustment weights can be calculated as the inverse of the response rate for people under each class.

Table 10

Calculating non-response adjustment weight

Auxiliary variables: sex, education and age	Sample	Respondents	Response rate (R_i)	Non-response adjustment weight ($1/R_i$)
Men, primary or less, 18–34	**276**	**191**	**0.69**	**1.45**
Men, high school or higher, 18–34	**1 084**	**677**	**0.62**	**1.60**
Men, primary or less, 35–55	**445**	**383**	**0.86**	**1.16**
Men, high school or higher, 35–55	**958**	**770**	**0.80**	**1.24**

[177] Groves and others, *Survey Methodology*.

Men, primary or less, 56+	**209**	**182**	**0.87**	**1.15**
Men, high school or higher, 56+	**313**	**285**	**0.91**	**1.10**
Women, primary or less, 18–34	**175**	**145**	**0.83**	**1.21**
Women, high school or higher, 18–34	**1 174**	**870**	**0.74**	**1.35**
Women, primary or less, 35–55	**399**	**370**	**0.93**	**1.08**
Women, high school or higher, 35–55	**1 281**	**1 176**	**0.92**	**1.09**
Women, primary or less, 56+	**272**	**236**	**0.87**	**1.15**
Women, high school or higher, 56+	**336**	**307**	**0.91**	**1.09**

Source: Data from the Mongolia EDGE pilot survey, self-reporting only.

568. A similar weighting adjustment can be made for household-level non-response. Variables that can be used for the adjustment are often limited to geographical location and residential area, whether urban or rural, as other information is often not available. For this adjustment, account must also be taken of households that are of unknown eligibility.[178]

Box 8

Using propensity score method to adjust for unit non-response

Another method in adjusting for unit non-response is the propensity score method. The method uses multivariate logistic models to estimate the probability of responses for each respondent, using a number of auxiliary variables available for both respondents and non-respondents. Ideally those auxiliary variables are related to both the propensity to respond and outcomes being measured. A description is provided below of the basic steps for calculating propensity score adjustment weights, illustrated with an example from the Philippines.

(a) *Preparing the auxiliary variables*: The list of variables considered for the Philippines pilot data include sex, age, whether a primary couple, education, urban and rural residence, religion, ethnicity, employment status, household size and age structure and whether there is a major housing asset in the household. Data for these variables are collected in the household questionnaire and are available for both respondents and non-respondents. Missing values for these variables were assessed. Values on marital status were missing for only two persons and these two persons were dropped from the dataset for propensity score weight adjustment.

(b) *Checking the two-way association between the auxiliary variables and the binary variable of respondent and non-respondent*: In the example, age, education, marital status and employment are significant while urban versus rural residence is only significant at a level of 10 per cent.

(c) *Calculating propensity scores*: This is carried out by fitting a logistic regression model, where the outcome variable is binary – 1 for respondents and 0 for non-respondents. The model may be fit with or without base weight. It is advisable, however, not to use weights as the model relates to response propensity among sampled persons. While fitting the final model, a stepwise approach is suggested until

[178] For more information on eligibility, see American Association for Public Opinion Research, *Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys* (Chicago, 2016). Available at www.aapor.org/AAPOR_Main/media/publications/Standard-Definitions20169theditionfinal.pdf.

all main effects and two-way interactions are significant. The propensity score for respondents and non-respondents will be calculated using the fitted model and their values for the auxiliary variables. In other words:

The propensity score for the j^{th} person is $\hat{\phi}_j = \dfrac{\exp(\sum_i \hat{a}_i x_{ij})}{1+\exp(\sum_i \hat{a}_i x_{ij})}$

where x represents the value of auxiliary variables and $\hat{a}$ is the fitted coefficient value from the logistic regression model. The fitted logistic model showed that the main effects of age, sex, marital status, education, employment are all significant.

(d) *Using estimated propensity score to create adjustment classes*: The propensity scores are scored from low to high, the individuals divided into five groups based on quantiles, so there are about the same numbers of individuals (respondents and non-respondents). Then a table is constructed as follows for each of the five groups.

Estimated propensity scores to create adjustment class

Adjustment class	Range of estimated propensities	Number of sample persons	Unweighted average estimated propensity	Weighted average estimated propensity	Unweighted response rate	Weighted response rate	Unweighted median estimated propensity	1/median propensity (inverse of (7))
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	[0.54, 0.88]	747	0.83	0.84	0.82	0.83	0.84	1.19
2	[0.88, 0.93]	746	0.91	0.91	0.92	0.92	0.91	1.10
3	[0.93, 0.95]	747	0.94	0.94	0.93	0.94	0.94	1.06
4	[0.95, 0.97]	747	0.96	0.96	0.97	0.96	0.96	1.04
5	[0.97, 0.99]	745	0.98	0.98	0.98	0.98	0.98	1.02

Note that column (1) shows the range of estimated propensity scores for the individuals in each class. Column (2) indicates the number of individuals in each class. Column (3) is the simple (unweighted) average of estimated propensity scores for all individuals in the class, while column (4) is the average of the estimated propensity scores weighted by the weights produced by following the steps taken to adjust for non-responses at the individual level. Column (5) is the unweighted raw (true) response rate for each class, which refers to the proportion of respondents within the class. Column (6) is the weighted response rate, calculated as the sum of weights for all respondents divided by sum of weights for the sampled individuals (respondents and non-respondents). Column (7) is the median of unweighted average of estimated propensity scores for all individuals in the class.

(e) *Calculating weight based on estimated propensity scores*: The weights are calculated as the inverse of the estimated propensity score. In this example, the weights are calculated as the inverse of the median of estimated propensity score for each class. It is also possible to calculate the weight as the inverse of the mean estimated propensity score (column (3)). If, however, there is a large variation among estimated propensity scores within the same class, use of the median is preferred.

The estimated response propensity itself can be used to derive weight for individual respondent, which is the inverse of $\hat{\phi}_j$. Another way of creating weights is to group units into classes according to their estimated propensity scores. The advantage of using propensity classes is that it avoids situations where respondents with very low values of estimated propensity scores receive large weights that can inflate the variance of survey estimates excessively.

More discussion on the calculation of weights using propensity scores may be found in the above-referenced study by Richard Valliant, Jill Dever and Frauke Kreuter, *Practical Tools for Designing and Weighting Survey Samples.*

1.4.3. Post-stratification weighting

569. In addition to adjusting for unequal probability of selection and non-response in the sample, the data can be weighted up to the total target population. This procedure is called "post-stratification" and it uses weights to assure that the sample distribution defined by some key variables follows the same distribution as that of some external population. Data for the variables used for post-stratification weighting should be available for both the sample population and the external total population. Commonly used variables used include region, urban versus rural residence, sex, age, education and economic activity.

570. Continuing with the above example from the Uganda EDGE pilot survey, to align the distribution of the sample population with the total population in terms of education, a post-stratification exercise is illustrated in table 11. A comparison of the population distribution and sample distribution by education showed that for both women and men, the sample overrepresents the group with primary education, while it underrepresents the group with secondary education.[179] Post-stratification weights are then derived to compensate for the difference between the sample and the population.

Table 11

Illustrative example of post-stratification

Sex	Education	Population size	Population distribution by education (a_i)	Sample size	Sample distribution by education (b_i)	Post-stratification weights (a_i/b_i)
Women	None	549 872	0.15	236	0.20	0.76
	Primary	696 242	0.19	580	0.49	0.39
	Secondary	2 194 102	0.60	298	0.25	2.41
	Higher	206 541	0.06	79	0.07	0.86
	Total	3 646 757	1.00	1 193	1.00	

[179] Please note that this is only a hypothetical exercise, as the population data are drawn from the Uganda 2002 population census.

Men	None	696 242	0.13	96	0.09	1.39
	Primary	860 821	0.16	510	0.48	0.32
	Secondary	3 646 757	0.66	350	0.33	2.00
	Higher	343 331	0.06	107	0.10	0.61
	Total	5 547 151	1.00	1 063	1.00	

Source: Data for the sample from the Uganda EDGE pilot survey, arms 4 and 5 combined, self-reporting only. Data for the population from the 2002 Uganda population and housing census.

1.4.4. Developing weights for asset

571. For asset-based analysis, additional calculation of weights is needed for assets identified by respondents. The calculation of the asset weights depends on how respondents own a particular asset, whether exclusively or jointly, and, if jointly, how many persons share the ownership. It also matters whether those who share ownership with the respondent are household members or not.

572. Taking the reported ownership as an example, it is assumed that one respondent was selected randomly within a household of three adult members. The asset reported by the respondent as exclusively owned will be assigned the same weight (3, the inverse of the intra-household selection probability 1/3) for the respondent (as discussed earlier in part three, on sampling design).

573. For assets that are jointly owned by the respondent and others, however, multiplicity weights would need to be calculated, depending on the number of joint owners and whether the joint owners are household members or not. For example, if the randomly selected respondent reports joint ownership of a parcel of agricultural land with two additional persons – one household member and one from another household – the weight for this parcel will be calculated as the inverse of the total selection probability of all joint owners. In this example, the selection probability is 1/3 for both the respondent and the within-household joint owner. Since the selection probability for the non-household joint owner cannot be derived, it will be assumed that this person has the same selection probability as the respondent. Accordingly, for an indicator such as the share (percentage) of reported agricultural parcels owned by women out of the total reported agricultural parcels owned by women and men, the weight assigned to this particular parcel will be the inverse of (1/3×2 +1/3), which is 1.

574. It is more complicated when there is more than one respondent within the household. The respondents might not necessarily provide consistent reports of asset ownership. In this case, a decision has to be made as to how to reconcile the information before calculating those weights.

Key points:

- Data processing refers to a range of activities aiming to convert the information collected in the field through the survey instrument into a database that can be used for tabulation and analysis of the data. Typically, it includes data entry, data editing, data imputation and an assessment of data quality and the precision of the survey.
- Countries are encouraged to follow their typical protocol for data processing in household surveys when conducting a survey on asset ownership and control from a gender perspective. Two aspects of data processing need particular attention:
    - The data structure is complex, dealing with several statistical units of observation and analysis, including households, individuals and assets (for those assets that are itemized, such as agricultural land, large agricultural equipment, other real estate, financial assets and unincorporated enterprises). It is important that the structure of the survey data set reflects the hierarchical relationships between the different statistical units, minimizes the storage requirements and interfaces well with statistical software at the analytical phase.
    - It is important that no gender bias is introduced in any of the data processing steps, including any data adjustment activities undertaken to enhance the consistency of data and ensure that the survey sample results are representative for the targeted population.

2. Recommended indicators

575. This section presents a set of indicators for monitoring women's and men's ownership and control of physical and financial assets at global and national levels. The selection of the indicators is consistent with the definitions and recommendations presented in these *Guidelines* and based on the following statistical criteria:[180]

- The indicators should be relevant to policy making and sensitive to policy interventions at the appropriate level (global, regional, national, and local).
- The indicators should be clear and easy to understand for policymakers, the general public and other stakeholders.
- The indicators are disaggregated by sex and can be further disaggregated by geographical region, income, or special population groups where applicable and relevant.
- The indicators should be a direct and unambiguous measure of progress in gender equality in asset ownership in society over time.
- The indicators should be consistent with and complementary to each other.

576. The following additional criteria are used for the selection of indicators for global monitoring:

- The number of indicators for global monitoring should be small.

[180] See United Nations, Inter-agency and Expert Group on MDG Indicators, "Lessons learned from MDG monitoring from a statistical perspective: report of the task team on lessons learned from MDG monitoring of the IAEG-MDG", 2013, and Canadian International Development Agency, *Guide to Gender-Sensitive Indicators* (Hull, Quebec, 1997).

- The indicators should be relatively comparable across countries.
- The indicators should be broadly consistent with global lists of indicators, such as the Sustainable Development Goals, and avoid imposing an unnecessary burden on Governments and other partners.
- The indicators can be measured in a cost-effective and practical manner by countries.
- A regular data collection mechanism has been or can be developed with reasonable costs and by involving the official statistical system.

2.1. Level of monitoring

577. The present *Guidelines* distinguish between global indicators and national indicators. Global indicators are the standardised indicators for which all countries are encouraged to collect data to measure the prevalence of women's and men's ownership and control of the priority assets: principal dwellings, agricultural land and other real estate including non-agricultural land, and financial assets. An indicator of the prevalence of women's and men's ownership of mobile phones is also proposed in line with Sustainable Development Goal indicator 5.b.1. The data for all the global indicators listed below can be obtained by integrating the minimum set of questions into an existing household survey, as discussed in part three of these *Guidelines*, thereby enabling national statistics agencies to monitor progress towards women's ownership and control of assets in a cost-effective manner.

578. National indicators are complementary indicators for which countries may wish to compile data based on their policy needs and the resources available for data collection. These indicators will of necessity be customized by countries to be relevant to policymaking and sensitive to policy interventions within countries. For example, countries may wish to derive an indicator of joint documented ownership of agricultural land to monitor national land titling programs. Countries in which livestock constitutes an important component of the agrarian economy may choose to develop prevalence indicators of women's and men's ownership of cattle or other large livestock, while countries in which women store a bulk of their wealth in jewellery may opt to develop prevalence indicators of women's ownership of jewellery and other valuables.

2.2. Level of measurement

579. All indicators proposed in these *Guidelines* use the individual as the unit of analysis. Two different types of statistics on the prevalence of asset ownership are proposed: first, the proportion of women (or men) who own assets; and, second, the share of women among owners of assets. Additional aspects of asset ownership can also be measured through indicators of exclusive or joint ownership of assets and on modes of acquisition of assets. Lastly, the gender wealth gap is also an important dimension to be measured to account for gender differentials in the quantity and quality of the assets owned by women and men.

580. Indicators of the proportion of women (or men) who own assets are calculated using as the numerator the number of women (or men) who own the asset, either individually or jointly, and as the denominator the total number of women (or men) in the population. For example, for the indicator of

the proportion of women (or men) with documented ownership of principal dwellings, the numerator is the total number of women (or men) in the population who are documented owners of principal dwellings and the denominator is the total number of women (or men) in the population.

581. Indicators of the share of women among asset owners are calculated using as the numerator the number of women who own the asset, either individually or jointly, and as the denominator the total number of women and men who own the asset, either individually or jointly. For example, for the indicator of the share of women among documented owners of agricultural land, the numerator is the number of women who have documented ownership, either individually or jointly, of agricultural land and the denominator is the total number of women and men who have documented ownership of agricultural land.

582. Although often used interchangeably, these types of indicators provide different information.[181] Indicators of the proportion of women (or men) who own assets indicate how widespread ownership is in the population and are useful for gender comparisons across time and countries. The proportions for women and men must be presented together so that they can be compared to produce the gender asset gap, a gender inequality measure of the differential prevalence of women's and men's asset ownership. Indicators of the share of women owners indicate how many of the people who own assets are women and are useful for showing the underrepresentation of women among asset owners.

583. Forms of ownership can be measured using the distribution of individuals by forms of ownership – exclusive owner, joint owner and non-owner. It is important to note that an individual can be an exclusive and a joint owner at the same time. For example, the person can be an exclusive owner of one parcel and a joint owner of another parcel. If data are being presented by forms of ownership in a distribution, a certain order needs to be set up in assigning a specific ownership form to persons who hold more than one form of ownership for a specific asset. If data are presented as "Proportion of individuals who are exclusive owners of agricultural land" and "Proportion of individuals who are joint owners of agricultural land", then individuals holding both forms of ownership will be covered in the numerator for both indicators; as a result, the two proportions, with the addition of the proportion of individuals who do not own agricultural land, will not add up to 100 per cent.

584. How women and men differ in terms of the manner in which their assets were acquired may be measured through indicators of "Proportion of owners who acquired [asset] through [purchase/marriage/inheritance]". Similarly, as in the case of indicators of forms of ownership, individuals might acquire the same type of asset in different ways as they might own more than one count of a specific asset. For example, a person might own two agricultural parcels and, while one parcel was acquired through inheritance, the other was acquired through purchase. Because of this situation, the proportions for all acquisition modes are not expected to add up to 100 per cent.

585. Gender wealth gap is an indicator that measures the quantity and quality of assets owned by women and men. More information on how to calculate the indicator is available in section 3, on data

[181] Cheryl Doss and others, "Gender inequalities in ownership and control of land in Africa", IFPRI Discussion Paper 01308 (Washington, D.C., International Food Policy Research Institute, 2013). Available at http://ebrary.ifpri.org/cdm/ref/collection/p15738coll2/id/127957.

analysis. To calculate the gender wealth gap, the data collection should move beyond the minimum set of questions and the roster of assets is essential, as covered in part three, section 5, on questionnaire design. The value of assets should also be collected.

586. The present *Guidelines* do not cover any indicators that use the asset as the unit of analysis. One possible formulation could, however, be the share (percentage) of the total number of documented (reported) agricultural land parcels owned by women out of the total number of documented (reported) agricultural land parcels owned by women and men. Countries interested in tracking such an indicator are encouraged to compile data for the indicator, taking into consideration data processing challenges associated specifically with asset-based indicators. General guidance on how to weight assets properly to avoid overcounting them may be found in part four, section 1, above.

2.3. Indicator construct

587. In substantive terms, the set of recommended indicators measures key concepts of asset ownership and wealth presented in part one of these *Guidelines*, including the bundle of ownership rights, forms of ownership, acquisition of core assets, and their quality and quantity. Table 12 presents indicators of the bundle of ownership rights to assets, including reported ownership, documented ownership, and the rights to bequeath and sell, along with the rationale for the construction of each indicator.

Table 12

Indicators of the bundle of ownership rights: rationale and asset coverage

Indicator	Rationale	Asset coverage
Proportion of individuals with reported ownership of [asset], by sex	Provides the broadest indicator of asset ownership as it measures people's perceptions of whether they consider themselves owners, which has implications for the behaviour that they adopt vis-à-vis the asset	All assets
Proportion of individuals with documented ownership of [asset], by sex	Provides a measure of the ability to claim ownership rights in law over an asset by function of the individual being listed as an owner on the ownership document and can be used to monitor national programmes and policies on housing and land titling reforms	Principal dwelling; agricultural land; other real estate, including non-agricultural land;
Proportion of individuals with the right to sell or bequeath the [asset], by sex	Not all persons who consider themselves owners of an asset have alienation rights over that asset. As evidenced by the EDGE pilot data, male reported owners are more likely to have the rights to sell or bequeath assets than female reported owners	Principal dwelling; agricultural land; other real estate, including non-agricultural land;
Proportion of total population with	Provides a measure of the ability to claim ownership rights in law over an asset that is comparable across	Principal dwelling; agricultural land;

Indicator	Rationale	Asset coverage
documented ownership of the [asset] or the right to sell or bequeath the [asset], by sex	countries (or areas within countries) with disparate rates of documentation. Because individuals may still have the right to sell or bequeath an asset in the absence of documented ownership, as evidenced by analysis of the EDGE pilot data, the indicator combines documented ownership with the right to sell or bequeath to render it comparable across countries	other real estate, including non-agricultural land;

588. Table 13 below presents indicators measuring additional aspects of asset ownership, including forms of ownership, acquisition of assets, and the quality and quantity of assets owned, together with the rationale followed in covering those aspects. This type of indicator is used for a subset of indicators for national monitoring.

Table 13

Indicators of additional aspects of asset ownership: rationale and asset coverage

Indicator	Rationale	Asset coverage
Distribution of individuals by forms of ownership (do not own, own exclusively, own jointly) and sex	Provides a measure for monitoring national policies and programmes to increase women's ownership of land and housing through joint titling	Principal dwellings, agricultural land, non-agricultural land
Proportion of owners who acquired the [asset] through [specific mode of acquisition], by sex	Provides information on how women and men acquire assets and whether their modes of acquisition differ, with a view to developing policies and programmes that promote women's and men's accumulation of assets. Policy-relevant specific modes of acquisition may refer to inheritance, purchase, government programmes	Principal dwelling, agricultural land, non-agricultural land
Share (percentage) of documented (reported) agricultural land areas owned by women out of total documented (reported) agricultural land areas owned by women and men	Accounts for gender differentials in the size of the agricultural land owned by women and men	Agricultural land
Gender wealth gap	Accounts for gender differentials in the quantity and quality of the core assets owned by women and men	Principal dwelling; agricultural land; other real estate including non-

Indicator	Rationale	Asset coverage
		agricultural land; non-agricultural enterprise assets; financial assets

589. The list below presents the global and national indicators organized by type of asset.

Principal dwellings

Global indicators:

- Indicator G1: proportion of total population with documented ownership of the principal dwelling or the right to sell or bequeath the principal dwelling, by sex
- Indicator G2: share of women among individuals with documented ownership of the principal dwelling or the right to sell or bequeath the principal dwelling

National indicators:

- Indicator N1: proportion of total population with reported ownership of principal dwelling, by sex
- Indicator N2: share of women among reported owners of principal dwelling
- Indicator N3: proportion of total population with reported ownership of principal dwelling and the right to sell or bequeath the principal dwelling, by sex
- Indicator N4: share of women among individuals with reported ownership of principal dwellings and the right to sell or bequeath the principal dwelling
- Indicator N5: proportion of total population with documented ownership of principal dwelling, by sex
- Indicator N6: share of women among documented owners of principal dwelling
- Indicator N7: distribution of individuals by form of ownership (do not own, own exclusively, own jointly) of principal dwelling and by sex
- Indicator N8: proportion of individuals who acquired ownership of the dwelling through [specific mode of acquisition] (e.g., purchase; inheritance; government programme), by sex
- Gender wealth gap: difference in the wealth that women and men hold in the principal dwelling (see section 3 on data analysis and dissemination).

Agricultural land

Global indicators:[182]

[182] The global indicators of agricultural land proposed in these guidelines only inform, as proxies, the measurement of Sustainable Development Goal indicators 5.a.1 (a) and (b), that refer to "agricultural population". Additional information on the methodology for the Sustainable Development Goal indicators may be found in box 1 above.

- Indicator G3: proportion of total population with documented ownership of agricultural land or the right to sell or bequeath agricultural land, by sex
- Indicator G4: share of women among individuals with documented ownership of agricultural land or with the right to sell or bequeath agricultural land

National indicators:

- Indicator N1: proportion of total population with reported ownership of agricultural land, by sex
- Indicator N2: share of women among reported owners of agricultural land
- Indicator N3: proportion of total population with reported ownership of agricultural land and the right to sell or bequeath agricultural land, by sex
- Indicator N4: share of women among individuals with reported ownership of agricultural land and the right to sell or bequeath agricultural land
- Indicator N5: proportion of total population with documented ownership of agricultural land, by sex
- Indicator N6: share of women among documented owners of agricultural land
- Indicator N7: distribution of individuals by form of ownership (do not own, own exclusively, own jointly) of agricultural land and by sex
- Indicator N8: proportion of individuals who acquired ownership of agricultural land through [specific mode of acquisition] (e.g., purchase; inheritance; government programme), by sex
- Indicator N9: share (percentage) of documented agricultural land area owned by women out of total documented agricultural land area owned by women and men
- Indicator N10: share (percentage) of reported agricultural land area owned by women out of total reported agricultural land area owned by women and men
- Gender wealth gap: difference in the wealth that women and men hold in agricultural land

Non-agricultural land (or other categories of other real estate, as applicable)

Global indicators:

- Indicator G5: proportion of total population with documented ownership of non-agricultural land or the right to sell or bequeath non-agricultural land, by sex
- Indicator G6: share of women among individuals with documented ownership of non-agricultural land or with the right to sell or bequeath agricultural land

National indicators:

- Indicator N1: proportion of total adult population with reported ownership of non-agricultural land, by sex
- Indicator N2: share of women among reported owners of non-agricultural land
- Indicator N3: proportion of total adult population with reported ownership of non-agricultural land and the right to sell or bequeath non-agricultural land, by sex

- Indicator N4: share of women among individuals with reported ownership of non-agricultural land and the right to sell or bequeath non-agricultural land
- Indicator N5: proportion of total adult population with documented ownership of non-agricultural land, by sex
- Indicator N6: share of women among documented owners of non-agricultural land
- Indicator N7: distribution of individuals by forms of ownership (do not own, own exclusively, own jointly) of non-agricultural land and by sex
- Indicator N8: proportion of individuals who acquired ownership of non-agricultural land through [specific mode of acquisition] (e.g., purchase; inheritance; government programme), by sex
- Gender wealth gap: difference in the wealth that women and men hold in non-agricultural land

Financial assets

Global indicator:

> Proportion of individuals who have [specific type of financial asset] in their name, by sex

National indicator:

- Gender wealth gap: difference in the wealth that women and men hold in financial assets

Non-agricultural enterprise assets

National indicator:

- Proportion of individuals who own non-agricultural enterprise assets
- Gender wealth gap: difference in the wealth that women and men hold in non-agricultural enterprise assets

Consumer durables

Global indicator:

- Proportion of individuals who own a mobile telephone, by sex

National indicator:

- Proportion of individuals who own [specific type of consumer durable], by sex

Livestock

National indicator:

- Proportion of individuals who own [specific type of livestock], by sex

Large agricultural equipment

National indicators:

- Proportion of individuals who own [specific type of large agricultural equipment], by sex
- Proportion of individuals who acquired ownership of [large agricultural equipment] through [specific mode of acquisition] (e.g., purchase; inheritance; government programme), by sex

Small agricultural equipment

National indicator:

- Proportion of individuals who own any small agricultural equipment, by sex

Valuables:

National indicator:

- Proportion of individuals who own [specific type of valuable], by sex

Overall indicator of wealth

National indicator:

- Gender wealth gap: the total net worth of key assets owned by women (value of their key assets less the value of their outstanding liabilities) as a share of the total net worth of key assets owned by women and men. The gender wealth gap could also be calculated for each key asset separately.

Key points:

- This section presents a set of indicators for monitoring women's and men's ownership and control of physical and financial assets at global and national levels.
- Global indictors are generally phrased as, first, the proportion of total population with ownership of a specific asset; and, second, the share of women among owners. For comparability at the international level, ownership of physical priority assets, such as principal dwelling, agricultural land, other real estate, including non-agricultural land, is best defined as "documented ownership or the rights to alienate the asset".
- At the national level, countries will need to assess the legal frameworks and social norms governing access to assets and consider:
    - Measuring the full set of ownership rights depending on the policy objective
    - Addressing all issues that are of policy relevance, including whether assets are owned exclusively or jointly with others, how women and men differ in asset acquisition and in wealth stored in a particular type of asset or in a combination of different types of assets

3. Data analysis and dissemination of results

590. Data analysis and dissemination are steps that need to be taken in preparing and communicating the key findings of the survey to stakeholders and a range of users. Data analysis

refers to the process of transforming raw data into statistics and indicators presented in the form of numbers, tables and graphs and interpreted in analytical publications that discuss data patterns and trends and their significance for programme development and policymaking. This is the stage of the survey which aims to answer the questions formulated as the survey objectives. The dissemination of data refers to the release of survey findings through various statistical and analytical products, and also to the sharing of data files and associated metadata.

591. The first part of this section, focusing on data analysis and presentation, illustrates how data analysis can be used to answer policy-relevant questions on asset ownership and how to present the findings in a form that tells a story about existing gender differences in a particular country context. While data and statistics obtained from the EDGE pilots and other sources are used, it should be noted that the EDGE pilots tested different iterations of the final methodology presented in these *Guidelines*. As a result, the findings presented below should be interpreted with caution and are not fully comparable across countries. Readers are encouraged to consult national EDGE reports prepared by the national statistics offices for a more detailed analysis.

592. The second part of the section focuses on the dissemination of results and covers aspects related to dissemination of products that would typically be prepared at the end of a household survey.

3.1. Data analysis

593. Data analysis is the component of the survey process that aims to provide answers to the overarching questions on asset ownership that were identified by stakeholders at the outset of the project. As discussed in the Introduction to these *Guidelines*, these questions can be broadly categorized under three objectives: first, understanding the gender asset gap; second, understanding the gender wealth gap; and, third, when more than one household member is interviewed, undertaking intrahousehold analysis of asset ownership to understand better how assets are allocated within households, in particular within couples and how asset ownership affects intrahousehold decision-making powers.

594. It is important that data analysts on the survey team formulate an analytical plan, in consultation with stakeholders, that is relevant to policy concerns in the country. This should be done early in the planning stages of the survey, because both the sample design and the structure of the questionnaire strongly influence the type and range of analysis that can be undertaken. For example, if the division of asset ownership between spouses or partners is identified as a policy concern for land and housing titling reforms, the sample must be designed to yield a sufficient number of spouses or partners who will be interviewed. Likewise, if one of the survey objectives is to measure the gender wealth gap, the questionnaire will need to be designed with the asset, not the individual, as the unit of observation. As discussed below, this has implications for how the data file is organized and prepared for analysis.

3.1.1. Organization of data file based on units of observation and analysis

595. As discussed earlier (see part one, section 5.1, on units of observation), a household survey collecting data on asset ownership from a gender perspective has a hierarchical set of “units of observation” – including the household, the individual and the asset – which defines the levels at

which the information is collected. The household and individual are common units of observation in household surveys. Information typically collected using the household as the unit of observation includes household identification variables and housing characteristics. Typical information collected at the individual level includes demographic, social and economic characteristics of the members of each household.

596. The individual is the unit of observation for information on asset ownership in surveys using a minimum set of questions, such as "Do you own any [asset]?" When the individual is used as the unit of analysis, the data file is organized in such a way that a unique record exists for each individual. This record contains basic demographic, social and economic characteristics, such as sex, age and marital status, together with a set of variables that identifies, for example, whether specific individuals are the reported or documented owners of particular types of assets, and whether they have the right to sell or bequeath the asset. This organization is illustrated in table 14.

Table 14

Organization of data file using the individual as unit of observation

Characteristics of individuals

Person ID	Household ID	Sex	Age	Marital status	…	Reported owner of principal dwelling	Documented owner of principal dwelling	…

Records of individuals

597. In asset ownership surveys that collect information on characteristics of assets – such as size, value, or quality of assets – the asset is the unit of observation, in addition to the household and the individual. A unique record exists for each asset and includes information about the characteristics of the asset. In the example given in table 15, there is a record for each parcel of agricultural land, which includes information such as its owners, area of the parcel, use of the parcel and value of the parcel.

Table 15

Organization of data file with the asset as unit of observation

Characteristics of assets

Records of assets

Asset ID	Household ID	Owner ID				Number of owners	Area of parcel	Use of parcel	Value of parcel	…
Parcel 1										
Parcel 2										
…										
Parcel n										

598. The units of observation to be used as units of analysis are determined by the questions guiding the analysis. Questions such as: "What is the prevalence of asset ownership among women and men?" "Are female owners as likely as male owners to possess the full bundle of ownership rights?" "Do women and men acquire assets in different ways?" "Is the level of women's wealth the same as men's?" "Is women's wealth concentrated in the same types of assets as men's wealth?" require that the ultimate analysis is carried out at the individual level to enable a comparison between women and men. In contrast, a question such as "What is the distribution of agricultural land parcels by type of use?" requires that the analysis is carried out at the asset level, which, in this case, is the level of agricultural parcels.

599. Because these *Guidelines* are concerned with measuring and analysing asset ownership from a gender perspective, the indicators and analysis presented below use the individual as the unit of analysis. Even if the data are collected using the assets as units of observation, as shown in table 15, the data are transformed into a structure similar to that presented in table 14 for the purpose of analysing the data at the individual level. This is reflected in table 16. For example, if one person appears in the data set as an owner of two parcels listed in the roster of agricultural land, the analyst may compute a variable of "ownership status for agricultural land" at the individual level. This computed new variable indicates whether or not a person is an owner of agricultural land and it is used in the statistical analysis to answer a question such as "What is the prevalence of ownership of agricultural land among women and men?"

600. Furthermore, when the value of the two parcels of land and the number of owners for each of them are known, the analyst may compute a variable indicating the individual wealth stored in agricultural land that can be attributed to each individual owner. This computed new variable is used

in the statistical analysis to answer questions such as “What share of the total value of agricultural land can be attributed to women land owners?” To answer either of these two questions, weights computed at the individual level[183] to adjust for the unequal probability of selection or unit non-response, as discussed in part four, section 1.4, should be used.

Table 16

Organization of data file using the individual as unit of analysis

Characteristics of individuals

	Person ID	Household ID	Sex	Age	Marital status	…	Reported owner of agricultural land	Documented owner of agricultural land	…	Value of agricultural land attributed to individual	…	Individual weight
Records of individuals												

3.1.2. Types of variables used in an analysis of asset ownership from a gender perspective

601. At a minimum, the essential variables for a gender analysis of asset ownership and wealth are whether a person owns a type of asset (e.g., principal dwelling), characteristics of the asset and the monetary value of the asset, and sex. In addition, the following variables may be considered for a more nuanced understanding of asset ownership from a gender perspective:

(a) Age category, marital status, and type of household are variables typically found in any household survey and are key to using a life cycle perspective in the analysis. A life cycle perspective is particularly important when undertaking a gender analysis of asset ownership. For example, in some societies, wealth tends to be accumulated as people age, and demographic events that may result in the dissolution of the household, such as marriage, divorce or the death of a spouse, can have a significant impact on the acquisition or loss of an asset, in particular for women;

(b) Education and employment are basic individual characteristics that are likely to vary with the ownership of certain types of assets. Employment history, in addition to the family trajectories noted above, can also shed light on the driving forces behind wealth accumulation. Employment in entrepreneurial activities may also be linked with the holding of assets in their productive capacity, including land, livestock, and machinery, or certain types of consumer durables (such as vehicles and equipment);

(c) Variables reflecting the decision-making power of women are key to understanding the empowerment that asset ownership may foster by increasing women’s bargaining power in the household. Such variables may be related to participation in intrahousehold decision-making on the

[183] When assets are used as units of analysis of data obtained from household surveys, weights for assets, calculated as described in section 1.4, should be applied.

allocation of economic resources, personal decision-making (on an individual's own health for example), or decision-making related to the use of assets in their productive capacity;

(d) Context variables, such as urban versus rural areas or geographical and administrative areas of a country, may reflect different formal laws or customary rules regulating access to assets.

3.1.3. Key objective: measuring and understanding the gender asset gap

602. All individual-level data collection on asset ownership should aim to measure the gender asset gap, or the differential distribution of asset ownership among women and men in a society. The gender asset gap comprises, first, the prevalence of asset ownership among women and men, which measures how frequently women and men own a given type of asset; and, second, the share of women among asset owners, which measures whether women and men are equally represented among the owners of the asset type. Prevalence indicators are useful for representing gender differences in asset ownership across time and countries while share indicators are useful for highlighting gender disparities among owners.

603. This section also demonstrates how analysis could be carried out to study the overlap of different types of ownership, namely, reported ownership, documented ownership and the right to sell and bequeath (see part one, section 1.2, for more information on types of ownership). Such analysis helps in determining the type or combination of types of ownership that best convey gender differences in a specific country.

604. The section then illustrates how, once the overall gender asset gap has been identified, this gap varies within different population subgroups and outlines the key characteristics of owners and non-owners of assets.

3.1.3.1. Measuring the gender asset gap

605. The gender asset gap can be measured in terms of the prevalence of asset ownership and the share of women among asset owners. To measure the prevalence of asset ownership, the base proportions are calculated as the relative frequencies of asset owners for each sex, with women's and men's respective totals in the sample used as the denominators. The respective formulae for calculating the prevalence of asset ownership, by sex, are the following:

$$\frac{Number\ of\ women\ owners}{Total\ number\ of\ women} \times 100 \quad \text{and} \quad \frac{Number\ of\ men\ owners}{Total\ number\ of\ men} \times 100$$

606. As shown in table 17, of 869 women respondents in Uganda, 306 reported owning the principal dwelling, yielding a prevalence of ownership of the principal dwelling among women of 35 per cent (306 / 869 x 100). Of 653 male respondents, 389 reported owning the dwelling, giving an ownership prevalence among men of 60 per cent (389 / 653 x 100).

Table 17

Distribution of adult population (age 18 and above) by sex and reported ownership of the principal dwelling, Uganda, 2014

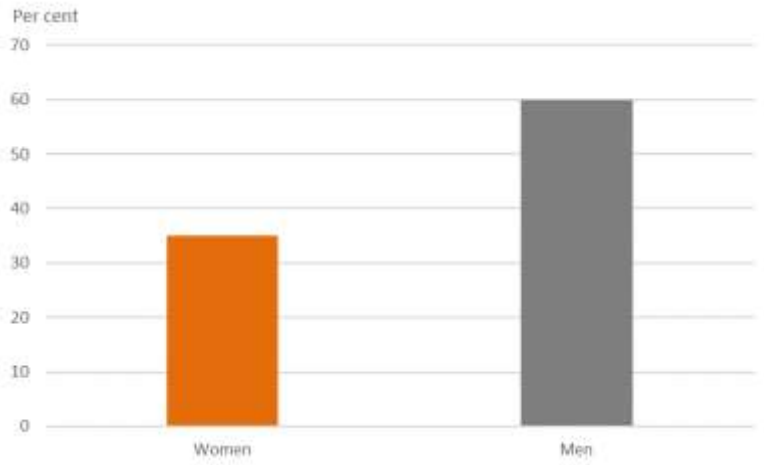
	Number of respondents		Distribution of female and male population by ownership status (column percentages)	
	Women	Men	Women	Men
Owner	306	389	35	60
Non-owner	563	264	65	40
Total	869	653	100	100

Source: EDGE pilot, Uganda, treatments 4 and 5, self-reported data.

607. The prevalence of reported ownership can also be presented in a graph, as in figure 5. The gender gap in the prevalence of asset ownership is usually calculated as the differential prevalence, that is, the proportion of men who are owners minus the proportion of women who are owners, expressed in percentage points. In this example, the prevalence of owning the principal dwelling in Uganda is 60 per cent for men, as against 35 per cent for women. The gender difference is 25 percentage points; in other words, men's ownership of the principal dwelling is 25 percentage points higher than that of women in Uganda.

Figure 5

Prevalence of reported ownership of the principal dwelling among the adult population, by sex, Uganda, 2014



Source: EDGE pilot, Uganda, treatments 4 and 5, self-reported data.

608. To determine whether the difference between women's and men's asset ownership is statistically significant, the independence of sex and ownership status should be tested or a t-test carried out for the difference in asset ownership prevalence. For the Uganda example on ownership of the principal dwelling, a statistical test showed that the gender difference was statistically significant.

609. To measure the share of women among asset owners, the numerator is the number of women owners while the denominator is the total number of owners (both men and women). The following formula is used to calculate the share of women among all owners:

$$\frac{Women\ owners}{Women\ and\ men\ owners} \times 100$$

610. As shown in table 18, of 695 reported owners of the principal dwelling, 306 are women. Women thus represent 44 per cent of adults in Uganda who own the principal dwelling (306 / 695 x 100). The share of women among owners could also be presented graphically (figure 6).

Table 18

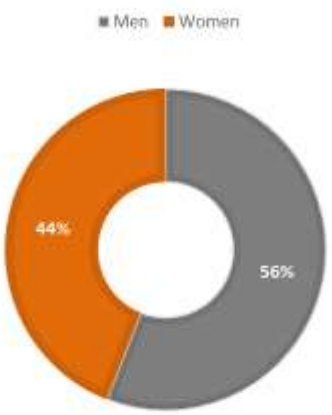
Distribution of reported owners and non-owners of the principal dwelling by sex, Uganda, 2014

	Number of respondents			Distribution of owners and non-owners by sex (row percentages)		
	Total	Men	Women	Total	Men	Women
Owner	695	389	306	100	56	44
Non-owner	827	264	563	100	32	68
Total	1522	653	869	100	43	57

Source: EDGE pilot, Uganda, treatments 4 and 5, self-reported data.

Figure 6

Share of women among owners of principal dwelling, Uganda, 2014



Source: EDGE pilot, Uganda, treatments 4 and 5, self-reported data.

3.1.3.2. Analysing the overlap of ownership rights

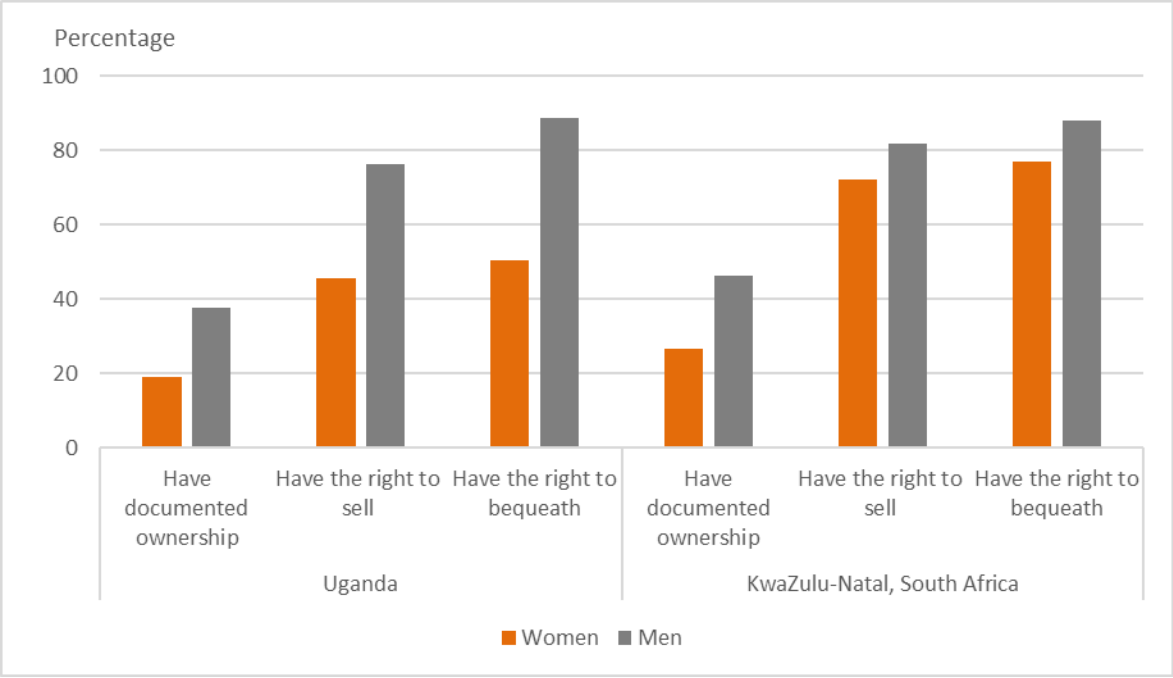
611. As presented in the conceptual framework for measuring asset ownership from a gender perspective, set out in part one of these *Guidelines*, to capture meaningful gender differences in asset ownership, many countries will need to measure a combination of ownership rights, including reported ownership, documented ownership and the rights to sell or bequeath the asset. This is because the full set of ownership rights may not all be vested in one individual, with the overlap of rights most likely favouring men, as shown below.

612. As a preliminary analysis, countries are thus advised to examine the prevalence of different types of ownership rights, followed by a study of overlaps of ownership rights to determine which measure or combination of measure best conveys gender differences in asset ownership.

613. Figure 7 depicts differences in the overlap of ownership rights for men and women in Uganda and the KwaZulu-Natal province of South Africa. In both places, male reported owners are more likely than female reported owners to have other types of ownership rights. For example, in Uganda, 89 per cent of men who report owning the dwelling also report the right to bequeath the dwelling, whereas only half of reported women owners report this same right. While the differences in the overlap of ownership rights for men and women are less pronounced in KwaZulu-Natal than in Uganda, they are still higher for men. For example, only 27 per cent of women with reported ownership of the principal dwelling have documented ownership, compared to 47 per cent of male reported owners. Although not presented, the patterns of overlap are similar for agricultural land. Taken together, these findings suggest that a prevalence indicator measuring reported asset ownership may not be sufficient in and of itself for capturing policy-relevant gender differences in asset ownership. Accordingly, although reported ownership is presented throughout this section for ease of illustration, countries are advised to assess the overlap of different types of ownership rights, as described above, before deciding which constructs of ownership to disseminate.

Figure 7

Percentage of reported owners who have documented ownership, the right to sell, or the right to bequeath, by sex, Uganda (2014) and KwaZulu-Natal, South Africa (2016)



Source: EDGE pilot, Uganda, treatments 4 and 5, self-reported data; South Africa EDGE pilot survey.

Note: For illustration purposes, the data presented for Uganda and South Africa are not weighted.

3.1.3.3. Gender asset gap by key characteristics

614. Additional analyses of the gender asset gap, including descriptive multiway tabulations and more sophisticated multivariate inferential analysis, will be useful for unpacking the gender asset gap. Analyses of these types can point to existing obstacles to asset ownership and distinct patterns in the accumulation and loss of assets that may be different for women and men and among different groups of women and men.

615. The following example illustrates how gender difference in ownership of the principal dwelling varies by age in Uganda (table 19). The prevalence of dwelling ownership by age category shows that older respondents, both men and women, are more likely to own the principal dwelling than their younger counterparts. For instance, the prevalence of ownership for women increases from 19 per cent in the age category 18–34 to over 70 per cent at the age of 60 and over. For men, the respective proportions increase from 40 per cent to over 80 per cent. A test shows that the increase with age in ownership of the dwelling is statistically significant. Gender difference is also significant throughout all age groups.

Table 19

Prevalence of reported ownership of the principal dwelling, by sex and age category, Uganda, 2014

	1. Number of respondents		2. Number of owners		3.Prevalence of ownership by age category (percentage)	
Age	Women	Men	Women	Men	Women	Men
18–34	473	324	88	131	19	40
35–59	296	255	145	196	49	77
60+	100	74	73	62	73	84
All ages	869	653	306	389	35	60

Source: EDGE pilot, Uganda, treatments 4 and 5, self-reported data.

616. Similar to the above example, gender differences in asset ownership should be analysed across different population subgroups defined by contextual variables (such as urban versus rural areas,

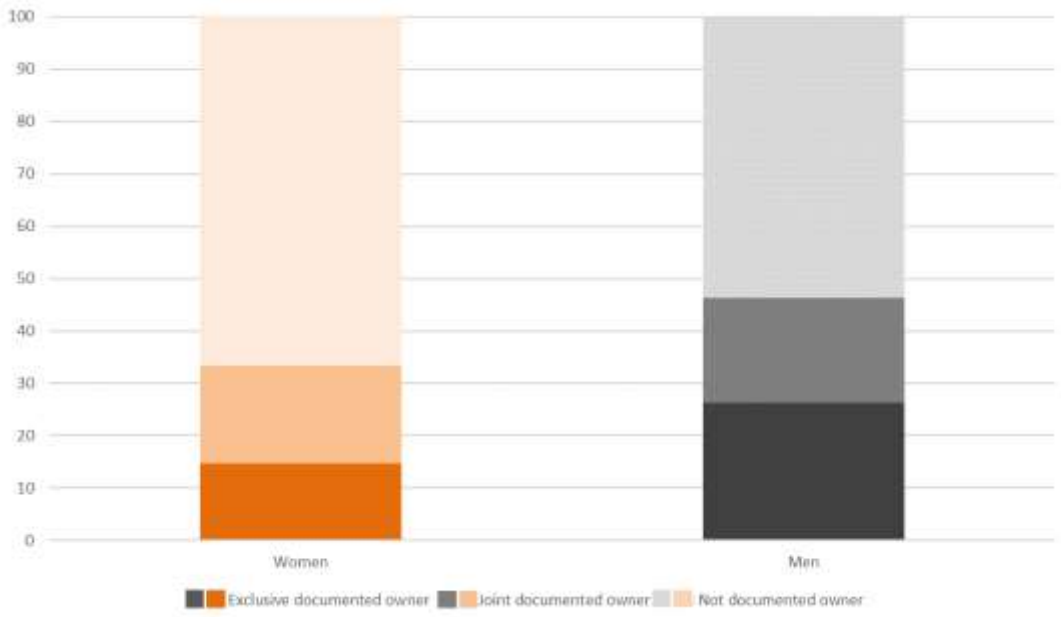
regions with different customs, or different ethnic groups). The analysis should also apply a life-cycle perspective by using information on age category, marital status and type of household.[184]

3.1.3.4. Forms of ownership

617. Because individuals' rights and benefits associated with ownership may differ if they own an asset exclusively or jointly, it is also important to assess whether assets are owned exclusively or jointly, in addition to measuring the level of ownership. In Georgia, for example, women are less likely to be documented owners than men. In addition, among documented owners, they are also more likely to be joint owners while men are more likely to be exclusive owners (figure 8).

Figure 8

Population by forms of documented ownership and sex, principal dwelling, Georgia, 2015



Source: EDGE Pilot, Georgia, self-reported data.

3.1.3.5. Asset acquisition

618. As discussed in part one of these *Guidelines*, women and men may acquire assets in different ways. Analysis of asset acquisition should highlight the most policy-relevant channels of acquisition in a country, which may include sales markets, government programmes in land and housing reform, inheritance (in particular inheritance from parents and spouses) or acquisition through marriage, depending on the marital regimes in the country. This information is important for the design of

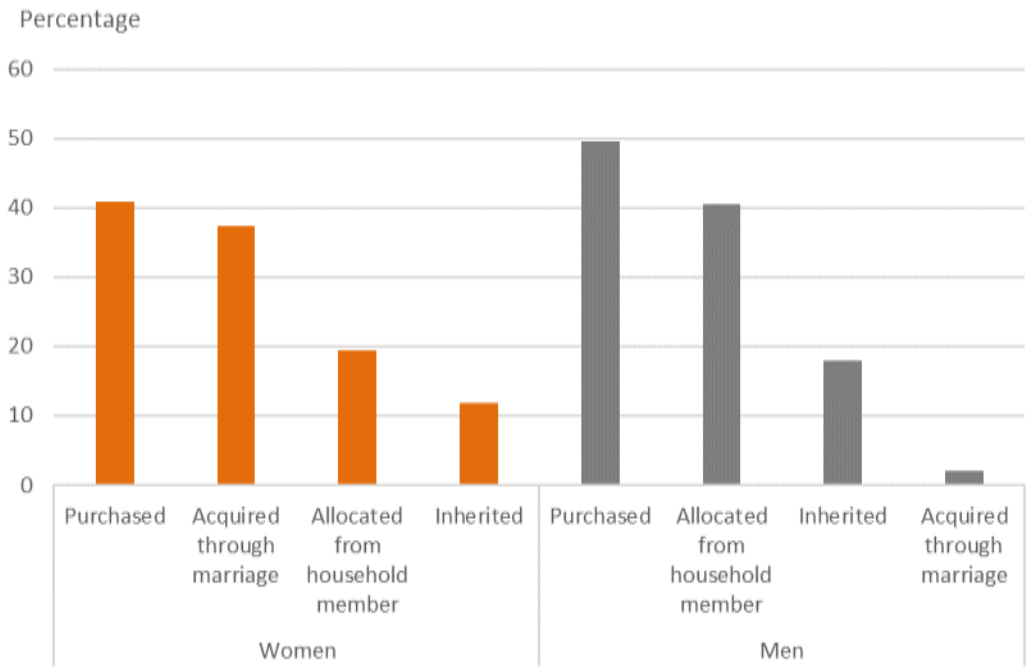
[184] Data analysts should keep in mind that, when gender is the focus of the analysis, while variations in the prevalence of ownership across different groups are important, the highlighted differences (including the differences observed and their statistical significance) should be between women and men's prevalence of ownership.

policies and interventions aiming to strengthen mechanisms that provide equal opportunities in access to asset ownership.

619. As illustrated in figure 9, in Georgia, the two most common means of acquiring agricultural land for women are purchase and marriage, while for men, they are purchase and allocation by family. This suggests that, if women do not have the resources to purchase land, their ownership is largely conditional on marriage.

Figure 9

Main methods of acquisition of agricultural land (as percentages), by sex, Georgia, 2015



Source: EDGE Pilot, Georgia, self-reported data. Percentages do not add up to 100 due to the fact that respondents might be reporting different method of acquisition for different agricultural parcels they own.

3.1.3.6. Creating profiles of owners and non-owners of major assets

620. Multivariate analysis, based on multiway tables and regression analysis, can be used to understand the characteristics of individuals who are owners and non-owners of certain assets, in terms of their sex, age group, education, marital status, household poverty status, location or other relevant variables. This type of analysis may be performed for major categories of assets, for example, housing, land and financial assets, and should respond to policy questions in specific sectors (such as those related to housing and land titling programmes).

621. Table 20 presents the estimated odds ratio of owning principal dwellings in Mongolia, by fitting a logistic regression model with the ownership of dwelling as the independent variable. Odds ratio larger than one means, compared to the reference category, people in this category have higher likelihood of owning dwelling. If odds ratio is smaller than one, people in this category have lower likelihood of ownership compared to the reference category. The 95 per cent confidence interval of the odds ratios provides information on whether the increase or decrease in the probability of

ownership, due to given characteristics (sex, age, education, etc), is statistically significant at the level of 95 per cent. For example, the confidence interval for the comparison between the wage employee or employer and those who are not employed is (0.88, 1.48). As the confidence interval covers 1, the analysis shows that ownership prevalence does not differ between these two groups.

622. The model shows that, in addition to a significantly lower prevalence of principal dwelling ownership for women compared to men, such attributes as age, education level, marital status, the wealth of the household, employment status and province are all important predictors of ownership of dwellings. For example, older persons are more likely to own than younger persons. Married persons are more likely to own than those who are not married. The model also includes an interaction term of sex and other variables – the only significant interaction is employment status by sex. What the model does show is that, for women, there is no difference in ownership prevalence, whether they are not employed or employed as own account workers, contributing family workers or casual labourers. For men, however, those who are employed as own account workers, contributing family workers or casual labourers are more likely to own the principal dwelling than those who are not employed.

Table 20

Estimates of adjusted odds ratios in a logistic regression model predicting ownership of principal dwelling, Mongolia, 2015

Predictor	Category	Odds ratio	95% confidence intervals
Sex	Woman	0.31	(0.24, 0.40)
Age	Age	1.2	(1.16, 1.23)
Education	College or higher	1.37	(1.14, 1.65)
Marital status	Married	1.47	(1.15, 1.90)
	Widow	2.48	(1.70, 3.61)
Household size	Continuous variable	0.94	(0.89, 0.98)
Housing asset quartile	2nd housing asset quartile	1.24	(1.02, 2.05)
	3rd housing asset quartile	1.58	(1.21, 2.05)
	4th housing asset quartile	1.47	(1.09, 1.99)
Employment status	Own account worker, contributing family worker, casual labourer	2.3	(1.75, 3.02)
	Waged employee, employer	1.14	(0.88, 1.48)
Province	Bayan-Olgii	2.12	(1.46, 3.08)
	Darkhan	1.22	(0.91, 1.63)
	Dornod	0.88	(0.66, 1.16)
	Khenti	1.73	(1.25, 2.41)
	Khuvsgul	1.19	(0.91, 1.55)
	Selenge	1.44	(1.07, 1.94)
	Umnugovi	1.47	(0.92, 2.35)

	Uvurkhangai	0.58	(0.44, 0.77)
	Uvs	0.77	(0.58, 1.02)
Employment and sex	Woman who is either own account worker, contributing family worker, or casual labourer	0.4	(0.28, 0.57)
	Woman who is waged employee, employer	1.25	(0.90, 1.74)

Source: Mongolia EDGE pilot survey, self-reported data. Reference predictors are sex (men), education (less than college), marital status (single), housing asset quartile (1st housing asset quartile), employment status (not employed), province (Ulaanbaatar). Housing asset quartile constructed using the dwelling characteristics.

3.1.4. Key objective: measuring the gender wealth gap

623. Gender asset gap indicators presented in the previous section provide a basic picture of whether or not assets are owned by women and men, but they do not take into account the quantity, value or any other characteristics of the owned assets. For example, similar proportions of women and men may own agricultural land in a given area, but the number of parcels and their size and quality may vary greatly between women and men owners.

624. By collecting individual-level data on the value of assets owned by women and men, it is possible to assess the overall gender disparities in owning assets, in terms of the ownership prevalence and also of the attributes of the assets owned by women and men. Values of assets owned by women and men also provide insights into women's and men's standards of living, bargaining power and vulnerability to economic shocks, furthering our understanding of economic inequality from a gender perspective.

625. Individual wealth or net worth (namely, the total value of all assets minus the total value of all liabilities) aggregates value across assets, enabling wealth comparisons across women and men who own different types of assets.[185]

3.1.4.1. Calculation of individual-level wealth

626. Wealth analysis requires that data are collected using the individual asset as the unit of observation,[186] which is more complex than collecting data solely for the purpose of calculating the prevalence of ownership. The data file would typically be organized as shown above in table 15. For each asset, information on the number of co-owners and its value is needed.

627. Based on these asset-level data, a variable on individual wealth can be created at the individual level. The wealth of an individual will be calculated as the total value attributed to that individual less the value of liabilities of that individual. For example, if an individual owns a principal dwelling with

[185] Cheryl Doss and others, "Measuring personal wealth in developing countries: interviewing men and women about asset values", Gender Asset Gap Project, No. WPS 15 (Bangalore, Indian Institute of Management, November 2013). Available at www.researchgate.net/publication/270278605_Measuring_Personal_Wealth_in_Developing_Countries_Interviewing_Men_and_Women_about_Asset_Values.

[186] The assets can also be used as units of analysis, which requires that weights for assets, calculated as shown in section 1.4 are used. Examples of analysis using assets as units of analysis include the distribution of agricultural land parcels by type of use, and forms of ownership.

a spouse and the value of the dwelling is estimated to be 100,000 local currency units, the value attributed to the individual is half, or 50,000 units. The same individual may exclusively own one agricultural parcel of land valued at 10,000 units, which will be attributed entirely to the individual. Finally, the individual and the spouse may owe 30,000 local currency units in bank loans for the purpose of purchasing the principal dwelling, which means that a share of 15,000 units can be attributed as individual liability. In this case, the level of wealth or net worth of the individual in local currency units is 50,000 + 10,000 – 15,000 = 45,000.

628. In order to calculate the composition of net wealth, or the wealth held by type of asset, information on the value of liabilities specific to each type of asset is needed.[187] In the case of the individual given as an example above, the equity in the principal dwelling is 35,000 (50,000 - 15,000) local currency units and it represents 78 per cent of the total wealth of that individual (35,000 x 100 / 45,000).

629. It is important to note that, when self-reported information is collected from more than one respondent per household, it will be necessary to reconcile any disagreements in ownership status before calculating the gender wealth gap, as discussed in box 9, on reconciliating reporting discrepancies when interviewing multiple persons in the same household.

3.1.4.2. Average wealth of a specific asset held by owners and among overall population

630. The value of each asset and liability that can be attributed to each individual is calculated by dividing the value of the asset by the number of owners or the amount of the liability by the number of persons responsible for repaying the loan. It should be noted that the decision to allocate the value of jointly-owned assets evenly among owners is somewhat arbitrary. Countries that collect information on the ownership share of each joint owner may wish to use additional information to distribute the overall value. In any event, it is important to ensure transparency as to how value and liability are distributed among joint owners.

631. Given the challenge in collecting good quality data on values, it is advised that a basic analysis of the valuation data be conducted before any other analysis on wealth. This entails analysing the percentage of missing data for the valuation variable, identifying possible data points that are outliers, calculating the mean with and without trimming and comparing the value of the mean and the median to assess the degree of inequality within the study population. A box plot of the valuation variable would also be helpful.

632. Table 21 presents, for owners of principal dwellings, median and mean values of the dwelling with and without trimming. Trimming the outliers reduces the mean values substantially. For example, the mean values with no trimming (for women and men) are reduced by almost half when the top 5 per cent of values are trimmed. This suggests outliers for both women and men at the higher end.

[187] See part three, section 5, on questionnaire content, for the implications of such calculation for the design of the questionnaire.

Table 21

Mean and median values of principal dwelling owned by women and men, Mongolia (2015) and Uganda (2014)

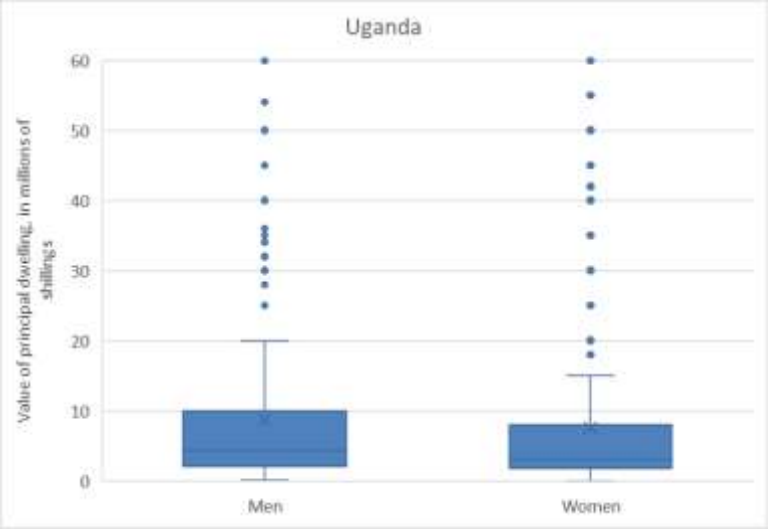
Measures		Mongolia (in millions of tugriks)		Uganda (in millions of shillings)	
		Women	Men	Women	Men
Mean	No trimming	55.2	46.5	14	17.9
	Top 1% values trimmed	51.9	43.5	9.4	12.7
	Top 5% values trimmed	44.4	38.2	7.6	8.7
Median		40	30	3.0	5.0

Source: Mongolia EDGE pilot survey, self-reported data; MEXA, treatments 4 and 5, self-reported data.

633. The difference between the median and the mean is an indication of wealth inequality in the population studied. For example, the average value of principal dwellings owned by women in Uganda is 7.6 million shillings after trimming the top 5 per cent, while the median value is 3 million shillings. This suggests that a large proportion of the dwellings owned by women are clustered at the lower end of the distribution of dwelling values. A similar situation also applies to men in Uganda and this can be visualized in a box-plot (figure 10).

Figure 10

Distribution of values of principal dwellings, Uganda (2014)



Source: EDGE pilot, Uganda, treatments 4 and 5, top 5 per cent values trimmed.

634. The mean value of wealth vested in any specific asset takes into account the attributes of such asset. When coupled with the indicator of the prevalence of owning such asset, this indicator provides a more comprehensive picture of women's and men's ownership of assets. To illustrate this point, table 22 shows that not only are women are less likely to own principal dwelling and agriculture land

in Uganda, the average values of their assets are also lower than those belonging to men. Financial assets represent the only exception to this rule: there is no difference between women and men in terms of their ownership of such assets, nor in the value of those assets. A similar analysis of data from Mongolia indicated that women are less likely to own principal dwellings than men (30 per cent versus 53 per cent), although on average the value of the principal dwellings owned by women is similar to that of those owned by men.

Table 22

Prevalence of reported ownership, mean value of individual-level wealth among owners and mean value of wealth (in millions of shillings for Uganda and in millions of tugriks for Mongolia) among all persons, by sex and asset type, Uganda (2014) and Mongolia (2015)

	Prevalence of reported ownership (percentage)		Mean values of wealth among owners with 95% confidence interval		Mean value of wealth among all persons with 95% confidence interval	
Assets	**Women**	**Men**	**Women**	**Men**	**Women**	**Men**
Uganda						
Principal dwelling	35 (32, 38)	60 (56, 63)	7.7 (5.9, 9.5)	13.1 (10.6, 15.6)	2.5 (1.9, 3.2)	7.6 (6.1, 9.2)
Agricultural land	18 (15, 20)	41 (37, 45)	4.4 (3.3, 5.5)	10.9 (8.4, 13.4)	0.7 (0.5, 0.9)	4.2 (3.1, 5.2)
Financial assets	31 (28, 34)	34 (31, 38)	0.2 (0.1, 0.3)	0.3 (0.2, 0.4)	0.065 (0.04, 0.09)	0.095 (0.07, 0.12)
Mongolia						
Principal dwelling	30 (27, 32)	53 (51, 56)	33.5 (29.6, 37.5)	32.9 (29.0, 36.8)	8.6 (7.3, 9.9)	16.3 (14.2, 18.4)

Source: EDGE pilot, Uganda, treatments 4 and 5. Asset values and number of owners are based on self-reported data; EDGE pilot, Mongolia, self-reported ownership data. Top 1 per cent of values trimmed

Note: The calculations presented for agricultural land for Uganda do not include home gardens.

635. It is also possible to devise an overall measure of wealth that reflects both the prevalence level of owning an asset and the mean value of wealth vested in the asset among owners. The measure is calculated as the overall wealth, vested in one specific or multiple assets, divided by total population (women or men). This measure is also equivalent to the product of the prevalence of ownership and mean value of wealth among owners, as shown in the last column of table 22. In the above example for Mongolia (table 22), the data show that, among owners of principal dwellings, the average value of the dwellings is the same for women and men. If, however, the prevalence of dwelling ownership is taken into consideration, the overall wealth measure for women and men would be different. That is, on average women store 8.6 million tugriks of their wealth in principal dwellings, compared to 16.3 million tugriks for men.

3.1.4.3. Share of women's wealth

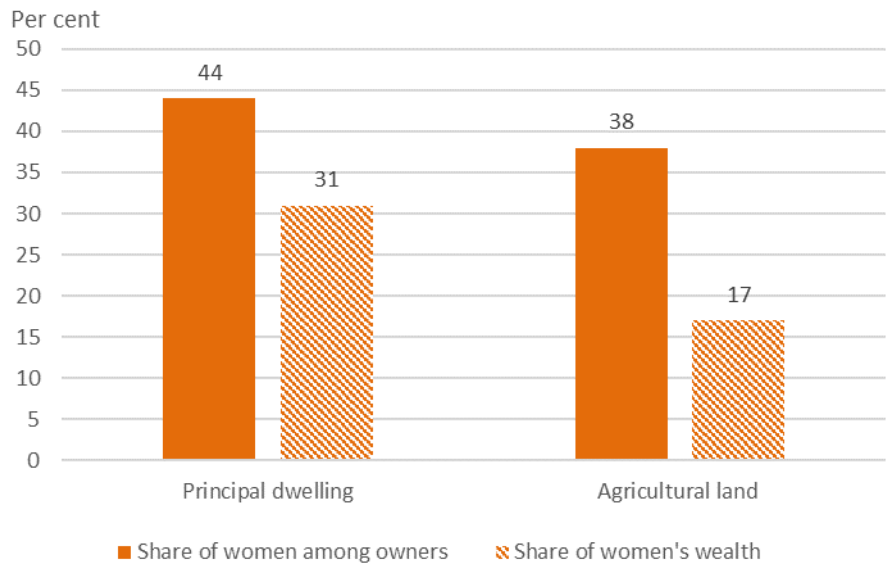
636. Another way of presenting wealth data from a gender perspective is to measure the share of individual wealth that is held by women. The indicator may be calculated as:

$$\frac{Sum\ of\ wealth\ of\ women}{Sum\ of\ wealth\ of\ women\ and\ men} \times 100$$

637. This indicator can be calculated for a specific asset type such as principal dwelling or agricultural land, a group of major assets, or all assets. The indicator can be presented along with the share of women among owners for a more detailed analysis. As illustrated by figure 11, in Uganda, women's share of the value of principal dwellings, agricultural land and financial assets is lower than the share of women among the owners of each of these assets. For example, women represent 44 per cent of dwelling owners but their share of total dwelling value is only 31 per cent. Likewise, 38 per cent of agricultural land owners are women but they possess only 17 per cent of the total wealth stored in agricultural land.

Figure 11

Women's share among owners and women's share of total wealth stored in selected assets, Uganda, 2014



Source: EDGE pilot, Uganda, treatments 4 and 5. Asset values and number of owners are based on self-reported data.

3.1.4.4. Gender wealth gap by household type

638. By analysing the distribution of wealth by sex and type of household it is possible to assess whether the overall gender wealth gap observed in the population is driven by lower levels of individual wealth held by women in selected household types, such as those in one-person and single-parent households, or if the gender distribution of wealth in favour of males persists among couple households as well. It should be noted that this analysis requires a sufficiently large number of households in each type of household included in the analysis.

639. Table 23 provides an example based on data from Uganda showing the average individual wealth of respondents who belong, first, to one-person or single-parent households; and, second, to nuclear households that consist of only one married couple or partners in a consensual union, with or without children. The results suggest that, in Uganda, gender wealth inequality varies between those living in single-adult households and those in couple households, with or without children. There is no difference when comparing women and men living in single-headed households, while among nuclear couple households, women's average wealth is much smaller than that of men. They also demonstrate that women in single-parent or single-person households own more wealth than women in couple households, while men in single-parent or single-person households own much less than those living in couple households.

640. The analysis does not cover respondents living in other types of households such as a couple living with in-laws or adult siblings or a single mother living with her parents. It is still possible, however, to assess how women and men differ in owning assets for other household types. When sample size permits, it is advisable to break those households further down into different construct for similar analysis.

Table 23

Individual wealth by household type for major assets (principal dwelling, agricultural land, financial assets and non-farm enterprise assets), Uganda (2014)

Type of household	Number of respondents		Average wealth among respondents (in millions of shillings)		Share of women's wealth = average women's wealth/(average women's wealth + average men's wealth)
	Women	Men	Women	Men	
Single adult households (with or without children	106	77	3.5	5.4	0.394
Couple households with no other adult (with or without children)	301	253	1.4	10.3	0.118*

Source: EDGE pilot, Uganda, treatments 4 and 5, self-reported data.

* Significant at 99 per cent level.

641. Instead of calculating the ratio of the overall wealth of women to the overall wealth of both women and men, the gender wealth gap in the analysis is calculated as the ratio of the average value of women's wealth divided by the sum of the average value of women's wealth and men's wealth (see formula below). This is because the total number of women and men respondents differ under the two types of households.

$$\frac{Average\ wealth\ of\ women}{Average\ wealth\ of\ women + average\ wealth\ of men} \times 100$$

642. It is important to note that use of the ratio of the overall wealth of women to all wealth will introduce a bias if the total numbers of women and men differ in the study population. If there are more women than men in the study population, comparing the total wealth of women with that of men will give women an advantage. Usually, however, this would not be an issue for country-level

estimates, as the numbers of adult women and men would be about the same after adjusting for non-response with the use of appropriate weights.

643. It might be problematic when the target population is a population subgroup of the country and there is an inherent imbalance in the sex composition of that subgroup. For example, globally, women constitute 54 per cent of the population aged 60 and over and 62 per cent of the population aged 80 and over.[188] If one objective of the data collection is to assess asset ownership among the older population, account should be taken of the preponderance of women in the study population. Simply calculating the share of women's wealth among all wealth will tend to underestimate the real gender gap due to the higher number of women. In this case, it is advisable to use the average wealth among the subgroup of respondents (older women, older men) instead of their total wealth (as in the formula above).

644. Similarly, women constitute some 58 per cent of all respondents in single-adult households in table 23, compared to 54 per cent of respondents in one-couple households. This again justifies calculating the share of women's wealth with the use of averages rather than totals.

645. Averaging wealth over the number of respondents avoids the underestimating or overestimating of the gender wealth gap introduced by imbalances in the number of respondents. When there is an equal number of women and men respondents, the two formulae provide the same estimate.

646. Although not presented here, in a manner similar to the analyses of the gender asset gap presented in section 4.1.3 above, the gender wealth gap can be both calculated and analysed in relation to certain additional contextual and household-level variables, such as education levels or age, and to population subgroups, such as rural versus urban.

3.1.5. Key objective: Intrahousehold analysis of asset ownership

647. Interviewing more than one adult per household about their asset ownership makes possible an intrahousehold analysis of how asset ownership and wealth are distributed among household members, thus furthering the current understanding of intrahousehold economic inequality. A component of inequality in general and gender inequality in particular, intrahousehold economic inequality has largely remained unexplored in official statistics. A main impediment has been the fact that much of the economic data are collected at the household level. Now, however, the collection of information on asset ownership and wealth at the individual level from more than one household member is creating new opportunities for data analysis.

648. The analysis of gender inequality in asset ownership involves collecting self-reported information from more than one household member or from partnered (married or cohabitating) women and men living in the same household. The examples of intrahousehold analysis presented below focus on spouses and partners living in the same household. As a result, households without couples are excluded, but the analyses can be extended to look at all adult women and men within

[188] *The World's Women 2015: Trends and Statistics* (United Nations publication, Sales No. E.15.XVII.8).

households with more than one adult member, depending on common household compositions within a country and the related policy needs.

649. With self-reported information from more than one household member, new variables can be constructed which measure the differences in asset ownership and wealth between women and men. The variables may be categorical, indicating – for example – whether one or both spouses own a particular type of asset, or continuous, indicating the number of assets or asset types held by each spouse or how large the wealth difference is between spouses. The unit of analysis becomes the couple and both descriptive and inferential analyses can be undertaken to enrich the analysis of intrahousehold gender differences in ownership and wealth.[189]

3.1.5.1. Within-couple inequality in owning assets

650. In table 24, households in Uganda and rural Mexico (agricultural land) and in Mongolia (principal dwelling) are classified according to the ownership status by both members of couples. The sample is based on self-reported data only and is restricted to couple-only households in which both spouses are respondents. In rural Mexico, 73 per cent of the couples do not own any agricultural land. In 18 per cent of the rural couple households, both members of the couple own agricultural land. In 2 per cent of the rural couple households, only the wife owns agricultural land, while in 7 per cent only the husband owns agricultural land. In Uganda, in 26 per cent of couple households, both members own agricultural land; in 54 per cent only the husband owns the land and, lastly, in 5 per cent of couple households only the wife owns the land. For Mongolia, in half of the households (50 per cent), only the husband owns the dwelling, and in only 6 per cent of all households, only the wife owns the dwelling. In around 21 per cent of the households, both members of the couple own the principal dwelling.

[189] At its basic level, intrahousehold inequality is identified along dimensions of age and gender. Although this section only refers to gender differences, as captured mainly by the differences between female and male spouses, it is recognized that intergenerational differences are also important by themselves or in combination with a gender analysis.

Table 24

Intrahousehold ownership of selected assets based on self-reporting of both spouses in couple households, Mexico (2014), Uganda (2014) and Mongolia (2015)

Ownership of wife and husband in couple households	Percentage of couples		
	Mexico rural, agricultural land	Uganda, agricultural land	Mongolia, Principal dwelling
Neither spouse owns	73	15	22
Only wife owns	2	5	6
Only husband owns	7	54	50
Both own	18	26	21
No. of couple households	1 953	323	1 671

Source: Mexico, Mongolia and Uganda EDGE pilot survey, self-reported data.

651. Even when both spouses own a specific asset, a gender difference exists. For example, in Uganda, in 26 per cent of all couples, both members own agricultural land. But women's plots are much smaller in size, at 1 acre on average, compared to 2.3 acres for those of men.

3.1.5.2. Intrahousehold wealth inequality

652. Intrahousehold wealth inequality can be measured in different ways. The example in table 25 below assesses whether women own less than men within the same couple and, if so, by how much. For wealth calculated on the basis of the principal dwelling, agricultural land, financial assets and non-business assets, in 82 per cent of the 286 couples in the Uganda pilot the wife's wealth is lower than the husband's.

653. While the data showed no significant variations in whether women own less than their spouses in terms of their urban versus rural residence or by education level, among couples that own assets, women in higher education have a higher share of couple's wealth than those with lower education (table 25).

Table 25

Intracouple wealth difference and women's share of wealth among couples, Uganda, 2014

	Total	Urban or rural residence		Education	
		Urban	Rural	Primary or less	Secondary or higher
Percentage of couples where women's wealth < men's wealth	82%	76%	84%	83%	81%
Average women's share of wealth within the couple*	18%	21%	17%	17%	20%
Number of couple households	286	63	223	193	93

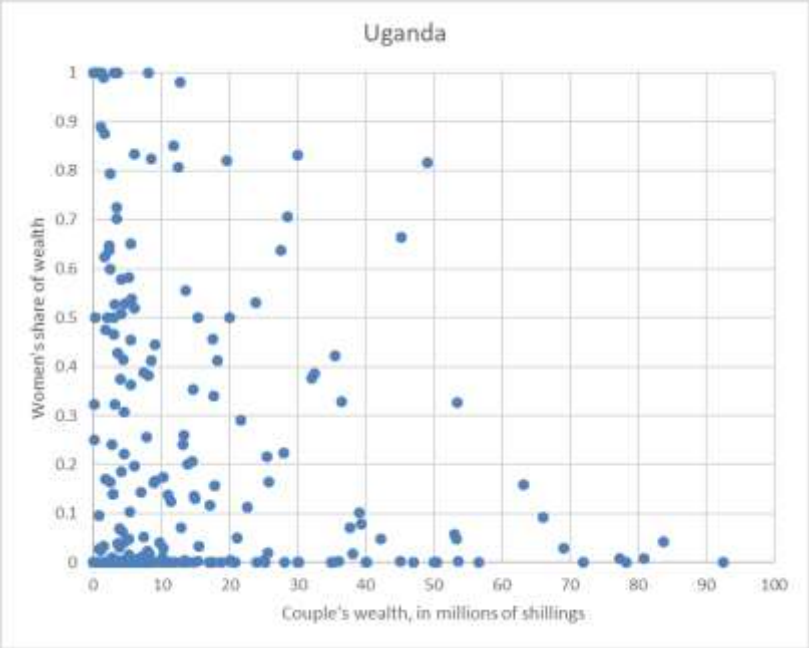
* Excludes households that have no wealth. Average women's share of wealth within the couple differs significantly between those with primary or less education and those with secondary or higher education.

Source: MEXA, Treatments 4 and 5, self-reported data. Top 1 per cent of values trimmed.

654. In addition to the intracouple gender difference in wealth shown in the above table, the scatter plot in figure 12 below of women's share of wealth within a couple by the overall wealth of the couple provides a graphic representation of how such gender difference varies by the total wealth of the couple. As the couple's wealth increases, the women's share of wealth decreases.

Figure 12

Women's share of wealth by couple's wealth, Uganda, 2014



Source: EDGE pilot, Uganda, treatments 4 and 5, self-reported data. Top 1 per cent of values trimmed.

3.1.5.3. Discrepancy in responses

655. As discussed earlier in part four of these *Guidelines*, when more than one of the household members self-report their asset ownership status, there may be reporting discrepancies among respondents. For example, a male respondent may report that he exclusively owns the principal dwelling while his wife also claims exclusive ownership of the same dwelling. Alternatively, he may report that he jointly owns the dwelling with his wife, while his wife reports that she does not consider herself an owner of the dwelling. Table 26 categorizes households according to the self-reported dwelling ownership status of both spouses in couple households in Georgia. The last column indicates whether or not the responses provided by the respondents conflict with their spouses' responses, thus creating a reporting discrepancy. Among households with couples, 17 per cent had reported discrepancies in ownership status, and in 8 per cent men underestimated women's ownership.

Table 26

Distribution of households based on self-reported dwelling ownership of both spouses or partners in couple households, Georgia, 2015

Type of households based on respondents self-reporting	Distribution of households (%)	Discrepancies in ownership status?	Men underestimating women's ownership status?
1. Man non-owner, woman non-owner	11.8	No	No
2. Man non-owner, woman exclusive owner	0.6	No	No
3. Man non-owner, woman joint owner with man	2.4	Yes	No
4. Man non-owner, woman joint owner with someone else	0.3	No	No
5. Man joint owner with woman, woman non-owner	6.4	Yes	No
6. Man joint owner with woman, woman exclusive owner	0.3	Yes	Yes
7. Man joint owner with woman, woman joint owner with man	66.1	No	No
8. Man joint owner with woman, woman joint owner with someone else	0.2	Yes	No
9. Man joint owner with someone else, woman non-owner	0.6	No	No
10. Man joint owner with someone else, woman exclusive owner	0	Yes	Yes
11. Man joint owner with someone else, woman joint owner with man	1.2	Yes	Yes
12. Man joint owner with someone else, woman joint owner with someone else	0	Yes	Yes
13. Man exclusive owner, woman non-owner	3.7	No	No
14. Man exclusive owner, woman exclusive owner	0	Yes	Yes
15. Man exclusive owner, woman joint owner with man	6.3	Yes	Yes
16. Man exclusive owner, woman joint owner with Someone else	0	Yes	Yes
Total number of households with couples	1,545		
Percentage of households with discrepancies	17%		
Percentage of households where men underestimate women's ownership	8%		

Source: Georgia EDGE pilot country, self-reported data.

656. While data analysts will need to reconcile discrepancies in responses to construct key measures, including the gender asset and wealth gaps, disagreements among respondents about their

ownership status can be expected and constitute useful information in their own right (more details about the reconciliation of discrepancies may be found in box 9). For example, development interventions may benefit from knowing when spouses agree or disagree about who owns major assets, such as the principal dwelling or agricultural land.

Box 9

Reconciling reporting discrepancies when interviewing multiple persons in the same household

As described in part three, one or more of the adult household members may be selected as respondents to self-report their ownership of assets. For example, interviewing more than one adult member within the household is required if intra-household (or intra-couple) analysis of asset ownership and wealth is an objective of the data collection exercise.

Interviewing more than one household member may result in discrepancies in the reporting of ownership of a given asset. For example, in respect of the same asset a husband might report exclusive ownership while his wife may report joint ownership. This reporting discrepancy does not affect the calculation of the overall prevalence of ownership for women and men: as emphasized in part one, persons are owners if they report themselves as owners. In the example above, each of the adult persons interviewed is considered an owner and counted in when the prevalence of ownership by sex is calculated. This discrepancy must, however, be resolved or reconciled, first, when deciding how to assign exclusive and joint ownership to each of the household members; and, second, when analysing the distribution of household wealth among individual members or calculating the gender wealth gap. What fraction of the asset value should be attributed to each of the two adults interviewed? Should they have equal shares or not?

The type and magnitude of discrepancies, and also the choice of reconciliation method, may have an impact on the results obtained in the analysis. Where the types of discrepancies are concerned, if the focus is on couples only, there are 16 possible ways that members of a couple could report their ownership about a given asset, 10 of which would result in discrepancies (see the shaded rows in the table below, presenting all possible combinations of answers by each member of a couple about the ownership of the principal dwelling). If there are more than two respondents per household, the number of possible combinations of answers increases, and with them the number of different types of discrepancy.

The magnitude of discrepancies can vary from one country to another. Evidence gathered through four EDGE pilot surveys (in Georgia, Mongolia, the Philippines and Uganda) that collected ownership data from both members of a sample of couples illustrates different magnitudes of discrepancy and disagreement among couples about who owns the dwelling. The percentage of couples with discrepancies in reported ownership ranges from 9 per cent in the Philippines to 31 percent in Uganda.

Some discrepancies are more likely to occur than others. For example, across all four pilot countries, the most likely discrepancies occur either when the husband reported joint ownership of the principal dwelling with his wife, while his wife did not consider herself an owner (category 5 in the table below), or when the husband reported exclusive ownership of the dwelling while his wife reported jointly owning the dwelling with her husband (category 15).

Two approaches to the reconciliation of reported discrepancies may be considered:

- *Approach 1 – ignoring discrepancies and assigning ownership according to the ownership status reported by each individual respondent*: For example, in category (5) (see table), the husband indicated that he was a joint owner of the principal dwelling with his wife but his wife reported that she was not an owner. Using the ignoring rule, the couple will be assigned ownership as reported, in other words, the husband is a joint owner and the wife is not an owner. In terms of apportioning the value of the dwelling, the husband will be apportioned half of the value of the dwelling while the wife will receive no value. In the case of category (15) when the husband reported to be an exclusive owner and his wife reported to be a joint-owner with the husband, the ignoring rule will consider the husband an “exclusive owner” and the wife a “joint owner”. As a result, the full value of the dwelling will be assigned to the husband and an additional half of the value to his wife.

  It should be noted that this reconciliation method may lead to results inconsistent with the calculated value of the household-level wealth. In the first example (category 5), the total wealth of the couple vested in the principal dwelling is only 50 per cent of the overall value, while in second example (category 15), the total wealth of the couple vested in the principal dwelling exceeds the overall value of the dwelling by 50 per cent. As a result, the household-level wealth should not be calculated on the basis of the aggregated value of individual wealth, while using this reconciliation method.

- *Approach 2 – overriding any discrepancies in the ownership reported by individual respondents on exclusive or joint ownership*: With this method of reconciliation, persons will be considered exclusive owners if they are the only persons reporting owning an asset in the same household, regardless of whether they report exclusive or joint ownership. If other household members also report owning the same specific asset, these persons, together with all the others reporting owning

the asset, will be considered as joint owners. A person who does not report owning the asset will be considered a non-owner, consistent with the rule used to calculate the prevalence of ownership. For category (5) in the table, adoption of the overriding rule entails that the wife will be a non-owner, while the husband will be considered an exclusive owner and will be apportioned the full value of the dwelling. For category (15), both members of the couple will be considered joint owners and will be apportioned half of the value of the dwelling if no other member of the household reports owning the same asset.

It should be noted that, although this reconciliation method does not overestimate the household wealth, it also comes with limitations. When there is a discrepancy of ownership among multiple household members, the reconciliation rule overrides the self-reported joint or exclusive ownership status of one of the respondents, leading to inconsistencies in the original self-reported information on exclusive or joint ownership. The wealth assigned to household members following this reconciliation method will be different from the wealth that would have been assigned to individual respondents according to their own reporting. The overall prevalence of owning an asset would not be affected.

Distribution of households based on self-reported ownership of principal dwelling by each member of sampled couples, EDGE pilot surveys

Households by type of responses from members of couples	Discrepancies in ownership status?	Georgia	Mongolia	Philippines	Uganda	Ownership under the			
						Ignoring rule		Overriding rule	
						Men	Women	Men	Women
1. Man non-owner, woman non-owner	No	11.8	25.5	44.3	20.5	No	No	No	No
2. Man non-owner, woman exclusive owner	No	0.6	4.8	3.2	1.0	No	Exclusive	No	Exclusive
3. Man non-owner, woman joint owner with man	Yes	2.4	1.4	2.1	1.3	No	Joint	No	Exclusive
4. Man non-owner, woman joint owner with someone else	No	0.3	0.3	0.4	0.0	No	Joint	No	Exclusive
5. Man joint owner with wife, woman non-owner	Yes	6.4	5.6	3.1	5.6	Joint	No	Exclusive	No
6. Man joint owner with wife, woman exclusive owner	Yes	0.3	1.6	0.9	1.0	Joint	Exclusive	Joint	Joint
7. Man joint owner with wife, woman joint owner with man	No	66.1	9.9	32.9	4.0	Joint	Joint	Joint	Joint
8. Man joint owner with wife, woman joint owner with someone else	Yes	0.2	0.1	0.1	0.0	Joint	Joint	Joint	Joint
9. Man joint owner with someone else, woman non-owner	No	0.6	2.3	1.4	1.0	Joint	No	Exclusive	No
10. Man joint owner with someone else, woman exclusive owner	Yes	0.0	0.0	0.0	0.3	Joint	Exclusive	Joint	Joint
11. Man joint owner with someone else, woman joint owner with man	Yes	1.2	0.5	0.1	0.3	Joint	Joint	Joint	Joint
12. Man joint owner with someone else, woman joint owner with someone else	Yes	0.0	0.0	0.0	0.0	Joint	Joint	Joint	Joint

13. Man exclusive owner, woman non-owner	No	3.7	41.0	8.5	42.7	Exclusive	No	Exclusive	No
14. Man exclusive owner, woman exclusive owner	Yes	0.0	0.9	0.1	1.7	Exclusive	Exclusive	Joint	Joint
15. Man exclusive owner, woman joint owner with man	Yes	6.3	6.1	3.0	19.9	Exclusive	Joint	Joint	Joint
16. Man exclusive owner, woman joint owner with someone else	Yes	0.0	0.0	0.0	0.7	Exclusive	Joint	Joint	Joint
Percentage of households with discrepancy		**16.9**	**16.2**	**9.3**	**30.8**				
Total number of households		**1 545**	**1 463**	**1 030**	**302**				

As noted above, neither of the above two methods is perfect. The ignoring rule underestimates or overestimates the overall household wealth; while the overriding rule overrules the self-reported ownership status for some of the respondents, affecting self-reported prevalence indicators of joint and exclusive ownership, whenever ownership discrepancies occur within the household. Furthermore, the extent of gender differences in the prevalence of joint or exclusive ownership, and also in wealth, may vary when one method is favoured over the other. Accordingly, before adopting either of the above reconciliation methods, an assessment of the impact of each method on the analysis outcomes should be conducted.

The following analysis illustrates how such an assessment can be carried out by calculating wealth generated by different reconciliation methods. In addition to the two methods described above, a third method is also considered that randomly takes one of the responses, either from the husband or the wife, for households that have ownership discrepancies. It should be noted that the assessment is carried out for reported ownership of the principal dwelling and is limited to Mongolia and Uganda, because of the high percentage of missing valuation data for Georgia and the Philippines.

As shown in the assessment, the impact of different reconciliation rules on the overall wealth of women and men is much smaller for Mongolia than for Uganda. This is to be expected, because of the smaller percentage of couples that have discrepancies in Mongolia. The significantly lower wealth of men in Uganda when the overriding rule is used, compared to the ignoring rule, is due to the very high proportion (20 per cent) of couples that fell into category (15). In this category, the husband self-reported having exclusive ownership of the dwelling, while his wife claimed joint ownership with her husband. When the overriding rule is used, the value assigned to the husband is only half that of the full value under the ignoring rule. On the other hand, women's share of wealth is lower (mainly for Uganda) when calculated using the ignoring rule than when using the overriding rule, as categories (5) and (15) in the example, the two categories with the largest discrepancies, both reflect cases when the husband underestimates his wife's ownership of assets. Because the data are limited to those from Mongolia and Uganda, it is difficult to ascertain why women's share of wealth calculated using the random approach is lower than the value calculated through the other two methods.

It should be noted that none of the reconciliation methods is perfect, as there is no golden rule to be applied in resolving ownership discrepancies. Before adopting any method for reconciling the discrepancies, an assessment needs to be made on the overall magnitude of the discrepancies and their impact on the wealth assigned to individuals. When final results are published, information should be provided on whether discrepancies were reconciled and, if so, which method was used.

Wealth stored on principal dwelling calculated on the basis of different reconciliation rules, Mongolia and Uganda

	Approach 1: Ignore discrepancies and apportion value according to self-reported ownership status		**Approach 2: Override discrepancies and apportion value based on assigned ownership status**		**Approach 3: Random approach and value apportioned accordingly**	
	Men	**Women**	**Men**	**Women**	**Men**	**Women**
Mongolia						
Number of respondents	1 463	1 463	1 463	1 463	1 463	1463

Sum of value apportioned to owner (in millions of tugriks)	6.3	3.0	6.4	3.1	6.4	3.0
Average share of wives' wealth among couple's wealth*	0.323		0.324		0.316	
Uganda						
Number of respondents	302	302	302	302	302	302
Sum of value apportioned to owner (in millions of shillings)	2 207	656	1 760	580	1 829	498
Average share of wives' wealth among couple's wealth*	0.229		0.248		0.214	

Note: The average value is used in the calculation when both members of the couple reported the value of the dwelling;

* The share is calculated as (women's wealth)/(women's wealth + men's wealth).

657. To assess whether certain individual or household characteristics are associated with disagreements between spouses about their ownership status, a statistical model can be used to predict cases in which there is a discrepancy in ownership status reported by members of the couple, or to predict cases in which the male partner underestimates his wife's or partner's ownership status, as presented in table 26 for Georgia. Potential predictive variables include whether the residence of the household is urban or rural, the wealth level of the household, age, education and employment status of the male and female partners and the age difference of the male and female partners.

658. A probit model (not shown) estimating the likelihood that men underestimate their partner's ownership in Georgia showed that older men are more likely than younger men to underestimate their spouses' ownership of dwelling. For women who are employed as farmers, contributing family workers and casual labourers, the ownership of dwellings is more likely to be underestimated by their spouses than it is for female employees, employers or own-account workers.

3.1.5.4. Asset ownership dynamics and women's decision-making power within the household

659. Used as a proxy for bargaining power, individual-level information on asset ownership can be used to assess the effects of women's increased bargaining power on household outcomes, such as children's health and education and women's own well-being. Questions on decision-making include those on how own income is used; on how the spouse's income is used; on the respondent's own health; on major household purchases; and on visits to the family. These five questions were included in the South Africa pilot. Other studies included an additional question, on who makes the decision on whether or not to work.[190]

660. To assess the impact of asset ownership on decision-making power within the household, a statistical model can be built using the decision-making variables as outcome while incorporating

[190] Carmen Deere and Jennifer Twyman, "Asset ownership and egalitarian decision making in dual-headed households in Ecuador", *Review of Radical Political Economics*, vol. 44, No. 3 (September 2012), pp. 313–320.

other auxiliary variables such as age, education of the spouses, employment status, and other attributes. A study in Ecuador, for example, examines the relationship between a couple's egalitarian (joint) decision-making on how to spend income and the wife's share of the couple's wealth using a logistic regression model.[191]

661. The study found that the likelihood of egalitarian (joint) decision-making on how to spend one's own income increases as the wife's share of wealth increases, until the wife's share is 45 per cent, at which point the likelihood begins to decrease. It is possible that women were more likely to make their decisions alone (without consulting their husbands) as the share of women's wealth is larger than 45 per cent, although further analysis is needed. The study also found that, if both spouses own real estate (either jointly or individually) then there is a greater likelihood that the spouses decide jointly about how to spend their own income (1.5 times the odds), compared to when neither owns real estate.

3.2. Data dissemination

662. The second part of this section is focused on the dissemination of results and covers aspects related to dissemination strategies and products that would typically be prepared at the end of a household survey. It is recommended that the products described should be developed.

3.2.1. Data tables

663. Similar to other surveys, a tabulation plan should be developed at the stage of planning a survey on asset ownership, and implemented after the data has been cleaned, edited, and weighted, as necessary.

664. Data tables provide access to data to a large number of users who wish further to analyse the results of surveys or to carry out research on specific topics, when they do not have access to microdata or lack the technical expertise or resources to conduct their own microdata statistical analysis. The data disseminated may be detailed and organized in large tables. It is important that both absolute numbers and calculated proportions, shares and averages are provided. Absolute numbers may give specialists more flexibility in conducting their own analysis. Some tabulated data may be included in publications and more detailed data should be included in online databases, enabling users to browse the data tables and choose those statistics that are of interest to them.

3.2.2. Analytical publications, reports, articles or briefs

665. Analytical publications, including reports, articles and briefs, may be intended for statisticians, researchers or policymakers. When preparing them, data analysts must take care to present their findings in a format that will be clearly understood by the intended audience.

666. In these publications, the disseminated data are presented in small summary tables and charts and discussed in the accompanying text. Large tables with more detailed data may be provided in annexes. One example is the household survey report, but material can also be integrated into publications focused on gender, which may have a different target audience (gender specialists, gender

[191] Ibid.

advocates and policymakers). Instead of presenting data and letting the reader analyse them and draw their own conclusions (as in the case of dissemination products focused on providing data tables), these publications emphasize the main results of data analysis, their interpretation and implications for policymaking. They should be designed to be user-friendly and drafted in accessible language, with simple tables and charts and attractive presentations.

3.2.3. Gender indicator databases

667. Countries disseminating gender statistics through dedicated databases of gender indicators or more comprehensive ones on social indicators or human development indicators, should also consider this avenue of dissemination. Data disseminated in this format can be useful to specialists interested in ready-processed indicators that facilitate comparisons over time and between various groups of the population, or analysis across indicators. When these databases include disaggregation by key variables such as regions or age groups, more meaningful analysis can be conducted by the users. Information on the calculation of indicators included in the database, underlying definitions and concepts used, and indication of the sources of data should be made available with the database.

3.2.4. Production of metadata

668. Metadata provide essential technical information to data users about the records contained on a data file, including the data source and the method used to collect the data. Detailed metadata ensure appropriate use and accurate interpretation of the data.

669. Information contained in metadata includes the data collection method, the format of the file, the sampling design, the unit of count, relationships among records, the reference period, aggregation of records, restrictions on the use of the data, indicators of data quality and the names and definitions of all variables on the file, including derived variables that are essential for replicating the key survey outputs.

670. Indicators of data quality and accuracy will include response rates, item non-response, imputations, and sampling error and coefficients of variation which will determine the reliability of the estimates.

671. Most national statistics agencies have developed standards and guidelines for producing metadata that should be followed for surveys on asset ownership at the individual level.

3.2.5. Sharing of microdata for researchers and academics

672. Researchers and academics interested in more complex analyses than those presented in the dissemination products prepared by national statistics offices will want to have access to the microdata. The microdata may only be made available to interested third parties in a survey data file by the national statistics agency if the confidentiality and anonymity of survey respondents can be guaranteed. No information that could allow individuals to be identified should ever be made available.

673. The creation of a data file for access by people outside the survey team requires an additional effort in order to produce high quality documentation and clean data files. Plans and policies for

archiving, accessing and using the data should be discussed and agreed upon before the data collection process begins. If agreements about data release are not made at the beginning of the process, it will become increasingly difficult for this to happen at later stages of the survey.

Key points:

- Data analysis is the component of the survey process that aims to provide answers to the overarching questions on asset ownership that were identified by stakeholders at the outset of the project. Those questions can be broadly categorized under three objectives: first, understanding the gender asset gap; second, understanding the gender wealth gap; and third, when more than one household member is interviewed, undertaking intra-household analysis of asset ownership to understand better how assets are allocated within households, in particular within couples and the impact of owning assets on intra-household decision-making power.
- A household survey collecting data on asset ownership from a gender perspective has a hierarchical set of units of observation – including the household, the individual (person) and the asset – which defines the levels at which the information is collected.
- When characteristics of assets – such as size, value, or quality of assets – are collected, the asset is the unit of observation, in addition to the household and the individual. While organizing the data file, a unique record exists for each asset and contains information about the characteristics of the asset.
- In addition to essential variables such as whether a person owns a type of asset (such as principal dwelling), characteristics of the asset and the monetary value of the asset and sex for a gender analysis of asset ownership and wealth, there are other variables that may be considered for a nuanced understanding of asset ownership from a gender perspective. These include: age, marital status, type of household, education, employment, intra-household decision-making power and other context variables, such as urban versus rural areas or geographical and administrative areas.
- The dissemination of data refers to the release of survey findings through various statistical and analytical products, and also the sharing of data files and associated metadata. Dissemination products should include:
    - Data tables in both absolute numbers and in calculated proportions, share and averages, made available in both publications and online databases
    - Analytical publications that are clearly understood by the intended audiences
    - Ready-processed indicators in gender indicator databases, to facilitate comparisons over time and across various population subgroups
    - Microdata for more complex analysis
- All data products should be accompanied by appropriate metadata including all or some of the following items: data collection method, format of the file, sampling design, unit of count, relationships among records, reference period, aggregation of records, restrictions on the use of the data, indicators of data quality and names and definitions of all variables on the file, including derived variables that are essential for replicating the key survey outputs.

Annexes

Annex 1.
Minimum set of questions for priority assets

Principal dwelling

D1. Do you own this dwelling?
- Yes, exclusively
- Yes, jointly
- No --> end of questions on ownership of principal dwelling

D2. Is there an ownership document for the dwelling?
- Yes
- No --> D4

D3. Are you listed as an owner on the ownership document for the dwelling?
- Yes, exclusively
- Yes, jointly
- No

D4. Do you have the right to sell this dwelling?
- Yes, exclusively
- Yes, jointly
- No

D5. Do you have the right to bequeath this dwelling?
- Yes, exclusively
- Yes, jointly
- No

Agricultural parcels

AL1. Do you own any agricultural land?
- Yes, exclusively
- Yes, jointly
- No --> end of questions on ownership of principal dwelling

AL2. Is there an ownership document for the agricultural land?
- Yes
- No --> AL4

AL3. Are you listed as an owner on the ownership document for any agricultural parcel?
- Yes, exclusively
- Yes, jointly
- No

AL4. Do you have the right to sell any agricultural land?
- Yes, exclusively

– Yes, jointly
– No

AL5. Do you have the right to bequeath any agricultural land?
– Yes, exclusively
– Yes, jointly
– No

Other real estate

OL1. Do you own any of the following categories of other real estate?

– Dwelling	Yes, exclusively	Yes, jointly	No
– Non-agricultural land	Yes, exclusively	Yes, jointly	No
– Other categories considered important	Yes, exclusively	Yes, jointly	No, if no to all categories --> end of module

OL2. Is there an ownership document for the following categories of other real estate?

– Dwelling	Yes	No
– Non-agricultural land	Yes	No
– Other categories considered important	Yes	No, if no to all categories --> go to OL4

OL3. Are you listed as an owner on the ownership document for any of the following categories of other real estate?

– Dwelling	Yes, exclusively	Yes, jointly	No
– Non-agricultural land	Yes, exclusively	Yes, jointly	No
– Other categories considered important	Yes, exclusively	Yes, jointly	No

OL4. Do you have the right to sell any of the following categories of other real estate?

– Dwelling	Yes, exclusively	Yes, jointly	No
– Non-agricultural land	Yes, exclusively	Yes, jointly	No
– Other categories considered important	Yes, exclusively	Yes, jointly	No

OL5. Do you have the right to bequeath any of the following categories of other real estate?

– Dwelling	Yes, exclusively	Yes, jointly	No
– Non-agricultural land	Yes, exclusively	Yes, jointly	No
– Other categories considered important	Yes, exclusively	Yes, jointly	No

Financial asset

FA1. Do you own any of the following categories of financial asset?

– Currency and deposits	Yes, exclusively	Yes, jointly	No
– Microcredit	Yes, exclusively	Yes, jointly	No

– Equity	Yes, exclusively	Yes, jointly	No
– Informal savings group	Yes, exclusively	Yes, jointly	No
– Stocks and bonds	Yes, exclusively	Yes, jointly	No
– Insurance and pension fund	Yes, exclusively	Yes, jointly	No
– Other categories considered important	Yes, exclusively	Yes, jointly	No

Annex 2.
Model questionnaire

(Removed to reduce file size. Available in Excel format.)