

Mapping Gender Data Gaps

Mayra Buvinic

Rebecca Furst-Nichols

Gayatri Koolwal

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Data 2X: Mapping Gender Data Gaps

Mayra Buvinic, Rebecca Furst-Nichols and Gayatri Koolwal

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Executive Summary

Data2X, named for the power women have to multiply progress in their societies, aims to advance gender equality and women's empowerment through improved data collection and analysis that can provide a solid evidence-base to guide development policy. To provide basic information for a Data2X roadmap, this report maps gender data gaps in developing countries across five domains of women's empowerment: (1) health, (2) education, (3) economic opportunities, (4) political participation, and (5) human security.

Need, population coverage and policy relevance were the three criteria used to select which data gaps to map.

The report suggests 'ways forward' to close these gaps using existing and new data sources, including censuses and micro-level surveys, service and administrative records, and the potential use of 'big data' as a new source of gender data. These ways forward build on recent and ongoing data initiatives and are intended to inform the Data Revolution (High Level Panel Report, 2013) and the stand-alone gender equality goal (UN Women, 2013) called for in the post-2015 period.

Existing international databases often have data that could be disaggregated by sex and analyzed to address gender data gaps. These data sources should be mined before initiating new data collection efforts. Going forward, data mining and collection should be undertaken efficiently and in response to meaningful demand for and capability to use the data for policy purposes, and as a tool to drive social change.

Globally, close to 80 percent of countries regularly produce sex-disaggregated statistics on mortality, labor force participation, and education and training. Less than a third of countries disaggregate statistics by gender on informal employment, entrepreneurship (ownership and management of a firm or business), violence against women, and unpaid work. Reflecting these gaps, the UN Inter-Agency and Expert Group on Gender Statistics (IAEG-GS) has compiled a minimum set of 52 gender indicators and divided them into three tiers according to their conceptual clarity, international standards and regular production (UNSD, 2012). Educational indicators, followed by health, lead the way in terms of clarity, comparability and country coverage. Availability and coverage in the other domains highlighted in this report are poor, and this is especially the case for economic indicators. Throughout, this report makes reference to this minimum set of gender indicators as well as a proposed set to track a stand-alone gender equality goal in the post-2015 period (UN Women, 2013).

Laws and policies, particularly those related to marriage, property, and labor rights, influence health, education, and economic outcomes for women. However, comprehensive information on policies related to women is difficult to obtain. Databases that help document laws and policies affecting women's outcomes are reviewed in this report. Additional efforts to expand coverage and improve the robustness of these databases are warranted to round out the availability of policy relevant data on women.

Gender data gaps

Based on need (severity and disparities in outcomes affecting women), population coverage (number of girls and women that potential benefit from closing the gender data gap), and policy relevance, Table 1 below lists the 28 gender data gaps mapped in this report by domain. For each data gap, the table classifies the type of gap according to the following desirable criteria for gender data: (1) coverage and regular country production; (2) cross-country comparability reflected in international data standards; (3) complexity (information that cuts across domains allowing users to understand patterns and determinants of specific variables); and (4) granularity (large and detailed data sources that can be disaggregated by demographic and other characteristics).

The data gaps by domain are as follows:

(A) Health: Better vital registration data is needed to gather accurate information on maternal deaths, including causes of death by age, in high mortality low-income countries that do not currently collect and report this data (a main reason being that very large samples are needed to collect valid data on maternal mortality). Maternal mortality rates remain unacceptably high in these countries and accurate rates and conditions leading to maternal deaths are key information for building evidence-based policy. More and better information is also needed on maternal morbidity.

But women's health issues go beyond maternal conditions. There is substantial evidence that women lose more healthy life to disability compared to men, including excess disease burdens that are unrelated to motherhood such as Alzheimer's disease, dementia, depression, osteoarthritis, and other disabilities. Data collection efforts need to address largely unreported causes of women's excess disease burdens and parse out the contributions of sex and gender, and their interaction, in the etiology, onset, progression and prevention of these conditions.

Additional important data gaps in women's health are data on violence against women and mental health. These issues are both broad, affect large numbers of girls and women, and despite their impact are severely limited in data. A push to close these data gaps may create a snowball effect, where more data increases the visibility of these issues and provides an impetus for women to seek help and for service providers to offer more treatment options.

Adolescent health – including information on the social determinants of healthy behaviors among adolescent girls – also stands on its own as a data gap with important implications for policy. The determinants of healthy behaviors are particularly important during adolescence since actions at this age chart the path for the rest of women's lives.

Relatedly, more reliable data on women's utilization of maternal and non-maternal health services (underutilization that has been documented in many poor countries) would go a long way towards the design of better health interventions for girls and women.

(B) Education: Improving educational outcomes ensures that students, male and female, reap the social and economic returns to education, and may have a multiplier effect on enrollment. Having internationally comparable measures of learning outcomes disaggregated by sex should drive gender data efforts in this domain. Current measures of education quality across countries are largely based on inputs or use different exams to assess learning outcomes and are not sufficient to assess outcomes in a standardized manner.

A second data gap is better information on socially excluded girls – due to race, ethnicity, religion, location (rural vs urban) or disability – who are likely to suffer the double disadvantage of gender and social exclusion, resulting in lower enrollment levels and in poor learning outcomes for those who do enroll.

The third gap is global information on adolescent girls' transition from education to the workforce, as well as what happens to the large numbers of young women in developing countries who fail to make this transition. This information will allow for targeted policymaking to improve the relevance of schooling for the most disadvantaged girls in the educational system and to help with their incorporation into the workforce.

(C) Economic Opportunities: Having quality sex disaggregated data on informal employment is needed; women in the developing world are overrepresented in work and enterprises that are not accurately or officially counted. Understanding women's experience in these areas requires having detailed data on their unpaid work, including reliable time use data, types and extent of informal employment, as well as entrepreneurial activities. Other data gaps include earnings disparities and opportunity costs of paid work for women, female labor migration (including age and other demographic characteristics, reasons for migrating, remittances sent and working conditions), employment mobility (that is, on those who are looking to move to paid work in the formal sector, and those who are transitioning from home and subsistence production into market work), asset ownership, and access to financial services. Better measurement of women's assets and financial constraints is essential to understanding their economic empowerment, but very few existing national surveys record this information at the individual level.

Data gaps also exist in the agricultural sector, particularly on women's stake in on-farm activities and conditions in agricultural informal employment. Measuring women's agricultural productivity and the factors determining this productivity, including access to land and agricultural resources, is essential for the design of gender-informed agricultural policies.

Women's access to child care services, whether formal or informal, affects their ability to work outside of the home, yet there is currently no consistent data in this area.

Access to information communications technologies, namely mobile phones and the internet, influences a number of areas of women's lives including their ability to communicate with peers, learn about employment opportunities, receive information about the prices of their products, conduct financial transactions, and learn new skills transferred through these technologies. This area rounds out the list of gender data gaps in economic opportunities.

(D) Political Participation: Of the existing data gaps on political and civic participation, the one with by far the greatest potential development significance is closing the gap on sex-disaggregated birth registrations at the national level and, concomitantly, providing national identity documentation. This information could then be used to track voter registration (and turnout) data disaggregated by sex. Closing these gaps would affect girls and women (and boys and men) in socially excluded groups in particular, who are often not counted and therefore unable to claim rights.

Tracking women's political representation at sub-national levels and their leadership roles in grassroots organizations and in key professions is another data priority, especially when information on representation is paired with other data to study the dynamics and outcomes of women's leadership.

(E) Human Security: Very limited data exists on the gender aspects of conflict, so better data collection overall in this area, including sex-disaggregated data on war-related mortality and morbidity, forcible displacement, adaptive responses to conflict, and conflict-related violence, is key.

There is also scant data on women's participation in peace and security efforts, particularly in leadership roles, while this information is basic to adequately monitor the implementation of UN Resolution 1325 at national levels.

Gender-relevant data initiatives

(A) Health: On mortality and morbidity data, the Global Burden of Disease (GBD) Study 2010 estimates disease burdens globally for 1990, 2005 and 2010 and is able to assess prevalence trends for morbidity and mortality disaggregated by sex, age, country, and region.

The UN Department of Economic and Social Affairs (UNDESA) has recently published guidelines for harmonizing the collection of data on violence against women using dedicated sample surveys, and will follow this publication with training of country statistical offices on their use.

The WHO convened Commission on Information and Accountability for Women's and Children's Health recommended establishing vital registration systems in 75 priority countries with high maternal and infant mortality rates.

“Countdown to 2015,” a global movement, tracks these commitments. Adding to these efforts, global leaders in health statistics, convened by WHO in 2013, have agreed to work together to improve health information, increase the collection of vital registration data and reduce reliance on estimates from statistical models.

(B) Education: Efforts to improve metrics on learning outcomes, disaggregated by sex, include: (1) UNESCO Institute for Statistics’ Literacy Assessment and Monitoring Program (LAMP), which aims to improve cross-national literacy and numeracy statistics; (2) the Learning Metrics Task Force, convened by the UNESCO Institute for Statistics (UIS) and the Center for Universal Education at the Brookings Institution, which is working on recommendations to help countries measure and improve learning outcomes; and (3) the OECD’s Program for International Student Assessment (PISA), which assesses attainment in mathematics, reading, and science by testing students’ cumulative learning at age 15, and includes indicators on sex, race and ethnicity. The PISA has been administered in 70, mostly middle-income countries, and plans to expand coverage to developing countries in the 2015 assessment cycle through the “PISA for Development” program.

To improve data on socially excluded children, The ‘Education for All’ initiative published the World Inequality Database on Education (WIDE) in 2012, based on DHS and MICS data from over 60 countries. WIDE enables users to compare education attainment (years and completion of primary and lower secondary) between groups within countries, including by wealth, sex, race and ethnicity, and location.

(C) Economic Opportunities: The International Classification of Activities for Time Use Statistics (ICATUS), revised most recently in 2012, is an effort by national, regional and international time use survey experts to develop a standard classification of daily activities that is internationally comparable and relevant for both social and economic policies.

Through the EDGE project, the UN Statistical Division and UN Women collaborate on developing methodological guidelines to collect data on physical and financial assets disaggregated by sex; the same exercise will be done for entrepreneurship. The project will then pilot test gender data collection on assets and entrepreneurship in selected countries.

The Global Financial Inclusion (Global Findex) Database, an initiative of the World Bank and the IFC that started in 2011, measures how adults save, manage their finances, and cope with issue of access to financial services using 148 nationally representative country surveys. The next round of data at the country-level will be available in 2015.

On asset ownership, the Integrated Surveys on Agriculture, part of the World Bank Living Standards and Measurement Surveys (LSMS-ISA), collects detailed nationally representative household panel data showing the links between agriculture, socioeconomic status, and non-farm income activities. The LSMS-ISA also collects standardized individual-level disaggregated data on assets, including ownership, management and control of agricultural plots and livestock, as well as other assets and access to credit.

Adding to the collection of initiatives for better data on agricultural activities, USAID is developing the Core Agricultural and Rural Survey (CARDS) within the World Bank- and FAO- led Global Strategy to Improve Agriculture and Rural Statistics. CARDS will include farm and non-farm indicators for individual household members, disaggregated by sex, incorporating lessons learned from implementing the Women’s Empowerment in Agriculture Index, a recent initiative of USAID, IFPRI and the Oxford Human Development and Poverty Initiative.

(D) Political Participation: Increasingly, countries are using mobile phones and biometric identification to provide a unique digital identity to citizens and record birth registrations. Noted examples include the National Population Commission of Nigeria, which uses decentralized monitoring to identify disparities in birth registration rates that can be accessed in real time, and the Universal ID program in India, which seeks to provide a unique digital identity to all citizens. Identity registration is closely linked to vital registration of births and deaths – a priority for health sector statistics (see health domain).

UN Women is working to develop standards for measuring women’s representation at the subnational level. The Inter Parliamentary Union (IPU) and IDEA collect some data on women candidates and voter turnout.

(E) Human Security: MICROCON is a five-year research program, funded by the European Commission and launched in 2007, that takes a micro-level approach to understanding the conflict cycle. Goals of MICROCON include compiling and collecting surveys and existing data, and advancing methods for qualitative and quantitative data on conflict at the individual, household, and group levels. Among MICROCON's thematic areas are the gender aspects of conflict. Norway's PRIO has set up a conflict database, and also focuses on the gender dimensions of conflict.

As part of the Resolution to Act (Res2Act) initiative, the Institute for Inclusive Security has developed a National Action Plan (NAP) Monitoring and Evaluation Toolkit that prompts data collection on the implementation of NAPs promoting inclusion of women in peace and security processes. The data generated from the Toolkit will help policymakers track implementation, as well as assist individuals in holding governments accountable.

Various parts of the UN system track different components of women's participation. UN Women periodically reports on the number of women negotiators and signatories in peace negotiations. The Department of Political Affairs tracks the number of women named to the positions of lead envoy and mediator to UN-brokered talks. The Department of Peacekeeping Operations tracks the number of male and female uniformed and civilian personnel serving in missions and at headquarters. The African Union (AU), European Union (EU), North Atlantic Treaty Organization (NATO), the Organization for Security and Cooperation in Europe (OSCE), and other multilateral organizations also gather sex-disaggregated data on personnel.

WHO, in coordination with UNAction, has developed a survey tool for women and men to measure different experiences of violence, perpetration, risk and protective factors, and impacts, including a section on mental health.

Ways forward

Bridging gender data gaps can be accomplished by mining existing household and administrative survey databases, enriching existing databases, or building new ones. Exploration of existing international databases for data that can be sex disaggregated and usefully analyzed, but are currently unused, is a first necessary step in bridging gender data gaps. Second, there are ways that existing data can be used to provide richer information on girls and women. Surveys covering different topics can be supplemented with one another, if they cover the same time period and context, to add data complexity and help tackle broader questions that may be difficult to address with just one source. Correlating data on outcomes with women's age, ethnicity, marital status, income, and other socioeconomic characteristics is important to add granularity to data sources, as indicators of women's status can vary substantially by these variables. Existing databases can also be enriched by adding specific modules with new questions to an existing survey instrument and sampling frame.

Big data – an umbrella term covering transactional and crowdsourcing data from mobile phones and the internet, including online search and social network feeds, as well as global remote sensing data from satellites – provides an exciting avenue to build new gender data sources with sufficient granularity to ask policy questions that involve disaggregating variables by sex, age, group attribution, and other characteristics.

Big datasets can help provide insight on mechanisms underlying policy trends – subjective issues that official data often does not include – similar to traditional qualitative data, but in real time. Big data can also contribute to development by providing interim evidence on different indicators between rounds of other official surveys. In particular, big data can help fill the following gender data and research gaps:

- Help to better understand the behavioral aspects of gender inequality as well as provide information on women's mobility, opinions about conditions that affect them, and their perceptions about policy.
- Complement more standard program evaluation data by offering the perceptions and opinions of women clients and beneficiaries.
- Capture information that is difficult to elicit through regular surveys due to response bias or limited access to respondents.

On **health**, ongoing initiatives to strengthen vital registration systems could benefit from mobile phone-based reporting to help gather more accurate data on maternal mortality rates and causes. Geographic information system (GIS) and remote sensing technologies can also enable mapping and visual representation of the distribution of risk factors, disease, and services. There may be ways of complementing this information with GBD estimates to obtain richer information on disease burdens and risk factors by sex and other demographic features.

The collection of data on mental health and violence against women ideally require dedicated surveys. For such sensitive and underreported health problems, however, mobile phones may complement dedicated surveys by providing an avenue for anonymous reporting. For example, mobile health interventions have significant potential to gather valuable information on health (including attitudes and behaviors) when they solicit queries from the user. Mobile phone reporting mechanisms are also being used in some countries to monitor locations and prevalence of sexual harassment and assault. Including targeted questions or existing survey modules is another option, as the DHS and the RHS do for measuring violence against women.

Sexual and reproductive health information and indicators for adolescent girls should be available through expanded coverage of existing survey instruments (the DHS) and complemented by data from mobile phones, particularly since adolescent girls are more likely than older women to adopt this technology in large numbers. Dedicated surveys covering multiple dimensions of adolescent girls' lives, with prospective panel cohorts that are followed over time, are highly desirable to fill policy gaps on adolescent girls' well-being and opportunities. GBD information can be exploited to get trends and patterns in adolescent health status.

Both client data (collected through traditional survey instruments and mobile phones) and facility-generated information from health service providers are also potentially rich information sources on women's health service utilization, especially if health service provider data is automated.

On **education**, as computerized recordkeeping in developing world school systems grows more widespread, digital data can contribute to understanding disparities in teacher effectiveness, attendance, exam scores, and completion rates by sex and other categories. Where such data systems are lacking, however, innovative forms of crowdsourcing may be equally important.

The Learning Metrics Task Force may chart the way forward to close the data gap in learning through lower secondary schooling. The expansion of the PISA to more developing countries in 2015 and beyond can increase the availability of comparable learning data for youth who should be transitioning to higher secondary education. The WIDE dataset should be expanded to include more countries to ensure information is demanded to capture learning and access for socially excluded girls.

Dedicated panel surveys focused on adolescent girls (see health domain) can be a rich source of information to examine girls' transitions from school to the workforce and to family formation, and can be complemented by information gathered from big data sources, such as mobile phones.

On **economic opportunities**, additional questions in official statistics are needed on unemployment, underemployment, informality, and looking for work, as well as on savings and assets and access to child care. Additionally, data from social networking feeds can help measure expectations and perceptions about the economy, factors affecting women's job mobility, and saving and spending patterns. Crowdsourced data can also measure "herd" effects such as trends in job changes among younger women in the economy who are more likely to be connected to these networks. Big data may be able to fill gaps regarding constraints on entrepreneur behavior, since moving into self-employment can be quite sensitive to changing economic conditions. In countries where mobile banking/transfer services are widely used, transactional data can also measure trends in economic activity linked to the user. Mobile data may also be good for collecting better information on access to financial services, distance traveled for work, and remittances and connections with others while working away from home.

A first policy priority is to count and make visible informal employment as well as understand the dynamics of women's work in this area. This includes tracking the proportion of women (including migrant women) in informal employment as well the numbers of young women whose first job after school is in informal work. In 2013, the ILO published a manual entitled "Measuring Informality" to guide country statistical offices and other organizations on standards for collecting micro-level data on informal employment (ILO, 2013). Recommendations include breaking down employment data into formal and informal work in both agricultural and non-agricultural sectors, as well as collecting better gender-disaggregated data on earnings across these areas.

On **political participation**, data efforts that currently collect information on women's representation at ministerial and parliamentary levels could be expanded to capture representation at subnational levels, although standardizing measures of local representation remains a challenge. National and international professional associations could be tapped to provide similar information for women in key professions. Big data could help with capturing some of this information. Voter registration and turnout data, important to track women's voices in the political process, requires harmonizing collection methodologies and resourcing a central body, endorsed by national Electoral Management Bodies, to coordinate the data gathering.

Digital recording of birth registrations and provision of identity records at the national level could play a significant role in ensuring citizens are counted and governments have accurate population data. The empowerment effects for women and other excluded population groups, and the development impact of this empowerment, could be large. An international effort, with donor support and South-South learning and collaboration could be rolled out targeting countries with particularly low birth registration rates. This data could also be used for information on voter registration and turnout.

Finally, on **human security**, conflict modules in household surveys are needed to gather data on the micro-level relationships between violent conflict and household welfare. In the absence of local capacity, donor support for carrying out national household surveys, along with technical assistance to utilize non-standard sampling techniques, is needed in order to gather this data on individual and household-level effects, especially secondary effects. This includes data on sexual and gender based violence in the context of conflict.

Remote sensing and crowdsourcing information about the locations of victims in disaster-stricken and conflict settings, as well as estimates of displaced persons and population movements, can be an important source of information about the scale and scope of a disaster or conflict. User-generated and remote sensing data is particularly useful in conflict settings where traditional research design must be altered due to lack of sampling frames, population mobility, and insecurity faced by researchers and respondents.

More consistent and thorough reporting on women's leadership in peace and security processes is needed. Res2Act's framework for monitoring and evaluating National Action Plans on Women, Peace, and Security could be used for data on women's participation in peace and security processes.

Gender Data Gaps Highlighted in this Report

	Type of gap			
	Lacking coverage across countries and/or regular country production	Lacking international standards	Lacking complexity (information across domains)	Lacking granularity (large detailed datasets allowing for disaggregation)
Health				
Maternal morbidity/mortality	■			■
Women's excess disease burdens	■			
Violence against women	■		■	
Mental health	■		■	■
Adolescent health	■		■	■
Utilization of health services by women	■			■
Education				
Learning outcomes	■	■		
Excluded girls	■	■		
Transition rates	■			
Economic Opportunities				
Unpaid work	■			
Informal employment	■			
Earnings and opportunity cost of paid work	■	■		
Conditions of migrant workers	■	■		
Employment mobility	■	■	■	■
Entrepreneurship	■		■	■
Asset ownership	■		■	■
Productivity in agriculture	■	■	■	■
Access to financial services	■			
Access to child care	■	■	■	■
Access to ICT (mobile phones & Internet)	■	■	■	■
Political Participation				
Representation in local governance, political organizations & the professions	■	■		
National identity documentation	■			■
Voter registration and turnout	■	■		
Human Security				
Conflict-related mortality and morbidity	■			■
Forcibly displaced and migrant profiles	■			■
Impact of conflict on gender variables; women's adaptive responses to conflict	■		■	■
Conflict-related sexual and gender-based violence	■		■	■
Women's participation in peace and security processes	■	■	■	■

Data2X: Mapping Gender Data Gaps

Mayra Buvinic, Rebecca Furst-Nichols and Gayatri Koolwal¹

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Introduction

The design of policies and programs to promote girls' and women's advancement and expand their opportunities in society has been hampered by the lack of data on their participation and well-being. This lack of data spans multiple domains across health, education, economic opportunities, political participation, as well as human security. It has been a major obstacle in gauging gender differences and inequalities, as well as assessing the outcome and impact of development interventions on girls and women.

Data2X, named for the power women have to multiply progress in their societies, aims to advance gender equality and women's empowerment through improved data collection and analysis that can guide policy, better leverage investments and inform global development agendas. Data2X adheres to quality and efficient data production, open data standards, and usability, considers the need for next-generation indicators, and explores big data approaches (large volumes of real-time data available as data exhaust, online activity, sensing technologies, and crowdsourcing) for generating gender data.

While data on women and girls is lacking globally, the dearth of data is more severe in developing than industrial countries. The lack of information on women and girls also has more detrimental consequences in the developing world, where their disadvantages are greater, as is the need to devise effective evidence-based solutions to address these disadvantages – for the sake of both women and society. Following this rationale, Data2X focuses its initial phase on identifying ways to close gender data gaps in the developing world.

It is worth mentioning that closing gender data gaps can result in having more useful information on both women and men, for the development of better policies benefiting all.

The Gender Mapping Exercise

The mapping exercise is a first step to guide the achievement of the gender data aims of Data2X. The exercise seeks to summarize the state of gender data in developing countries across the five domains mentioned above, reviewing and building on advances made in recent decades. It provides a snapshot of the current availability of gender data, areas where gaps in data hinder policy and programmatic progress, existing data initiatives and sources that can be tapped to address gender data gaps, and new opportunities using big data. Within each domain, the exercise concludes suggesting ways forward in addressing these data gaps. The report also discusses the availability of data on policies (laws, regulations, and institutions) that affect these domains for women.

The mapping exercise builds on ongoing international gender data efforts and intends to add value by drawing synergies and identifying complementary actions with these other efforts. In particular, it hopes to provide useful input to the proposed Global Partnership on Development Data that would be tasked to support a “data revolution” in the Post-2015 period and respond to UN Women's call for gender data and indicators to monitor the achievement of a stand-alone goal on gender equality, women's rights and women's empowerment (High-Level Panel of Eminent Persons on the Post-2015 Development Agenda, 2013; UN Women, 2013).

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The gender mapping is organized as follows: first, it presents the organizing framework — the domains mapped, objectives and criteria for mapping gender data gaps, and the availability of gender data (sources and desirable features). Second, it maps the five main domains separately, listing available sources, initiatives, and proposed ways forward. And third, it discusses data on policies and policy effectiveness.

Several appendices accompany this report. Appendix A lists major indices ranking countries on gender indicators. Appendix B notes the types of data gaps for the internationally agreed minimum set of 52 gender indicators by the UN Inter-Agency and Expert Group on Gender Statistics (IAEG-GS). Appendix C lists cross-cutting gender data initiatives that have informed this exercise. Appendix D describes sources of nationally-representative household surveys. Appendix E provides a matrix of household surveys for economic indicators. Appendix F briefly discusses big data as a source of gender data and sketches a typology of big data in development. Finally, Appendix G lists global databases on policies related to women.

Organizing Framework

Domains of Gender Equality and Women's Empowerment

The mapping exercise uses the framework first developed by Amartya Sen in the early 1990s to define the main domains of women's well-being and empowerment and measure gender inequalities, thereafter reflected in the UN Beijing Declaration and Platform for Action (1995), the UN Millennium Project Task Force on Gender Equality (2005), and UN Women's proposal for a transformative stand-alone gender goal for the Post-2015 Development Framework (2013).²

These domains are *human capabilities*, both in (1) *health* and (2) *education*; (3) access to *economic opportunities* and resources, including in labor markets, in physical and financial assets ownership, and in accessing productive services and technologies; (4) access to *political opportunities*, characterized by the ability to exercise voice and agency in political participation and civic life; and (5) *human security*, including reduced vulnerability to interpersonal violence and conflict and equal participation in peace and security and post-conflict development.

It is worth noting that the domains are interrelated, and that the concept of empowerment includes the notion of agency or women's ability to use those capabilities and opportunities to expand the choices they have and to control their own destiny (Sen, 1999).

Gender Data Objectives and Criteria

The gender data included in the mapping exercise seeks to measure individual outcomes of females both in absolute terms and in comparison with males.

Objectives

The objectives of gathering gender data are to:

1. Quantify women's vulnerability and disadvantage by measuring levels in female wellbeing in absolute terms (rather than in comparison with males), in addition to measuring sex and gender differences and inequalities.
2. Measure progress or changes in women's conditions in absolute terms (changes in levels) and in comparison with men's (changes in sex and gender disparities) by tracking trends over time.
3. Quantify and make visible women's participation in society and their contributions to development.
4. Assess the outcome and impact of development interventions on women's capabilities and the realization of opportunities — on their wellbeing and participation in society.

² UN Women proposes three priority target areas for the stand-alone gender goal, and associated indicators. They are freedom of violence against women and girls, gender equality in capabilities and resources, and gender equality in decision-making power in public and private institutions (UN Women, 2013).

[Criteria for identifying gender data gaps](#)

Need, population coverage and policy relevance were the main criteria to decide which gender data gaps to map. Need refers both to the severity of certain conditions affecting women and the magnitude of the gap in wellbeing between women and men and between poor and better-off women, within and across countries. Coverage is the number of girls and women that potentially benefit from closing the gender data gap. Policy relevance is the judgment that gender data is useful to inform action.

Certain conditions that are severe but affect women only in a specific region (such as female genital mutilation, for instance) or belonging to a particular cultural group have restricted coverage and, therefore, are not included in the mapping exercise.

Policy relevant data directly inform policies and programs, such as data on the numbers and characteristics of women saving informally versus formally (useful to design saving products) or data on women's asset ownership (needed to assess the gendered impacts of property reform legislation, for instance). Data are also policy relevant when they provide objective information about women's participation in society that can result in changes in policies and the allocation of societal resources — such as data that quantify the contribution women make to household income in poor households or the social and economic costs of violence against women, or that track the number of women involved in peace negotiations (see above section on objectives). Data that can be tied only indirectly to policy are not included, although they may contribute to building important knowledge on gender issues — for instance, data on some aspects of intrahousehold dynamics and the allocation of intrahousehold resources.

Gender Data Sources, Desirable Features, and Availability

[Data sources](#)

The mapping exercise considers three main sources of gender data: (1) censuses and micro-level surveys that provide information on individuals, households and enterprises; (2) data generated institutionally, including facility-generated service and administrative records (through hospitals, schools, civil registries, tax authorities etc.) as well as policies, laws, and regulations that are developed through the political process; and (3) big data, which has yet to be mined for gender issues. Censuses, micro-level surveys, and service and administrative records are the main data sources discussed across the five domains. Gender data gaps on policies and policy effectiveness are examined in a separate section in the text following the discussion of domains. Big data is covered in the 'ways forward' sections under each domain. Appendix F expands on big data and its potential as a source of gender data.

We have only mapped data sources that have national coverage, can be used to make international comparisons, and have established or potential links with data sources regularly used as evidence-base for development policy.

[Desirable features](#)

Desirable features of gender data include: (1) **quality**, that is, data sources should be reliable, valid and representative; (2) **coverage**, including country coverage and regular country production³; and (3) **comparability**, in terms of concepts, definitions, and measures (attained by agreements on international data standards)⁴.

³ As in Appendix B, we define a gap in coverage or production when data is available for 40 or fewer countries, and a partial gap when data is available for between 40 and 80 countries. Good coverage is when data is available and regularly produced for 80 or more countries.

⁴ Following these desirable features, the UN Inter-agency and Expert Group on Gender Statistics (IAEG-GS) classifies their "minimum set" of 52 gender indicators into three tiers according to conceptual clarity (a dimension of quality), coverage and regular country production, and agreed international definition or standards (UN Economic and Social Council, Statistical Commission, 2012).

It is important to underscore the desirability of having quality data to build statistics and derive population estimates. Inaccurate or bad data is particularly a problem in low-income countries where gender data gaps are the greatest, because data capacity is also most limited in these contexts. In the case of women, in particular, bad data can result from someone other than the individual woman or girl responding on their behalf when interviewers collect information on households or enterprises.

Gender data sources also need to be (4) **complex** and/or (5) **granular** in order to be useful for research and policy purposes.

A data source is complex when the same source of data covers different domains or data between different domains is interrelated and can be cross-tabulated. Meaningful gender analysis often needs to cut across domains. For instance, to fully understand the determinants (or risk and protective factors) of women's health conditions, the ideal data sets have information on biological or medical as well as social (individual and household) variables to assess the interaction of biology and society in determining health outcomes. However, biological and social information is usually found in separate and unrelated data sources that are not linked.⁵

Data to measure economic participation similarly benefit from having detailed information on women's home lives, work lives, and health. This is because women's work and women's health are profoundly affected by the structure and dynamics of households, and by women's fertility behavior. Again, however, detailed information on economic as well as family roles, household decision-making and time use, are available only in a limited set of publicly available survey instruments.

In some cases different surveys can be supplemented with one another, if they share a common sampling frame or cover the same time period and context, to help tackle broader questions that may be difficult to address with just one source.⁶ Geo-coding of enumeration locations is likely to improve the ability of surveys to be linked. Also, administrative data can be matched or triangulated with survey data when they cover the same context and time period. In other cases, available household surveys are or could be expanded to add a specific module — on conflict, for instance, to study the human impacts of conflict (Brück, Justino, Verwimp, & Avdeenko, 2010). Panel data that can track the life course of women and their children and can follow the impact of interventions over time is preferable to cross-sectional data for answering many gender questions with policy implications, although this type of data is rarely available in developing countries.

A data source is granular when it can be disaggregated into smaller units by basic geographic, demographic and other categories. Gender data sources should be large and detailed enough to be disaggregated by race and ethnicity, age, and geographical location, as well as sex. Issues related to women's well-being and empowerment can vary substantially by these categories, and data sources should reflect this heterogeneity.

Race and ethnicity are often difficult to measure, however, and age disaggregation is not a trivial undertaking. Data disaggregated by race, ethnicity and geographic location is critical, but often politically sensitive, sometimes impeding production or reporting of this information altogether. In order to improve the availability of granular information, statistical offices and agencies must have a degree of functional autonomy, protecting them from political interference. Geographical disaggregation also requires large samples and is often sacrificed when making international comparisons. Further, units of geographical disaggregation for administrative records and surveys may not coincide, which makes matching information between different data sources difficult and information from some disaggregated sources not useful for policy purposes.

5 In support of this data need, a recently issued research roadmap for family planning calls for ensuring that all DHS surveys include standard indicators for the social determinants of health to better understand the relationship between women's empowerment and use of family planning services (Population Council, 2013).

6 As one example, a study by van de Walle (2011) on widows in rural Mali draws on two separate surveys over the same time period – the 2006 Enquête Légère Intégrée Au près des Ménages (ELIM) and Demographic and Health Survey (DHS) for 2006 – to address different questions underlying the effects of widowhood.

In the case of age, disaggregation into smaller age groupings is particularly desirable, especially for late childhood and adolescence (ages 10 to 19 or 24), but this requires having large samples so that the different age groupings are adequately represented. Collecting data on adolescents requires careful selection of enumerators and specific training on interviewing this age group, to ensure respondents are receptive to the questions. (S. Kishor, personal communication, September, 2013.)

These five desirable features — **quality, coverage, standards, complexity and granularity** — are used throughout the report to qualify the type of gender data gap.

Data availability

International development agencies act both as repositories of official country statistics and generate their own data sources in response to their specific mandates – e.g., WHO collects and produces health data; UNESCO does the same with education data; ILO has a database on labor statistics combining labor force surveys, household surveys and administrative records; FAO oversees a rich database on agriculture; the World Bank administers their own Living Standards and Measurement Surveys as well as enterprise surveys; and UNICEF runs a multipurpose survey for children and families (see Appendix D). The regional banks and the UN regional economic commissions similarly have rich databases pertaining to their regions.

These and other international databases have, to various extents, gender data that has not been analyzed and could be mined to address some of the data gaps presented in this mapping exercise. Often, data has not been but could be disaggregated by sex. We recommend exploring the potential of mining existing databases for many of the gender data gaps identified prior to engaging in the new data collection suggested below in the ‘ways forward’ sections.

In developing countries there can be frequent duplication in data gathering efforts, especially when donor and national data priorities are not fully aligned (Sandefur & Glassman, 2013). The recommendations to fill data gaps presented here should, therefore, mine what exists before collecting new data, be efficient or economical, and avoid at all costs fostering disparate and uncoordinated data exercises. These recommendations should also ensure that there is meaningful national (and international) demand for the gender data that will be produced, and that there are clearly identified channels to use the information for policy purposes. To drive social change, the production of gender data has to follow, not precede the identification of the potential use and user of these data sources.

Globally, gender data is favored and produced in some domains over others. Around 80% of countries regularly produce sex disaggregated statistics on unemployment, mortality, labor force participation, and education and training. Less than 33% of countries regularly produce gender statistics on informal employment, entrepreneurship, and time use (satellite accounts). Leading the category of irregularly produced statistics are violence against women and unpaid work (UNSD, 2012).

The UN Inter-Agency Expert Group on Gender Statistics (IAEG-GS) has compiled a “minimum set” of 52 quantitative indicators on gender statistics and divided them into three tiers, according to their availability:

1. **Tier 1**, which are conceptually clear, with an agreed international definition and regularly produced by countries;
2. **Tier 2**, which are like Tier 1 but not yet regularly produced by countries; and
3. **Tier 3**, for which international standards need still to be developed and not regularly produced by countries (UNSD, 2012).

This minimum set of indicators was endorsed by IAEG-GS in 2012 and approved by the UN Statistical Commission in 2013. While our mapping exercise draws on this minimum set due to its mandate and widespread country acceptance, the IAEG-GS is continuing to develop and propose modifications of these indicators as well as their classification. A number of international agencies are also introducing variants of the minimum set. This includes UN Women which, as

part of the post-2015 development framework put forth a set of proposed indicators on women's empowerment in June 2013 (UN Women, 2013). UNESCAP is also producing a core set of gender statistics for the Asia-Pacific region that follows the IAEG-GS minimum set but places a greater emphasis on migration, aging and care of the elderly (IAEG-GS, 2013).

As previously mentioned, Appendix B shows the indicators in this set of 52 with no country coverage, limited coverage (that is, about 25 percent of countries), or partial coverage (that is, between 25 and about 50 percent of countries). The Appendix uses information from the World Bank Gender Data Portal on the number of countries reporting data on the indicator and information from the IAEG-GS that classifies each indicator by tier.⁷

Appendix B also provides a snapshot of where or in which domains the major gender indicator gaps exist. Educational indicators, followed by health, lead the way in terms of production and standards (the measures by which tier rankings are determined). Coverage, production, and standards in the other domains highlighted in this report are poor, and this is especially the case for economic indicators.

Gender Data Gaps and Initiatives in Five Domains

The criteria of need, coverage and policy relevance were used to identify global gender data gaps in health, education, economic opportunities, political participation and human security. Cross-cutting gender data initiatives, listed in Appendix C, informed the section under each domain.

Each domain covers the following: a background section briefly explains the importance of the domain and defines main issues. The section that follows identifies data sources used internationally and major gender data gaps; it also identifies the type of gap. Pertinent international gender data initiatives addressing one or more of the gaps are then briefly mentioned. Mapping of each domain concludes by suggesting 'ways forward' to close data gaps with existing and new data sources (including household or micro surveys, administrative sources, and big data).

Health

1. Background

Health is a central component of wellbeing for both men and women. Health also matters for productivity. Recent data shows that healthy individuals (men and women) are, overall, more productive than less healthy individuals (Bloom, Canning, & Fink, 2008). A third reason for the importance of health to development is specific to women: the health of infants is directly related to the health of mothers, and this relationship is especially salient in poor countries and households.

Health data helps with diagnoses and solutions; it assists in setting priorities and determining the most efficient and effective way to allocate resources to optimize health outcomes. Data can also empower individuals, by providing information that will help them choose healthier behaviors, and enable them to demand effective policies and services (Stansfield, Jamison, Walsh, Prata, & Evans, 2006). These multiple benefits of having health data contrast sharply with still significant data gaps in this area, both for women and men and specific to women. Although the IAEG-GS indicators show a number of areas in health for which there is good data, this mapping exercise identifies additional needs for health data and indicators.

Reliable data on many critical aspects of health are not available because of the weakness of statistical systems, including civil registration systems that generate vital statistics on births, deaths, and causes of deaths. This includes reliable data on maternal mortality and morbidity, which is largely unavailable in precisely the low-income settings that are burdened with high maternal mortality rates (World Bank, 2012).

⁷ There are some inconsistencies between these two sources, which are noted; for example, some indicators labeled Tier 1 (i.e., regularly produced) by the IAEG-GS are listed as having no or limited coverage according to the World Bank and, viceversa, the proportion of people with access to credit by sex, is classified as Tier 3 but the World Bank shows it has information for 108 countries, probably reflecting the creation of a new database on financial services, the Global Findex.

Maternal disorders should remain a priority for policymakers, as they have been to date, but there are other gender data gaps in health that are equally or more important in different regions and for different age groups. In fact, identifying some of these data gaps should help the global community move beyond the traditional understanding of women's health as simply addressing issues that stem from their reproductive and maternal functions.

Sex and gender – nature and nurture – shape women's health outcomes and their disease burdens. Some health conditions, such as maternal conditions, have strong biological origins, while others, such as depressive disorders, are the result of the interaction of biological (sex) and social (gender) variables. A third set of conditions, such as injuries due to intimate partner violence, are the result of purely social/gender variables.

2. Available data sources and data gaps

Data sources for health statistics fall into five major categories: vital registration systems, population censuses, national population-based household surveys, service records derived from health facilities and patient-provider interactions, and administrative records, including information on health system resources — financial, human, and infrastructure (Boerma & Stansfield, 2007).

Major population-based survey sources of information for women's health include the Demographic and Health Surveys (which has added modules on gender based violence and FGM), Reproductive Health Surveys (RHS, also with modules on gender based violence), World Bank Living Standards and Measurement Surveys (LSMS), and UNICEF Multiple Indicator Cluster Surveys (MICS). See Appendix D for descriptions of these surveys.

In addition, access to reliable global health statistics increased significantly with the launch of the DALYs in the early 1990s. The DALYs estimates disability-adjusted life years, using all available sources of information on health. It provides mortality and morbidity data disaggregated by sex and age for a comprehensive list of health conditions, most recently on 235 causes of death and 67 risk factors for 185 countries (Horton, 2012).

Across these different data sources, some large gaps emerge in available information on women's health. We discuss these below.

Maternal mortality and morbidity

Maternal disorders still take up a significant portion of DALYs lost to women in developing countries, while accurate data on maternal deaths and maternal morbidity are sorely lacking. Although IAEG-GS ranks maternal mortality ratios (MMRs) as a Tier 1 indicator, little is still known factually about maternal mortality, particularly among poorer populations, and even less is known about maternal morbidity.

Global estimates on maternal mortality were revised downward substantially in 2010 using data from vital registries, censuses, surveys and verbal autopsy studies (Hogan et al., 2010). Still, numbers continue to be unacceptably high. Recent global estimates, using slightly different databases and estimation methods, yielded 287,000 maternal deaths for a total of 180 countries in 2010, and 273,500 deaths for 187 countries in 2011 (WHO, 2012; Lozano et al., 2011). Maternal deaths are concentrated in developing countries – the majority in sub-Saharan Africa. MMRs in developing countries — 240 deaths per 100,000 live births — is 15 times higher than in developed countries (WHO, 2012).⁸

While the quality of information on maternal mortality has improved considerably with these revised estimates and efforts by the DHS (through incorporating sibling history modules) and other surveys, the data are still inadequate for accurate monitoring and understanding of trends. Better vital registries are needed for more accurate data on maternal deaths, but only a third of countries keep complete civil registries that capture deaths and causes of death (WHO, 2012). Even in high-income countries with complete vital registration systems, there is substantial lag between

⁸ The DALYs are global estimates of mortality and morbidity and, as such, their quality ultimately depends on the underlying raw data that is used to derive the estimates.

data collection and reporting of maternal deaths (Lozano et al., 2011).⁹ Civil registration data, which includes births, death, and causes of death, as well as marriage and divorce, are critical for a number of health (as well as civic) initiatives (see also 'Political Participation').

The difficulty in measuring maternal deaths is partly due to the fact that absolute numbers of deaths remains small. Maternal morbidity numbers are greater and should be more amenable to tracking through surveys and health records. The IAEG-GS list of indicators covers maternal mortality but not maternal morbidity.

Type of gap: Coverage and production of quality data, granularity (geographic, race and ethnicity, and age disaggregation).

Women's excess disease burdens

Women, overall, live longer but lose more healthy life to disability than men. Women aged 15 to 65 lose fewer DALYs than men to mortality but more to morbidity (Horton, 2012). Excess disease burdens for women (when compared to men), unrelated to maternal conditions, include Alzheimer's disease, dementia and osteoarthritis — all linked to women's longevity — as well as unipolar depression.

The health transition has increased the importance of tracking non-communicable diseases, including female-specific cancers that contribute significantly to the DALYs lost by women globally. Cardiovascular and cerebrovascular diseases account for nearly 8.2% of total female DALYs lost, yet women frequently delay treatment for cardiac-related events, perhaps because of their association with the burden they create for men (Buvinic, Medici, Fernandez, & Torres, 2006).

The IAEG-GS list includes indicators of adult obesity and smoking prevalence (ages 15 and over) by sex, as well as adult mortality by cause and age groups, life expectancy at age 60 by sex, and the share of women living with HIV/AIDS (aged 15 to 49). UN Women's 2013 proposal for a stand-alone goal in the post-2015 framework, discussed in the previous section, adds the prevalence of lower tract respiratory infections by sex.

Data collection efforts must address largely unreported causes of women's excess disease burdens. They need to parse out the contributions of sex and gender, and their interaction, in the etiology, onset, progression and prevention of diseases where women face excess disease burdens.

Type of gap: Coverage and production, complexity.

Violence against women

Current estimates of the prevalence of violence against women in developing countries are wide ranging, with anywhere between 6 and 40 percent of women in different surveys reporting having experienced physical violence from an intimate partner in the last 12 months, and between 2 and 45 percent reporting having experienced sexual violence in the same period (UN Women, 2011). Physical and sexual violence has been associated with post-traumatic stress disorder, depression, anxiety, low self-esteem, alcohol and drug abuse, sexual risk-taking, and a higher risk of subsequent victimization (Bott, Morrison, & Ellsberg, 2005).

The first global estimate of the health costs to women of gender-based violence was published in 1993; it yielded more than 9 million DALYs women lost to this cause, which was more than those lost to cancer or motor vehicle accidents (World Bank, 1993). Despite these high estimates, two decades later we still do not have quality, comparable data on the magnitude of violence against women for a substantial number of countries and its effects on health and other dimensions of women's lives.

⁹ The DALYs are global estimates of mortality and morbidity and, as such, their quality ultimately depends on the underlying raw data that is used to derive the estimates.

The last compilation of data by UN Women on intimate partner violence lists up to 86 countries (including both developed and developing) reporting data on physical and sexual violence, but the data is from a variety of surveys with different coverage and time periods, and is not comparable. A few recent efforts are being made at collecting better data on violence against women. Nationally representative, comparative data are available from the violence module of the DHS. Thirty-nine countries (out of a total of 90 with DHS surveys) have completed one or more DHS surveys with the module included and two additional countries have surveys with the module ongoing. (S. Kishor, personal communication, September, 2013) The DHS module includes a range of questions covering physical and emotional abuse and restrictions on autonomy by current partner, former partner, and others in a respondent's life, history of violence, partner's use of alcohol, and abuse performed by the respondent toward a partner.

Recent cross-country studies using nationally representative data on violence against women include the dedicated WHO study covering 18 countries across different regions, with five more under way (WHO, 2005;); a study using the DHS module with data from 9 countries (Kishor & Johnson, 2004); a PAHO study with information for 12 countries in Latin America and the Caribbean, using data from the DHS and the RHS (Bott, Guedes, Goodwin, & Mendoza, 2012); and a new UN Economic Commission of Europe (UNECE) victimization survey with a violence module — an offshoot of the WHO multi-country violence study — that collects data on a regular basis, as does the DHS. However, the data from these different studies are not strictly comparable, since they ask questions about intimate partner violence using different timeframes.

IAEG-GS lists two indicators of physical or sexual violence against women (violence perpetrated either by an intimate partner or persons other than an intimate partner in the last 12 months) in their minimum set, neither of which are regularly produced by countries. In addition, IAEG-GS is refining methodology on an expanded list of nine core indicators measuring prevalence of violence against women. UN Women's proposed indicators add a measure of lifetime violence, and indicators of public perceptions/opinion and service provision. As discussed below, recent efforts are also underway within the UNSD to help developing countries collect data on violence against women, based on recently published guidelines in 2013.

Type of gap: Coverage and production, complexity.

Mental health

Mental health problems are a major contributor to total disease burdens, but comparable mental health data are only available for industrialized nations (Hyman, Chisholm, Kessler, Patel, & Whiteford, 2006). The gaps in information on mental health are huge in developing countries for both women and men, and indicators on mental health are not included in any list of gender indicators. Perhaps not surprisingly, mental health services are unavailable for the majority of the population in low-income countries.

Having sex-disaggregated information on mental health conditions is particularly important because the burdens of disability for many psychiatric conditions vary sharply by sex. Women, for instance, are twice as likely as men to become depressed and there is a high comorbidity between depression and other psychiatric disorders. Moreover, women tend to live longer lives than men and, thus, are more likely to suffer higher morbidity and loss of DALYs from mental health disorders (Buvinic et al., 2006).

Disaggregation by age is equally important. Mental disorders are one of the major contributors to disease burdens in young people aged 12 to 24, while very little is known about mental health interventions for young people (Patel, Flisher, Hetrick, & McGorry, 2007). We discuss this further below.

Two sets of international standards on mental health exist, though are not gender specific. These are the WHO's Composite International Diagnostic Interview (CIDI), used for the World Mental Health Survey (WMH), and Schedules for Clinical Assessment in Neuropsychiatry (SCAN). The CIDI is a fully structured interview to make assessments according to the ICD-10 and DSM-IV. It is intended for epidemiological and cross-cultural studies as well as for clinical and research purposes. SCAN is a set of instruments and manuals which assess, measure, and classify the major psychiatric disorders in adults, and can be used for clinical, research, and training purposes. SCAN was also developed within the framework of the WHO (WHO-SCAN).

The WMH Survey Initiative includes nationally or regionally representative surveys in 28 countries, representing all regions of the world (Harvard Medical School, 2005).

Type of gap: Coverage and production, complexity, granularity.

Adolescent health

Health data on adolescent girls, especially in the younger age groups, is almost non-existent. Quality and coverage of sexual and reproductive health conditions needs to be improved, including obtaining accurate figures on maternal mortality and morbidity and induced abortions among adolescents and young women. The existing evidence on adolescents' risk of dying during pregnancy or delivery is ambiguous, but there is good reason to assume that adolescents are much more likely to die from maternal related causes than adult women (National Research Council and Institute of Medicine, 2005).

Especially lacking is information on adolescent health conditions that are unrelated to reproductive health and are largely shaped by society rather than biology. Sex differences are particularly salient in young people's mental health: young women (12 to 24) are 1.5 to 3 times more likely to have depressive disorders and attempt self-harm, whereas young men suffer more from behavioral disorders and schizophrenia (Patel et al., 2007). Across regions, DALYs rates for mental disorders are 12% higher in girls than in boys between the ages of 15 and 19 years (Gore et al., 2011). Data on mental health disorders are needed to assess the burden of disease by sex and age groups, risk and protective factors, and interventions and models of care.

Among communicable diseases, there is continuing concern with the global impact of HIV, and the fact that in sub-Saharan Africa HIV infection rates among teenage girls are 5 to 16 times higher than among teenage boys. In sub-Saharan Africa, 58% of deaths of young women ages 15 to 29 are due to HIV/AIDS. The figure for young men is 43% (National Research Council and Institute of Medicine, 2005).

IAEG-GS list includes an indicator on those living with HIV/AIDS but only for the aggregate group of women aged 15 to 49. The only statistic specific to adolescents is the adolescent fertility rate in the IAEG-GS minimum set, and the adolescent motherhood rate in the UN Women proposed list. UN Women also calls for disaggregating violence against women indicators by age and other features.

The ideal data sources on adolescent health would have information on biological and social determinants of health (i.e., are complex), disaggregate by age groups, race and ethnicity (i.e., are granular), and use panel data to track adolescents' progress over time. Cohort panel studies, like those carried out in the US and other industrial countries, would be particularly useful.

Type of gap: Coverage and production, complexity, and granularity.

Utilization of health services by women

Despite the fact that women are visible clients in health services (they access services for themselves and their children), there is evidence of women's underuse of both maternal and non-maternal health services in poor countries and serious gaps in knowledge on the factors influencing women's demand for health care (Ahmed, Creanga, Gillespie, & Tsui, 2010). Issues of accessibility, affordability, and appropriateness shape women's demand for services; reliable data on these determinants of women's use of services would go a long way towards the design of health interventions that better meet women's needs.

Indicators on women's utilization of health services in both the IAEG-GS and UN Women lists of indicators are limited to maternal and reproductive health services: antenatal and attended births coverage, contraception, and access to anti-retroviral drugs.

Type of gap: Coverage and production, complexity, granularity.

3. Initiatives

- The Global Burden of Disease (GBD) 2010 data updates information on disability-adjusted life years (DALYs), injuries and risk since 1990, expands assessments of causes of deaths, and standardizes data to enable comparisons over time (Horton, 2012). It estimates disease burdens globally for 1990, 2005 and 2010, and can be used to assess prevalence trends for morbidity and mortality, disaggregated by sex and age, region and country (Murray, Vos, Lozano, Naghavi, Flaxman, & Michaud, 2012).
- 'Guidelines for Producing Statistics on Violence Against Women: Statistical Surveys,' has been finalized (UN DESA, 2013). The guidelines provide information to harmonize the collection of data using dedicated sample surveys and produce the list of nine core violence indicators adopted by the UN Statistical Commission. The guidelines will be followed by UN training of country statistical offices on core violence against women data collection.
- Together for Girls—a public-private partnership including five UN agencies (UNICEF, UNAIDS, UN Women, WHO, and UNFPA), the US government, and the private sector—documents sexual, physical, and emotional violence against girls and boys (aged 12-24) through national-level household surveys. The data from these Violence Against Children Surveys are available in four countries and several others are in the process of being completed across Africa, Asia and the Caribbean. The surveys cover a range of topics, including the prevalence and consequences of violence; most frequent locations where it occurs; and common perpetrators (Together for Girls, 2013).
- The Commission on Information and Accountability for Women's and Children's Health, convened by WHO to track progress on the UN Global Strategy for Women's and Children's Health, selected 11 core indicators on health outcomes for tracking in 75 priority countries with high maternal and infant mortality rates. It also recommended establishing vital registries and well-functioning health information systems in all countries by 2015 and using ICTs for collecting health information (Commission on Information and Accountability for Women's and Children's Health, 2011). Indicators include the MMR, demand for family planning satisfied, and four indicators of maternal services coverage. Countdown to 2015, a global movement with governments, international development agencies and The Lancet as key partners, supports this accountability agenda and prepares annual progress updates on the priority countries (PMNCH, 2014). It is unclear from these updates (The 2013 Update, for instance) how much progress countries have made on implementing robust vital registration and health information systems.
- Adding to the above initiative, global leaders in health statistics, convened by WHO, have agreed to work together to increase investments in country health information systems to reduce reliance on statistical models and increase the collection of civil registration data (births and deaths) (WHO, 2013).

4. Ways forward

Maternal mortality and morbidity: Strengthening vital registration systems at the country level is fundamental to improving the quality of information on maternal deaths, and ongoing initiatives by Countdown 2015 and WHO global leaders in health statistics suggest that this is in the process of being addressed. The gap in information on maternal morbidity can be filled through improved health service records at the country level and health surveys.

Information technologies have a potentially important role to play in improving information on maternal health. Mobile phones could help with more accurate reporting of maternal deaths to a central registry, improving the recording of data on MMRs and its causes (World Bank, 2012).

Mental health: Mental health measures and indicators ideally should be produced through dedicated surveys, given the sensitivity of this type of information. A second best solution, which may be more realistic given resource constraints, is to include targeted questions on mental health in existing surveys, such as the DHS and the RHS. Guidelines such as those around collecting data on violence could serve as a model to ensure the methodology is appropriate.¹⁰ The use of mental health records, even if they were automated, is unlikely as a comparable data source given huge challenges involved in harmonizing protocols.

¹⁰ For example, some experts have suggested including a question around ideation of suicide, but this type of question requires careful training and consideration before adding it to existing surveys.

Social media has potential to convey mental health trends by sex and other demographic characteristics – signaling gender differences and sentiments through trending topics. Mobile phones also offer privacy and anonymity for gathering and reporting mental health information through traditional surveys. Social media and mobile phones should be particularly attractive vehicles to gather information on youth, who are main users of this technology.

Violence against women: UN guidelines for dedicated surveys on violence against women (the preferred method of collection) have been produced and statistical officers will be trained in their use (see above). Dedicated surveys yield high quality data and elicit higher exposure rates when compared to questions about violence or violence modules in larger multi-purpose surveys, but they are resource intensive. The next step, if resources are available, is a global initiative that will use the UN guidelines to collect survey data systematically at the country level. Continued growth in the number of countries using the DHS and RHS violence modules as well as the new UNECE module, if they are made comparable, is a second best, realistic option to obtain data for a large number of countries in the near-term.

Panel data is critical, to track both progress in reducing violence against women over time and measuring lifetime violence burdens, which are likely to be considerably higher than what is recorded with current survey instruments since violence and victimization tend to perpetuate themselves. Higher lifetime burdens tend to produce the most severe effects of violence, making this information extremely important to track. Suggestions include sacrificing the depth of knowledge obtained through dedicated surveys for trend data obtained through shorter modules (L. Heise, personal communication, August 2013).

Health records have been a valuable source of information to quantify the costs of treating violence against women in the US, Canada and other industrial countries. The automation of health records in developing countries is a first step towards expanding the number of countries producing information on the costs of domestic violence.

Mobile phone data platforms could produce valuable information to complement survey efforts, especially through anonymous mobile phone reporting. Mobiles have been used to elicit information from male perpetrators anonymously. HarassMap (www.harassmap.org/en/) uses mobile technology to monitor the locations and prevalence of sexual harassment against women in Egypt (Lakshane, 2012; Rosenthal, 2013).

One limitation of mobile reporting tools was shown in the work of the NGO Digital Democracy in the process of designing a hotline-style reporting system for sexual violence in Haiti. Haitian women were unfamiliar with the technology and resisted the concept of reporting such emotionally sensitive issues over mobile phones to anonymous strangers; the women were especially concerned about threats to personal security this may have caused (Belyea, 2011). There are additional limitations due to literacy requirements for using complex mobile reporting systems (especially in the absence of voice-enabled devices), creating clear issues with sampling bias.

Adolescent health: Sexual and reproductive health information for adolescent girls should be easily available through expanded coverage of existing survey instruments (such as the DHS) and complemented by data from mobile phones, which young women are more likely to use than older women. Mobile phones have the potential of being a unique vehicle to collect sensitive information on the health and wellbeing of adolescent girls, including sexual and reproductive health and mental health. Information on induced abortions among adolescent and young women may be more easily recorded using the anonymity provided by mobile phones.

Dedicated surveys covering multiple dimensions of adolescent girls' lives, with prospective panels of girls in different age cohorts that are followed over time, are highly desirable to fill policy data gaps on adolescent girls' well-being, and could be implemented using traditional and mobile phone data gathering techniques. (Surveys could be modeled after well-known panel studies with adolescents in industrial countries, for instance, studies by the Robin Hood Foundation on adolescent girls and their children in the US).

In the very near term, Global Burden of Disease's newly released information can be exploited to get a better assessment of the health of adolescent girls, disaggregating by age groups.

Utilization of health services by women: Both survey data and facility-generated information from health service providers are potentially rich sources of information on women's health service utilization. Issues are expanding survey data sources to cover services other than reproductive and MCH services and more systematically gathering and automating health service provider data. This includes critically needed data on service costs and women's ability to pay for different health services.

"Countdown to 2015" tracks four service utilization indicators for women in the area of family planning and maternal health in 75 countries where more than 95% of all maternal deaths occur. An option would build on the framework created by Countdown to 2015, extend it beyond 2015 and expand it to track women's health service utilization beyond the four basic indicators considered to date to a larger core set of indicators that respond to women's overall health needs (PMNCH, 2014).

Harmonization and automation of health services data in middle-income and low-income countries with established institutional capacity can begin to fill gender data gaps in this area.

The plethora of new mobile health initiatives can help construct a comprehensive picture of women's health. Such data may also be useful in clarifying mortality and infectious disease patterns among girl children, adolescents and adult women, as well as in determining coverage and use of reproductive health services.

There may be ways to complement mobile phone information with Global Burden of Disease information to obtain more accurate information on disease burdens (including maternal disorders, mental health, and violence burdens) and risk factors by sex, age and location. Another tool that should be more heavily relied upon is geographic information system (GIS) technologies that enable mapping and visual representation of the distribution of risk factors, disease, and services (Stansfield et al., 2006).¹¹

Education

1. Background

Investing in girls' and women's education yields high economic and social returns. Higher levels of education increase the probability that women will engage in formal paid employment, be more productive, and earn higher wages. Educated women are also more likely to claim their rights and exercise more influence in private and public spheres. They are also better able to improve their own wellbeing, including health and decision-making on fertility (Grown, Gupta, & Kes, 2005; World Bank 2012).

Despite progress in improving enrollment in line with the two education-related MDGs (universal primary education and the elimination of gender disparities in primary and secondary schooling), female completion rates in both primary and secondary education are low and need to rise; further, learning levels need to improve for all students. The 2012 Education for All (EFA) Global Monitoring Report estimates that at least 250 million children of primary school level are not able to read, write, or count well, even among those who have spent at least four years in school. And unlike education access, learning is difficult to assess at the global level (Brookings Institution, 2013).

Of the 41 million school age girls (compared to 31 million boys) who were out of school in 2005, approximately 70 percent were members of "socially excluded groups" – racial and ethnic minorities, isolated clans, and groups in which a minority language predominates. Excluded girls face a "double disadvantage," because socially excluded populations are less likely to send girls to school and more likely to allow them to drop out early, when compared to boys (Lewis & Lockheed, 2007). Measures of attainment and learning outcomes must be disaggregated by sex, race and ethnicity, and also by disability, orphanhood, citizenship status, and whether students have been affected by conflict.

2. Available data sources and data gaps

Extensive sex-disaggregated data exist for enrollment at all levels, highest level of school attained, basic measures of education quality (teacher training and pupil-teacher ratios), and literacy. These are obtained by most household surveys and official statistics (Appendix D).

¹¹ An example of a user-generated map is www.whoissick.org.

IAEG-GS includes 12 educational indicators in the list of 52, and classifies all but two as Tier 1 indicators. As we discuss below, a number of indices have also been developed that examine data on education and provide comparable estimates on gender inequalities across countries. However, gaps in assessing girls' and women's progress in education still persist.

Learning outcomes

Improving educational outcomes ensures that students reap the social and economic returns to education, and may have a multiplier effect on enrollment; when attending school results in real learning, parents are more likely to send their children to school. Current measures of education quality are based on inputs and are not sufficient to assess learning outcomes.

Ideally, students would take the same test at the same grade level or age in order to obtain internationally comparable measures of learning outcomes (UNESCO, 2012). These data, however, are not collected systematically in developing countries. Even literacy, identified as a Tier 1 indicator by the IAEG-GS, is not measured consistently across surveys. While some surveys ask respondents to demonstrate the ability to read and/or write, for example, others rely on self-reported levels. UNESCO Institute for Statistics (UIS) metadata shows that countries use a variety of measures at the national level, including population censuses and household surveys.

Main international assessments of learning outcomes include the OECD Program for International Student Assessment (PISA), the Analysis Program of the CONFEMEN Education Systems (PASEC), and the Trends in International Mathematics and Science Study (TIMSS). Despite the availability of such international assessments, they are not uniform, and they still disproportionately represent middle and high income countries. Each test is designed differently and targets a different context. Regional assessments such as the PASEC (Francophone Africa), SACMEQ (Southern Africa), SERCE (Latin America), as well as the EGRA, UWEZO, and ASER may also be important regional resources that can get at differences in learning between males and females across a diverse group of countries (A. Chudgar, personal communication, March, 2014), and learning outcomes assessed by examination may be more readily comparable at the regional rather than global level.

Type of gap: Coverage and production, standards.

Socially excluded girls

Socially excluded girls face double disadvantage that results from being female and belonging to a group that faces social exclusion because of ethnicity (caste), religion, economic factors, location (rural-urban), and disability. Exclusion from education is often closely correlated with social exclusion (Lewis & Lockheed, 2007). Despite this realization, specific data aimed at disaggregating educational outcomes and performance by sex and social exclusion and understanding the gendered obstacles to school entry and retention remain scarce globally. Data on disability and access is especially lacking. These indicators are not included in the UN Statistics Division Minimum Set.

Type of gap: Coverage and production, standards.

Transition rates

Girls are less likely than boys to successfully transition from primary to secondary school and from schooling into the work force (National Research Council and Institute of Medicine, 2005). In addition to completion, therefore, it is important to track the number of students, male and female, who successfully transition from primary to secondary school or from any level of school to the workforce, and what happens to those who do not make the transition. This information should allow for targeted policymaking toward encouraging higher post-primary rates. Although this data is available for some countries from UNESCO Institute of Statistics (UIS), most do not track it or it is tracked imperfectly (not accounting for secondary school repeaters or those who take a break from school). Both IAEG-GS and UN Women call for a transition to secondary education indicator, by sex, although IAEG-GS rates it as a Tier 1 indicator, regularly produced by countries.

Young women constitute the majority of those neither at school nor at work, classified as 'idle' in labor force surveys. Tracking and understanding the reasons behind young women's transition from school into the workplace or into 'idle' status should provide valuable information to design targeted policies and programs to increase young women's labor force participation rates. Data on the transition from education to the workforce, disaggregated by sex and age (15-29), is being collected through the ILO's "school-to-work transition survey" (SWTS). The survey is based on a standardized ILO survey, which allows for meaningful cross-country comparisons. SWTS for 28 low- and middle-income countries are funded through the Work4Youth partnership between the ILO Youth Employment Program and the MasterCard Foundation. Data from the first round was made available in 2013, and a second round will take place in each of the 28 countries in 2014-15 (Shehu & Nilsson, 2014).

Type of gap: Coverage and production, complexity.

3. Initiatives

- The UNESCO Institute for Statistics (UIS) developed the Literacy Assessment and Monitoring Programme (LAMP) in 2003 with the aim of improving literacy and numeracy statistics. LAMP was designed to facilitate cross-country comparisons and to monitor progress at the national and international levels (UNESCO Institute for Statistics - LAMP, 2009). Many countries have piloted LAMP, including Vietnam, El Salvador, Mongolia, and Niger, but it has not yet become an international standard.
- The Learning Metrics Task Force, convened by the UIS and the Center for Universal Education at the Brookings Institution, aims to catalyze a shift in the global conversation on education from a focus on access alone to access plus learning, with a concern for equity. The Task Force, informed by three rounds of global consultation and technical development, developed a global framework and standards for measuring and improving learning outcomes for early childhood, primary and lower secondary education. The framework identifies competencies in seven domains of learning, and a short set of indicators for tracking learning outcomes globally, recognizing that improvements in national data gathering are required before all areas can be measured. The task force's final set of recommendations was released in a September 2013 report, *Toward Universal Learning: Recommendations from the Learning Metrics Task Force* (Brookings Institution, 2013). The recommendations present key indicators for tracking progress in foundational skills (literacy/numeracy), as well as "readiness to learn" in early childhood, skills and values for youth to be citizens of the world, and a "learning for all" indicator that combines access, completion, and reading into one statistic. It also calls for a global tool to examine breadth of learning opportunities for children and youth.
- The OECD's Program for International Assessment (PISA) assesses attainment in mathematics, reading, and science by testing students' cumulative learning from early childhood through primary and secondary schooling. The test addresses both cognitive and non-cognitive learning outcomes and is administered every three years to 15 year olds in participating countries, to assess career and university readiness (OECD, 2013). PISA disaggregates learning outcomes by race and ethnicity as well as sex. Since its launch in 1997, PISA has been carried out in 70, mostly middle- and high-income countries.¹² To help expand coverage, "PISA for Development" seeks to make this measure of learning outcomes more policy relevant for developing countries. Many developing countries have expressed interest in participating in the 2015 assessment cycle following the successful participation of several middle-income countries (OECD, 2013).
- In September 2012, the Education for All Global Monitoring Report published the World Inequality Database on Education (WIDE) (www.education-inequalities.org). The WIDE is based on DHS and MICS data from over 60 countries, and enables users to compare education attainment between groups within countries, including sex, wealth, ethnicity, and location. Indicators focus on educational attainment (years and completion of primary and lower secondary) rather than learning outcomes.

¹² PISA surveys cover a total of seventy-four countries, of which forty are less affluent non-OECD countries. There is no PISA survey data for Sub-Saharan Africa and much of South and West Asia.

4. Ways forward

Learning outcomes: Two ongoing initiatives suggest that the data gap in learning outcomes disaggregated by sex and other relevant criteria is being or will be addressed. The Learning Metrics Task Force will chart the way forward to close the global learning data gap through lower secondary schooling. The Task Force has global reach and good grounding in national educational systems. The expansion of the PISA to more developing countries in 2015 and beyond will increase the availability of comparable learning data for youth who should be transitioning to higher secondary education.

These initiatives draw on surveys, school records and, increasingly, big data sources. As computerized recordkeeping in developing world school systems grows more widespread, digital data can contribute to understanding disparities in teacher effectiveness, exam scores, attendance, and completion rates by sex and other categories. Where such data systems are lacking, however, innovative forms of crowdsourcing information about school performance may be equally important applications of big data to education.

Socially excluded girls: The WIDE dataset, described above, can be expanded to reach more countries (data is currently limited to 60 countries) for information on educational attainment (years of schooling completed) by sex, wealth, ethnicity and location. Data on learning outcomes from the Task Force efforts and from PISA, when disaggregated, will add valuable information to that provided by WIDE.

School to work transitions: Young women's transition from school to the workplace could be more systematically tracked using a combination of survey instruments, digital school administrative records and big data transactional sources from mobile phones that track young women's mobility and work choices after leaving school. Dedicated panel surveys focused on adolescent girls (already mentioned under health) can be a rich source of information to examine the trajectory of adolescents from school to the work force and to family formation and identify constraints and points of intervention. The ILO's School to Work Transition Survey could be expanded to more than the planned 28 countries to obtain greater coverage in this important area.

Economic Opportunities

1. Background

Many studies have shown that encouraging women's participation in market-based activities — including formal work outside the home, better property rights, and access to financial services — can raise their financial independence, status and household bargaining power (Anderson & Eswaran, 2009; World Bank, 2007). Women's market-based work can also have broader effects on society, including greater investments in child schooling and health and improved economic growth (World Bank, 2013; Bandiera & Natraj, 2013).

However, the dramatic rise in women's labor force participation rates and access to financial services in both urban and rural areas in industrialized countries over the last few decades has not been as systematic across developing countries (Fogli & Veldkamp, 2011). Longstanding social and economic barriers to women's time use and mobility in many parts of the world can create high opportunity costs to paid work or seeking financial services such as loans, relative to the potential monetary benefits.¹³

Much of women's market-based activities in developing countries is also poorly documented and measured since it takes place outside the formal labor market, in very small firms with few or no paid employees, in single person operations, or on very small farms. Women are overrepresented among microentrepreneurs and smallholder farmers doing low productivity, low paid or unpaid work in firms and farms that is poorly recorded in official statistics, if at all. Lack of opportunities to work can affect women's productivity in other spheres as well, through their self-esteem or perceived social status (World Bank, 2013).

¹³ There are several studies examining these issues; see for example Kevane & Wydick, 2001; Jayaraman & Lanjouw, 1998; Pagán & Sánchez, 2000; Munshi & Rosenzweig, 2006; Lokshin & Glinskaya, 2008; Matsche & Young, 2004; Khandker, 1998.

In this report, we define women's economic empowerment concretely as: (1) access to labor markets/productive use of time; (2) control over assets, including property rights; and (3) access to financial services and related markets and technologies,¹⁴ including energy. We examine different sources of nationally representative data that can help us better understand underlying factors affecting women's economic empowerment across countries and women's levels of participation, as well as areas that still need to be addressed with survey data.

2. Available data sources and data gaps

Appendix D lists different types of nationally representative household-level surveys that are currently in use, along with available information on women's employment, time use, asset ownership, access to financial services, technology, and child care. The table in Appendix E also includes their coverage. No one survey has complete information on all indicators of women's economic empowerment; different components must be examined separately through different surveys. For certain studies it could be useful, therefore, to examine different types of surveys over the same context and time period. Within different components of women's empowerment, however, there are gaps that have been receiving greater attention, which we discuss below. These areas span entrepreneurship, wage labor, and agriculture.

Unpaid work

Women engage in multiple unpaid activities, including domestic work and unpaid work for the family farm or business. Measuring this type of work can be a challenge, even in time use surveys specifically designed for this purpose. Different types of unpaid work can be performed simultaneously, for example, and often overlap with leisure activities or even market-based work (such as entrepreneurial activities).

Some refinements of time use data can help with these measurement issues, including surveying time use at different points/seasons of the year to compare differences in time allocation as a result of seasonal work patterns. The UN trial International Classification of Activities for Time Use Statistics (ICATUS), discussed later in the report, has aimed to develop a standard international classification of activities in time use data that is sensitive to differences in men's and women's allocation of time, particularly across paid and unpaid work.

Researchers and policymakers also need to better understand how and why women distribute their time across different activities; these mechanisms are typically not surveyed by standard time use modules or even traditional survey data. There are multiple factors affecting women's time use, for example, that can be difficult to observe. Women can choose to re-allocate their time away from work towards leisure when exposed to policies aimed at improving their health, legal rights, or even work productivity through improved technologies (Strauss & Thomas, 2008; Rangel, 2006; Mukhyopadhyay, 1994). As discussed below, eliciting these preferences can be very important in understanding how to design policies aimed at increasing employment. The IAEG-GS minimum set and UN Women report include indicators for unpaid work, as well as time spent on child care.

Type of gap: Coverage and production, standards.

Informal employment

The quality and security of employment matters in addition to having a job. Informal sector work, which can include unpaid work in a family enterprise, paid or unpaid work in other informal sector enterprises,¹⁵ casual wage labor, home-based work, and street vending, accounts for a major share of work among the poor. Informal employment, which can include work in the informal or formal sector, covers those employed who, by law or in practice, are not subject to national labor legislation and income tax or entitled to social protection and employment benefits (such as paid leave, pensions and health care) (ILO, 2013; Hussmanns, 2004). In recent years, the global economic downturn has forced much of the labor force in developing countries out of work or into informal employment. Working women

14 These indicators of women's economic empowerment have also been used by the World Bank and UN Millennium Project (see, for example, Global Monitoring Report, 2007; Grown, Gupta & Khan, 2003).

15 The ILO defines informal sector enterprises as owned by individuals or household members that are not constituted as separate legal entities independently of their owners (i.e. not incorporated or registered), and where their financial bookkeeping does not distinguish the production activities of the enterprise from the other activities of the owners. Informal sector work can also include casual wage labor, home-based work, street vending, and other activities that offer little protection in terms of an enforceable contract on employment terms.

in developing countries are more likely to be engaged in informal employment in non-agricultural activities as compared to men (ILO, 2012). Informal arrangements often persist and inhibit mobility as well as transition to formal or more secure work, whether self-employed or for another enterprise.

However, apart from the World Bank Enterprise Surveys and the ILO Labour Force Surveys, there are few regular surveys across countries with consistent variables on informal employment. Further, aside from hours worked and type of enterprise, most surveys do not ask about the security and stability of work, and factors constraining men and women from seeking formal employment. Country coverage is also an issue — the ILO's Key Indicators of the Labor Market database includes data on informality for only 60 countries, and an ILO-WIEGO report on men's and women's participation in the informal economy has data for only 47 countries (Vanek, Chen, Hussmanns, Heintz, & Carre, 2012). Most countries also exclude agricultural work from their estimates of informal employment (ILO, 2002), even though most of the world's poor are in rural areas, and women in informal employment are heavily concentrated in agriculture. IAEG-GS and UN Women both call for indicators on informal and vulnerable employment.

More specific data on the informal benefits workers receive, or the certainty of employment terms, can also help in designing policy around improving women's labor force participation and quality of work, whether formal or informal, going forward.

Type of gap: Coverage and production.

Wage work, opportunity cost of paid work, and quality of earnings

Earnings disparities across men and women are common in both industrialized and developing countries (Morrison, Raju, & Sinha, 2007; Blank, 1999). However, interpreting earnings as a measure of returns to employment can be problematic. For one, earnings are observed only for those who are in paid work. Most employment modules in household survey data don't elicit shadow wages, or the opportunity cost of paid work outside the home. One reason for this is that, for non-farm enterprises and own-farm work, household surveys often do not collect data on profits and each family member's labor supply. However, in understanding how women's labor force participation can be encouraged, their opportunity costs of paid work should be understood better. Along the same lines, factors affecting paid work range from observed characteristics to potentially unobserved factors such as perceptions about the labor market, preferences and norms that survey data often omit. Without this information, understanding the effect of different factors such as age, education, and household income on earnings can be biased. Better data on job searches and expectations about the labor market can also help in understanding job mobility, reasons for unemployment or underemployment among both men and women, as well as guide policies for enhancing women's employment. While the IAEG-GS and UN Women indicators do not cover opportunity costs of paid work and type of earnings, they do propose gender wage gaps as important indicators of women's earnings potential.

Earnings can also be notoriously difficult to measure given the diversity in labor force arrangements in developing countries. Particularly in informal and seasonal employment where women are overrepresented, earnings can be in kind, and/or paid out over a longer period of time due to unique social and economic arrangements in each country. Community-level data on average wages or earnings for men and women across different sectors and types of work is useful to understand more precisely the labor market returns and labor market decisions that men and women face. While some surveys do collect information on market wage rates, (LSMS surveys, for example), many times the data suffer from the same measurement issues discussed above.

Type of gap: Coverage and production, standards.

Labor migration

Developing countries have been experiencing substantial growth in female migration for work, either from rural to urban areas or internationally (Morrison et al., 2007). Individual remittance transfers continue to be an important source of income for many families in developing countries, and so the implications of women's migration are quite important. Although some household surveys (such as the World Bank LSMS) ask about individuals who have

migrated for work or other purposes, data on the sex of migrants, particularly those that migrate internationally and the reasons for migration, is still limited. Even fewer surveys are able to elicit the working conditions and family arrangements of those who migrate — many migrants, for example, particularly those living abroad, do not have a permanent residence or legal status and so are either unable or unwilling to be surveyed.

Documenting migration trends for women seeking work and understanding the characteristics and situation of these women can help form a better picture of their economic well-being and shape better policies for both the migrant herself and the receiving country. Better data are needed on female-specific migration trends and the characteristics of female migrant workers (including age and other demographic characteristics, legal status, reasons for migrating, remittances sent and working conditions). Neither the IAEG-GS nor UN Women indicators include migration for work.

Type of gap: Coverage and production, standards.

Employment mobility

Reliable data is needed on women's work mobility – that is, entry into the formal workforce and upward mobility in their jobs – to find ways to bring women who are looking for paid work into the formal sector. How do these women differ from those involved in home and subsistence production? Further, what are the features of women who are successful in transitioning or 'crossing over' from home and subsistence production to market work – from subsistence to higher-growth enterprises, for example, or from subsistence to commercial or higher-value farming? This includes an examination of young women's mobility; early encouragement of women to enter the workforce can have long-term impacts on their own welfare, as well as benefits to their household and children, since constraints on labor force participation many times permanently keep women (even those who have recently completed an education) out of the workforce. Employment mobility is not covered in the IAEG-GS and UN Women indicators, except for indicators on youth unemployment and part-time work in the IAEG-GS minimum set.

Type of gap: Coverage and production, standards.

Entrepreneurship

Details on women's entrepreneurial work (and ability), along with their business outcomes, are not well documented outside of enterprise surveys (see Appendix D). In addition to ownership and management of a business, additional important details include factors motivating women to engage in self-employed work (necessity or opportunity?); constraints that they face; and details of the enterprise including whether they run subsistence-level firms. As discussed below, however, recent policy efforts are underway to develop better statistics in this area. Relatedly, better data is needed on constraints in access to credit, land, and other capital and technology which hamper women's opportunities for self employment. Although many household surveys have modules on individual borrowing, for example, few still actually elicit credit constraints faced by household members, or ask about constraints only among those who have been able to borrow. As a complement, it is also important to understand the characteristics of successful women entrepreneurs, to better identify those who are 'primed for growth' and can better take advantage of productive inputs and services. Different modes of self-employment (own-account work, as well as ownership of firms) are covered in the IAEG-GS minimum set but not in the UN Women proposed indicators.

Type of gap: Coverage and production, (standards agreed or in preparation), complexity, granularity.

Asset ownership

Assets are important because they can generate rent, be passed down to others, act as collateral for loans, and be used in times of income shocks or loss of employment. In areas where individual-level data on asset ownership are available, studies have also shown that household expenditure patterns can also vary significantly depending on how assets are distributed among men and women in the household (Quisumbing & Maluccio, 2003; Doss, 2005). Despite a broad literature on gender inequalities in earnings and labor force participation, though, very little is known so far on gender inequalities in asset ownership (Doss, Grown, & Deere, 2008; UNESCO, 2012). Part of this stems

from entrenched policies and norms in many developing countries that restrict women's ownership of property and other assets to begin with. However, in many societies this issue cannot be so easily dismissed — depending on the country or even region within a country, women commonly own land/property, other durable assets, and receive inheritances.

Appendix E shows that almost no set of nationally representative surveys collects asset data at the individual level; even within some surveys like the LSMS, this data is not consistent across countries. Along with data on entrepreneurship, asset ownership is another area identified by the UN Statistics Division and the EDGE project where better data for women need to be collected. When asked, asset ownership is typically collected for the household as a whole, even if it is disaggregated by type of asset (i.e. landholdings, capital equipment, jewelry, and so on). Ownership of assets in developing countries can also be somewhat complicated. Someone who receives or is even legally entitled to an asset such as inheritance and/or land, for example, may not necessarily have the power to sell or otherwise manage that asset (Doss et al., 2008). Assets can be jointly owned, and some countries in Sub-Saharan Africa have norms where land is owned collectively, but women own crops and not the land on which those crops are grown (Gray & Kevane, 1999). Questions on asset ownership need to consider how assets are actually controlled or shared within the household; methods of eliciting asset ownership from household respondents also need to be sensitive to other household members present during the time of the survey. This is an area highlighted by both the IAEG-GS minimum set and the UN Women indicators.

Type of gap: Coverage and production, (standards in preparation), complexity, granularity.

Financial assets and access to financial services

Financial assets, such as savings and liquid investments, are also not surveyed well compared to other physical assets in developing-country data. Although opportunities for savings are limited, there is evidence that women do keep personal savings, often at home, for unexpected events, and this is based on perceived vulnerability to financial risk and shocks (Dercon & Krishnan, 2000; Doss et al. 2008). Understanding the barriers in access to financial services for women can also help policymakers better understand how to encourage female entrepreneurship, which is highly dependent on having sufficient collateral and financial literacy. Money is fungible, however, and financial services accessed by women may nevertheless be appropriated by their husbands or others in the family. Understanding these interactions is important, and asking detailed questions on how borrowing and savings is actually used or managed can give more precise insights into how access to finance promotes women's economic empowerment. Access to credit and other financial services is another area on which both the IAEG-GS and UN Women indicators focus.

Type of gap: Coverage and regular production.

Agriculture

Increasing uncertainties about land rights, input and output price fluctuations, as well as weather patterns and global agricultural markets and supply chains are changing the face of agriculture and making it a priority policy area in many countries. Part of this changing face is women's increasing role in agricultural labor (FAO, 2011). FAO estimates that closing the gap in female and male farmers' access to agricultural inputs and technology could increase agricultural output in developing countries by as much as 2.5 to 4 percent (World Bank, 2012). And as mentioned earlier, little is still known about women's conditions in agricultural informal employment, where their work in the sector is much more concentrated.

Ways to improve women's productivity and employment in agriculture are therefore receiving more attention. Understanding the role of women in agriculture requires gender-disaggregated data on agricultural productivity, landholdings and plot ownership, opportunities for investment, access to and use of relevant inputs, credit, and other services, as well as informal employment. Reasons why women may have less access to assets and technology in agriculture than men are also important (cost versus cultural factors, for example).

Most current survey practices, however, tend to omit this data. On farming, for example, many surveys still collect

information at the household rather than individual level, even though individual household members own separate plots in many countries, and can exhibit wide differences in productivity (Peterman et. al., 2011). Even in agricultural surveys where data on individual plots are collected, cost concerns often limit surveys to farmers above a minimum landholding threshold, overlooking many women who tend to manage smaller plots and have much lower access to inputs, financing, and agricultural extension services (World Bank, FAO, & UN 2011). And even in the common case where multiple family members work on the same plot, aggregate labor supply of these family members are also often omitted from survey data. And as discussed earlier, standards for survey data collection on individual asset ownership, including land, as well as informal employment are still in progress and can matter greatly in understanding the extent of women's productive roles in agriculture. While the IAEG-GS minimum set does include indicators on share of employment and land ownership by sex, agricultural productivity is not covered in this set or the UN Women indicators.

Type of gap: Coverage and production, standards, complexity, granularity.

[Access to child care](#)

Related to mobility, access to child care for children under five years (which includes health/nutrition, safety, and social/educational components) is an important constraint on women's employment outside the home. In the developing world, an increasing number of countries offer subsidized child care, but access is still quite limited, particularly for the poor. As a result, women who do work outside the home still often rely on informal support networks for child care, including family and friends. Rapid urbanization and growth in women's labor force participation in developing countries have heightened demand for formal child care; data on need and access to child care can better inform research as well as policies encouraging women's employment. While the IAEG-GS includes an indicator on the proportion of children under age three in formal care, it is currently a Tier 3 indicator with very limited data available from the OECD.

Type of gap: Coverage and production, standards, complexity, granularity.

[Access to ICTs \(mobile phones and internet\)](#)

Access to information communications technologies, especially mobile phones and the internet, influences a number of areas of women's lives including their ability to communicate with peers, learn about employment opportunities, receive information about the prices of their products, conduct financial transactions, and learn new skills transferred through these technologies. According to global data compiled by the Cherie Blair Foundation, there are 300 million fewer female than male mobile subscribers, and a woman is 21 percent less likely to own a mobile phone than a man. This number increases to 23 percent in Africa, 24 percent in the Middle East, and 37 percent in South Asia (Cherie Blair Foundation for Women, 2010). The gender gap in internet access is even wider – 25 percent fewer women than men have access in developing countries, which increases to 45 percent in Africa, and 35 percent in South Asia, the Middle East, and North Africa. According to a recent report, internet access and usage boosts women's income and ability to find jobs, increases women's sense of empowerment and freedom, and increases their sense of equity (Intel & Dalberg, 2013).

The International Telecommunications Union (ITU), the UN specialized agency for ICTs, keeps the World Telecommunication/ICT Indicators database. The database contains time series data for more than 150 telecommunications/ICT statistics, including access and use. Sex-disaggregated data on access to the internet is available in 64 countries (including developed economies) (International Telecommunications Union, 2013). The ITU relies primarily on official country data.

This data is limited in that it does not include information at the individual level on the nature and access of use of these technologies.

Type of gap: Coverage and production, standards, complexity, granularity.

3. Initiatives

- Time use data, as discussed earlier, can help in understanding the nature and extent of women's unpaid and informal work, that are often not well documented in surveys on labor force participation. In 2012, the UN Expert Group Meeting on the revision of the International Classification of Activities for Time Use Statistics (ICATUS) brought together national, regional and international experts working in the area of time use surveys and classifications of activities for time use statistics. ICATUS is intended to be a standard classification of activities that takes into account all activities that the general population typically spends time on over a 24-hour period that is internationally comparable and relevant for both social and economic policies.
- Through the EDGE project (Appendix C), the UN Statistical Division and UN Women are collaborating on developing methodological guidelines to collect data on physical and financial assets disaggregated by sex. Once the guidelines are ready, the EDGE project will pilot test the collection of asset data. The same exercise will be done for entrepreneurship.
- The Global Financial Inclusion (Global Findex) Database, an initiative of the World Bank and the IFC, measures how adults – spanning basic socioeconomic levels, gender, as well as urban/rural settings – save and manage their finances, and cope with access issues. This representative survey, conducted in 148 countries since 2011, provides a base and a sampling frame to examine women's savings behavior and financial access issues.
- The Integrated Surveys on Agriculture, part of the World Bank Living Standards and Measurement Surveys (LSMS-ISA), are a new effort to collect detailed nationally representative household panel data on the links between agriculture, socioeconomic status, and off-farm income activities. To date, it has been conducted in seven countries across Sub-Saharan and North Africa, with multiple rounds planned for each country. The LSMS-ISA also collects standardized individual-level disaggregated data on asset ownership, including ownership, management and control of agricultural plots and livestock, as well as other assets and access to credit.
- In 2010, the FAO in partnership with the World Bank, launched a Global Strategy to Improve Agriculture and Rural Statistics, providing the conceptual framework, core indicators, and processes to shape and coordinate international and national data efforts.¹⁶ Within this framework, USAID is developing The Core Agricultural and Rural Survey (CARDS) to improve the availability of timely and reliable data on core agricultural indicators identified by the Global Strategy. CARDS will support a country's plan for agricultural and rural statistics on a regular basis (typically, every three years) – the agriculture equivalent of a DHS. CARDS will include farm and non-farm indicators for individual household members, including women, incorporating lessons learned from applying the Women's Empowerment in Agriculture Index (see below). Beginning in 2015 and spanning a six-year period, two-year panels across nine countries (the two rounds spanning roughly three years) will be collected.
- Women's Empowerment in Agriculture Index (Appendix A) is a partnership between USAID, IFPRI and the Oxford Human Development and Poverty Initiative. Piloted in 2011 and launched in 2012, with baseline data collected in each of the two years, the Index is based on two sub-indices. The first is based on measuring several indicators of women's empowerment in agriculture (production, resources, time, leadership, and income), and the second measures gender parity in these outcomes across the principal man and woman in the household. The Index generates "scores" that can be compared over time, and data will be collected in 19 countries every two years.¹⁷

4. Ways forward

Informal employment: A first policy priority is to count and make visible informal employment as well as understand the dynamics of women's work in this area. This includes tracking the proportion of women (including migrant women) in informal employment as well the numbers of young women whose first job after school is in informal work.

¹⁶ This effort has also received input from a large number of stakeholders including national statistical institutes and ministries of agriculture, plus regional and international organizations.

¹⁷ The countries selected are those targeted by the U.S. Government's Feed the Future Program, and spans many African countries (Ethiopia, Ghana, Kenya, Liberia, Malawi, Mali, Mozambique, Rwanda, Senegal, Tanzania, Uganda, Zambia), as well as some in South and East Asia (Bangladesh, Nepal, Cambodia), Central Asia (Tajikistan) and Central America (Guatemala, Haiti, Honduras).

Since the informal economy typically goes unrecorded by government agencies, micro-level data as opposed to government administrative data appears to be the best way to gauge characteristics and conditions of informal workers. In 2013, the ILO published a manual entitled *Measuring Informality* to guide country statistical offices and other organizations on standards for collecting micro-level data on informal employment (ILO, 2013). Recommendations include breaking down employment data into formal and informal work in both agricultural and non-agricultural sectors, as well as collecting better gender-disaggregated data on earnings across these areas.

Since much of the informal economy operates through mobile devices, patterns in mobile phone usage has potential to reveal important dynamics, and the extent, of informal employment and time use among men and women.

Migration, employment mobility and entrepreneurship: Among existing household surveys, panel datasets that visit the same households and individuals over time can provide a valuable picture of migration trends over time and employment mobility, as well as changes in self-employment. Administrative data are difficult to work with in this regard since they are rarely panel surveys, and so changes can only be gauged at an aggregate (for example, regional) level.

On entrepreneurship specifically, the Enterprise Surveys (see Appendix D) can compare business outcomes across men and women entrepreneurs, but do not have other characteristics of business owners. Administrative data, including yearly business registers, can provide some additional detail on business owners' characteristics against their performance. Additional standards on entrepreneurship are also being developed within the UN and the EDGE project, as mentioned above.

Big data has potential to fill gaps on constraints to entrepreneurs, migration, and moving from informality to formal employment, since these can be quite sensitive to changing economic conditions. The 2013 UN Global Pulse research agenda includes, for example, using social networking data to examine issues like gender discrimination and perceived attitudes in the workplace that can lower women's economic mobility, a topic not commonly surveyed in official statistics. Similarly, on migration, social networking data can also provide information on migrant demographic profiles and working conditions for women who travel away from home to work. Mobile phone and banking data can also provide important insights on distances traveled for work, remittances, and connections with others while away from home.

Savings and assets: As shown above, women's savings and assets are very important areas for policy. Deposits and withdrawals, bank transfers, microcredit activities, and bill payments through mobile phones are becoming ever more common in the developing world. Data from mobile banking applications can help in understanding women's takeup of new savings products and their access to financial services. Financial institutions across the developing world are rolling out ever-more sophisticated systems to perform a range of banking activities from mobile phones, including among rural populations and the poor, and these data hold great potential for closing the gender data gap (where use of these systems is widespread) by providing a rich transactional database that could be mined according to the sex of the phone user. Recent advances in mobile banking and other technologies aimed at improving financial access should also be addressed by survey data, asking related questions about which individuals in the household own cell phones, whether they know how to get to the nearest bank, and whether they participate in any of these programs.

In addition to mobile banking data, additional questions in official statistics on individual savings and assets and on entrepreneurship are needed. The EDGE project should provide valuable methodologies to collect this data. The LSMS-ISA is also a valuable source for this information in agriculture, and its country coverage could be expanded significantly. The Findex sampling frame could also be utilized to collect more detailed sex disaggregated information on financial behavior.

Agriculture: As discussed above, a number of household survey initiatives are underway to refine statistics on agriculture, including LSMS-ISA and the CARDS project.

Among big data sources, GPS data on local agroclimatic characteristics and access to facilities can be tied to household survey data to better understand the role of agricultural potential, and proximity to resources, on individual farmers' outcomes. These data are also often available from government agencies responsible for agricultural policy in

the country.

Child care: Questions on formal or informal child care could be added to household surveys to understand women's access, need for, and use of these services.

ICTs: Similarly, expanding household surveys to include questions on mobile phone ownership, access, and use, as well as access to and use of the internet (through mobile or other sources) would provide rich detail on women's ability to access the connectivity and opportunity that information provides.

Political Participation

1. Background

Having a voice in the political process and being able to influence policy and contribute to development is a central dimension of women's agency. Voice – the manifestation or expression of agency in public life – is measured by women's participation and leadership in politics and other facets of public life (i.e., leadership in the police force, the judiciary, or corporate sectors). Voice shifts the emphasis on women's disadvantages and inequalities to women as actors — as agents promoting social transformation. The development significance of voice and agency is clear. If voice expands women's choices, their collective voice, it has been argued, is transformative of society (World Bank, 2012).

The number of women in leadership positions in public office or in the private sector has been and continues to be small, although women's representation in these spaces is slowly growing. Globally, women represent about 20% of those in parliamentary seats and less than 10% of corporate leaders (World Bank, 2012). This situation has given rise to quotas and reservations as ways to increase female representation in politics and the private sector, and to research efforts to understand the factors that constrain women's political participation and leadership, the effects of quotas and reservations, and the consequences or development impact of having female leaders (on the latter subject see, for instance, Chattopadhyay & Duflo, 2004; Beaman, Chattopadhyay, Duflo, Pande, & Topalova, 2012).

While data on women ministers and parliamentarians exists at the national levels, there is growing interest in measuring and understanding women's participation and leadership at the subnational levels, as election candidates, in political parties, and as voters – both the share of women who register and those who turn out to vote. The share of male and female registered and participating voters in a country provides the widest possible indication of political participation for the average female citizen.

Participation, as elected officials, candidates or voters, requires individuals to have (and show proof of) citizenship. Identification cards can be most readily administered through the existence of a well-functioning vital registration system – through registration of births – but under-registration is common in developing countries. UNICEF estimates that in the year 2000, some 40% of children in developing countries were not registered by their fifth birthday; this figure was only 2% for children in industrialized countries. In low-income developing countries, this figure rose to 71% (see also 'Health') (UNICEF, 2005).

In response, citizenship registration (and administration of national identity documentation) is often undertaken in conjunction with specific services, voter registration efforts, or as part of government efforts to provide more general, multi-purpose identification to citizens.

In addition to issues related to political participation, children whose births are not registered are more likely to live in poverty and face cumulative disadvantages from not having access to basic citizenship rights.¹⁸ This "identity gap" is a main source of exclusion and severely limits opportunities for development (Gelb & Clark, 2013). Quality civil registration data is critical for countries and for individuals. It provides basic demographic, economic, social and health information for countries, bridging the information gap between censuses. It also provides identity confirmation for individuals and access to citizen rights and responsibilities, including entitlements, individual legal status, voting rights, and age

¹⁸ Children from disadvantaged families headed by single mothers, those in consensual unions, and from teenage mothers are more likely to be unregistered at birth. Also, children from less educated mothers are less likely to be registered (UNICEF, 2002; Dureya et al., 2006).

at marriage. Single mothers, women in consensual unions, and less educated mothers register their children at birth significantly less than other mothers. Gaps in registration can affect either female or male children, depending on the country, and gender gaps increase as the number of unregistered children increases (UNICEF, 2005). Reflecting growing awareness of the importance of this data, UN Women proposes both birth registration and identity documentation coverage by sex as two indicators for the post-2015 development agenda.

2. Available data sources and data gaps

The share of women heads of state, government ministers, and parliamentarians is tracked systematically by the Inter-Parliamentary Union (IPU) and International IDEA. Data is updated every two years, with some of the archives going back to 1945. Data is derived from UN country missions and embassies. IPU and UN Women publish a map every two years with this information. There is also information available on electoral quotas for women and parliamentary committees on gender from the same sources. Reflecting the availability of this information, IAEG-GS classifies these indicators as Tier 1.

There is little comparable, regularly produced information on women's political participation on anything beyond the above-mentioned numbers. Information on political representation and participation disaggregated by sex may not be inherently difficult to collect from government and political party records, but there is no systematic reporting and no common standards. Traditional survey data on women's political participation is limited (except for a few LSMS surveys that include data on household members' registration in government programs as well as basic voting behavior). Appendix D lists surveys that have been specifically designed to measure women's (and men's) political participation across countries, but broad gaps remain, which are identified below.

Representation in local governance and political organizations

Comparable data on women's representation at the subnational level is scarce, and for many countries it does not exist at all. Countries which have adopted women's political quotas at the subnational level – most notably India through village panchayats, or committees – are more likely to report these figures regularly, but there is no standardized source of data across countries or regions.¹⁹ Indicators on the share of women in subnational government positions (both appointed and elected) would yield a more comprehensive picture of women's voice in political life. This indicator is among those proposed by UN Women. It is also included in the indicators put forth by The Institute for Inclusive Security's newest initiative, Resolution to Act (Res2Act), described in further detail in the Human Security domain category.

The share of female candidates in an election is often available but not reported. For some countries, this information could be collected by working with Electoral Management Boards (EMBs); many countries have this data although it is not always sex disaggregated. Women's leadership across political parties is also not difficult to gather in theory, but is not available regionally or globally.

Similarly, there is no international source of data showing the share of women in international decision-making bodies, or representation and leadership in grass-roots political organizations.

Type of gap: Coverage and production, standards.

Voter registration and turnout

Voter registration data is easier to obtain than actual voter turnout. Though governments may have this information, it is politically sensitive and may not be readily shared. There is no international body aggregating this information

¹⁹ UN regional economic commissions report yearly subnational level data, but the data is not comparable across regions. The Economic Commission for Latin America and the Caribbean also has data on the percentage of women judges in the highest court for all Latin American countries and percentage of elected female mayors and city council members for all Latin American countries. See: http://websie.eclac.cl/sisgen/SisGen_MuestraFicha.asp?indicador=1704&id_estudio=205.

currently, and some forms have a field for the sex of the voter while others do not. Ensuring this data is sex disaggregated would require working through EMBs and may require reforming national legislation.

Type of gap: Coverage and production, standards.

National identity documentation

National identity information on adults is often not available in surveys (the exceptions are MICS and DHS that offer special modules or questions on birth registration). Data sources disaggregated by sex with reliable information on how many people do not have identity documentation and, therefore, rights, do not exist and are needed. Another important breakdown for these data sources is race and/or ethnicity, since race and ethnicity, as well as gender, are important determinants of social and/or political exclusion. This information can be gleaned by increasing birth registration rates, but efforts should be made to expand identity documentation if they are not obtained at birth. While this is not in the IAEG-GS minimum set, UN Women does recommend birth registry coverage, by sex, among its indicators.

Type of gap: Coverage and production, granularity.

Private sector, professional and NGO representation and leadership

Women's representation and leadership in other local groups and private sector institutions is also missing. This can include labor unions, organizing committees at the community level, professional associations, as well as representation on corporate boards and in management positions. We also include here women's representation in the police force and judiciary – two institutions that are pivotal for good governance – which are listed in the IAEG-GS list as Tier 2. UN Women includes participation in these organizations among its indicators as well. There are no comprehensive international data sources that track these numbers.

Type of gap: Coverage and production, standards.

3. Initiatives

UN Women is developing standards for measuring women's political representation at the subnational level and making plans for data collection, although they have resources to cover only the project's early stages. Comparability and the timing of data production are issues, since local governments function differently and local level politics turn over more frequently, while data sets provide only a snapshot in time.

- The IPU and International IDEA collect some data on women candidates and voter turnout. IDEA has voter turnout data for around 20 countries, and IPU has plans to expand collection of data on women candidates in the near future.
- Increasingly, countries are using mobile technology and biometric identification to provide a unique digital identity to citizens and monitor birth registrations. A well-known example is the Universal ID program in India, which seeks to provide a unique digital identity to all citizens, in the hope of reducing state-level corruption, and illustrates how new technologies can help unlock opportunities for women (Zelazny, 2012). A recent review identified and surveyed 160 instances where biometric identification has been used in developing countries for a variety of different purposes. Over 40 developing countries have built or overhauled national ID systems to combat under-documentation (Gelb & Clark, 2013). While these are not gender data initiatives per se, they are mentioned here for their potential implication both for granting women citizenship rights and for documenting these rights more accurately.

4. Ways forward

Women's representation at sub-national level, in political parties, and in key professions: Tracking women's political representation and leadership at sub-national levels, in political parties and in key professions is in itself meaningful

information for policy. Data capabilities to get accurate information on women's representation at ministerial and parliamentary levels could be expanded to capture representation at subnational levels and in political party leadership.

Getting accurate numbers on the representation of women in the police force and in the judiciary (two of the 52 agreed IAEG-GS indicators) should be feasible by tapping into national and international professional associations representing police forces and the judiciary. Data collected using Res2Act's Toolkit will also include women's representation in the military, police force, and judiciary. Big data could complement and help with capturing some of this information. A number of programs are being developed to mine data from news feeds and other online sources to build databases on participation of groups in different organizations.

This data on women's representation at subnational and professional levels can be a first building block toward needed research on women's leadership. Two policy relevant questions are, first, do women in leadership positions effectively exercise voice (especially for those who assume leadership through quotas and reservations) and, second, what is the impact of women's leadership on policy outcomes, that is, do women leaders make a difference in local government bodies, in policing, in the judiciary? Data sources to study the factors shaping women's leadership need comprehensive information on the different domains of women's empowerment, and on women's effective exercise of agency and choice. It also requires information on contextual factors influencing women's agency, including: rights and their applications, social norms, and the role of women's networks and coalitions (World Bank, 2012).

Voter registration and turnout: Voter registration and turnout information disaggregated by sex is important for tracking women's voices in the political process. The way forward requires harmonizing collection methodologies and identifying and resourcing a central agency or body, endorsed by the EMBs at the national level, to coordinate gathering of this data.

National identity documentation: Digital provision of identity documentation could have significant individual empowerment effects and development impact. The potential for improving access of vulnerable and excluded women to food distributions, employment benefits, voting rights, and other entitlements is vast. The provision of a unique digital identity is increasingly feasible, and there are growing experiences and lessons as to how best to address this gap in identification and data on citizenship records. An international effort, with donor support and South-South learning and collaboration, has been called for and could be rolled out in the near-term, targeting countries with particularly low birth registration rates (Gelb & Clark, 2013).

National identity documentation is closely linked to vital registration of births, deaths, and causes of death—a priority for health sector statistics (see also 'Health')—as well as marriages and divorce, and there could be useful synergies between these efforts.

Human Security

1. Background

Systematic and reliable data on household and individual-level indicators related to conflict, peace and security have remained unavailable due to the unique challenges of data collection in conflict-affected environments. Conflict most often occurs in countries with sparse pre-conflict statistics and administrative records and weak data-collection capacity, and tallying the cost of war defies straightforward accounting. Survey research poses challenges to both respondents and research teams in environments plagued by insecurity, limited infrastructure, political constraints, fear of speaking freely, and mobile/displaced populations.

To date, the majority of research on gender dimensions of conflict has focused on the narrow domain of sexual and gender-based violence. More recent efforts have shown that a wider range of impacts from conflict also have gender aspects. For example, violent conflict can alter the structure of household demographic profiles and traditional gender roles; for instance, while men disproportionately bear the mortality burden, women make up the majority of the forcibly displaced (World Bank, 2011).²⁰ Other recent efforts have shown that physical capital recovers more quickly than lost human capital; it is therefore especially important to document and quantify these secondary impacts.

²⁰ Figures cited in the World Development Report (2011) indicate that men make up 96 percent of detainees and 90 percent of the missing; women and children are close to 80 percent of refugees and those internally displaced.

Collection and use of improved data on the ways conflict and insecurity affect men, women, boys and girls differently can be instrumental in the design of more effective and inclusive recovery strategies.

This domain focuses primarily on data covering (a) impacts of conflict and prevalence of violence in the context of conflict/post-conflict settings, and (b) women, peace and security (although extremely limited), while recognizing the importance of understanding conflict drivers such as security, access to justice, and jobs and associated services.²¹

2. Available data sources and data gaps

Recently, surveys have emerged on outcomes related to conflict in certain areas, particularly from Sub-Saharan Africa²², but few household-level survey series exist across countries (Brück et al., 2010). Where they are available, national survey data collected prior to the conflict serves as an inherent baseline. Periodic data collection in fragile states can capture the ‘ebb and flow’ of conflict and its effects (Brück et al., 2010). The World Values Surveys and the Barometer surveys, detailed in Appendix D, cover citizens’ self-reporting of victimization and perceptions of security disaggregated by sex.

Institutional data sources are largely unavailable in conflict settings, except in instances where the conflict is restricted to a geographic territory in a country with good data infrastructure (as it was, for instance, in the conflicts in Colombia and Tajikistan). Even then, political sensitivities may impede the ability to utilize institutional sources. Big data could emerge as a valuable complementary data source, especially in conflict situations where digital lines remain functional.

Understandably given the lack of data, IAEG-GS does not include gender and conflict indicators, except for the proportion of women subjected to physical or sexual violence in the last 12 months, which could be applicable to conflict situations. UN Women proposes an indicator on the proportion of women in decision-making in organizations involved in conflict prevention.

Direct and indirect conflict consequences

Drawing on a framework developed to track the gender dimensions of conflict, we group data questions around both direct (“first round”) and indirect (“second round”) effects of conflict-related gender variables. First round impacts center around the mortality and morbidity caused by war, forced displacement and migration, and sexual and gender-based violence. Second round impacts involve the responses of women and households to the devastation and changed landscape brought by violent conflict (Buvinic, Gupta, Casabonne, & Verwimp, 2013).

First round gender data gaps include having accurate information on:

- Sex and age-disaggregated information across conflict-affected countries on battle-related mortality and morbidity.
- Changes in household structures and dynamics as direct result of battle deaths, including widowhood.
- Forcibly displaced and migrant profiles (by sex and age) from both sending and receiving countries.
- Reliable information across fragile states on the impact of violent conflict on men and women’s assets and income.
- Reliable information on sexual and gender-based violence directly related to violent conflict.

Second round data gaps include tracking adaptive responses to conflict, including changes in marriage and fertility behavior, women’s household roles, and children’s health and educational status. This also includes data tracking women’s political and civic participation in the aftermath of violent conflict.

21 Security, economic factors, and justice are among the causes and correlates of conflict (WDR, 2011).

22 Since the late 1990s, these have included surveys from Burundi (one of the few panel surveys – the Burundi Priority Household Panel, 1998-2007); Rwanda, Uganda, Colombia, Indonesia, Sudan, and Vietnam.

Type of gap: Coverage and production, complexity (for some measures), granularity.

Women's roles in peace and security processes

Data tracking the number of women participating formally in peace and security processes, particularly in leadership roles, is scarce. This information is not tracked consistently by any official body, despite the fact that the UN Security Council Resolution 1325 called for the increased and systematic inclusion of women in peacekeeping, peacemaking, and peace building processes. It should be comparatively easy to develop standards for and gather this information.²³

Information about women's direct participation in negotiations is not tracked consistently by any authority. Gaps include data about the number of women mediators, negotiators, signatories, witnesses, and technical advisers as well as the composition of negotiating delegations. UN Women has twice issued studies on the number of women negotiators and signatories in peace negotiations, noting that in about the last 20 years, women were only 4% of the signatories in 31 major peace processes (UN Women, 2012a). The UN's Department of Political Affairs (DPA) tracks the number of women named to the positions of lead envoy and mediator to UN-brokered talks, and the number of women mediators on the roster it maintains.²⁴

Women's participation in peace and security processes associated with negotiations is overwhelmingly undocumented. These processes include the reform of security sectors; the disarmament, demobilization, and reintegration of combatants; the establishment of constitutions; the creation of transitional justice mechanisms; and more.

Increasingly, national governments and international organizations are sex disaggregating data on participation in peace and security operations. The UN's Department of Peacekeeping Operations tracks the number of men and women serving in UN-led peacekeeping operations, noting the number of women serving in senior leadership positions, as civilians, and as international and national staff.

Type of gap: Coverage and production, standards, granularity.

3. Initiatives

- MICROCON is a five-year research program, funded by the European Commission and launched in 2007, that takes a micro-level approach to understanding the conflict cycle. Its goal is to understand the individual and group dynamics leading to and resulting from conflict, to ensure that people and households remain at the center of conflict interventions. Goals of MICROCON include compiling and collecting surveys and existing data, and advancing methods for qualitative and quantitative data on conflict at the individual, household and group levels. Among MICROCON's thematic areas are the gendered aspects of conflict. The MICROCON consortium grew out of the Households in Conflict Network (HiCN), and is comprised of 22 institutions in 16 countries. The Preliminary Technical Report on Data Collection and Methods, with technical recommendations for collecting data on conflict at the individual, household, and group levels, has yet to be released.
- The Institute for Inclusive Security ²⁵ launched Resolution to Act (Res2Act), an initiative dedicated to advancing high-impact National Action Plans (NAPs) on women, peace, and security. As part of this initiative, Inclusive Security developed a NAP Monitoring and Evaluation Toolkit that prompts the collection of data to help policymakers track implementation of their plans and identify promising investments as well as strengthens civil society's ability to hold governments accountable. The 42 countries that currently have NAPs and collect data on indicators proposed in the Toolkit will significantly expand evidence on women's participation in peace and security processes. A subset of these indicators will be internationally comparable.

23 Resolution 1325 was followed by Resolution 1889, which calls for creation of global indicators to track the implementation of Resolution 1325. UN Women <http://www.unwomen.org/wp-content/uploads/2012/10/03A-Women-Peace-Neg.pdf>.

24 Even less information is available about women's participation in unofficial or "Track II" negotiations. These mechanisms, which include initiatives such as issue-specific national consultations on issues being addressed at formal negotiations, often provide significant entry points for women. However, they are less well-measured than Track I processes.

25 Along with partners Club de Madrid; Cordaid; The Georgetown Institute for Women, Peace, and Security; Government of Finland; Norwegian Foreign Ministry; UN Development Programme; UN Women; and US Department of State.

- WHO, in coordination with UNAction, has developed a survey tool for women and men to measure different experiences of violence, perpetration, risk and protective factors, and impacts, including a section on mental health. WHO reviewed existing tools and had it reviewed by an international advisory group. They are now ready to pilot it in conflict-affected countries, pending the availability of funding (C. Garcia Moreno, personal communication, 2013).

4. Ways forward

The challenges in collecting gender data on the effects of conflict present a clear case for focusing on indicators that are feasible and salient to inform policy response. Having said this, accurate numbers on the basic human dimensions of conflict seems essential. These include: conflict related mortality and morbidity by sex and age; numbers and demographic profiles of displaced populations and refugees; and incidence and prevalence of sexual and gender based violence. More comprehensive survey data on the gender dimensions of conflict (both in terms of conflict impacts and responses to conflict) are to a large extent contingent on having the basic numbers right.

Mortality and morbidity: Although costly and challenging to collect, precise mortality and morbidity estimates by sex are essential for peacebuilding and post-conflict policy development.

Where vital registries and health service records (the main vehicles to record deaths and injuries) are unreliable or inexistent, dedicated surveys using a mix of classic cluster sampling and spatial sampling using GPS devices can collect valuable information on war-related mortality and morbidity patterns; this can happen even in remote areas where population numbers are not known (Lacina & Gleditsch, 2005).

One notable set of national surveys that quantified total mortality was conducted by the International Rescue Committee in the Democratic Republic of Congo between 2000 and 2004. These surveys were some of the first nationally representative data to document the scale and characteristics of war on the population, and have since been replicated in Darfur, Iraq, and Uganda (Coghlan et al., 2007).

In crisis situations, the channels of information exchange that depend on physical infrastructure – phone lines, roads, and so on – are often disrupted, and so communication over mobile channels increases greatly. Crowdsourcing can become the primary data source in such circumstances (Okolloh, 2009; Morrow, Mock, Papendieck, & Kocmich, 2011).²⁶ Remote sensing devices, particularly satellites, can help ascertain population and resource movements in areas where media have no access and ground-based sensing technologies are not operational, and where the usual stages of research design must be altered due to lack of sampling frames, population mobility, and insecurity faced by researchers and respondents.

The key issue here is maintaining privacy. Although big data offers opportunities for anonymity, this is generally the case only when sources transmit information automatically to databases, as in mobile phone records. This is not likely to be the case for reporting of sexual violence, which will require the intercession of trained interviewers or police officials.

One or more of the current efforts building databases on conflict could be strengthened to develop a global database on conflict related mortality and morbidity by sex that uses a combination of traditional records and surveys and information generated through big data.

Displaced and refugee populations: UNHCR could urge national governments to include age and sex in all reporting of registered displaced persons and refugees, and include these in standard reporting of global population estimates.

Panel data tracking those who have migrated or been displaced is preferable, although rarely possible given budgetary and logistical constraints. More support to governments or non-state actors may be needed, as well as non-traditional data collection methods (e.g., mobile phones) where access is severely limited. Using mobile phones to track and gather follow-up information from displaced populations may be a particularly innovative use of this tool.

²⁶ In the aftermath of the Kenyan elections in 2008 and the Haitian earthquake in 2010, for instance, the non-profit organization Ushahidi used Twitter feeds and other sources of digital data to help identify areas of greatest need.

Sexual and gender-based violence: Avenues to gather this data in conflict-affected environments include violence modules or dedicated surveys, health records, and electronic reporting through mobile phones. These methods of data collection will be most effective if employed by both state and non-state actors, using standardized formats.

One study using 2007 DHS data from DRC, conducted with 3,436 women who answered a domestic violence module, was able to estimate nationwide prevalence rates using population estimates (Peterman et al., 2011). This provides one example of nationally representative data on this sensitive topic that was possible by adding a module to standard household surveys, although the study did not cover prevalence of sexual violence committed against men. Ideally, dedicated surveys or the less-expensive option of violence modules on SGBV should be standard in the package of services attached to post-conflict relief and reconstruction.

Household impact data: Special modules in household surveys are needed to gather data on the micro-level relationships between violent conflict and household welfare. In the absence of local capacity, donor support for carrying out national household surveys, along with technical assistance to utilize non-standard sampling techniques, may be needed in order to gather this data on individual gender and household level effects, especially second round effects. The module developed by Bruck et al. (2010), of the HiCN (Households in Conflict Network) is an appropriate starting point.

Women's involvement in peace and security: Following the recommendations of Resolution 1889, an international body should be tasked with global tracking of women's formal participation in peace processes. Resolution to Act, the international collaboration mentioned above, plans to develop capacity to track these numbers. Since formal peace processes are normally documented through administrative records, this data should be relatively simple to collect systematically. Data on the numbers of women in police, military, and ceasefire monitoring teams would also be valuable (UN Women, 2012a).

Policies and Policy Effectiveness

1. Background

A country's policy environment — encompassing laws, policies and regulations, and political institutions — has direct implications for women's outcomes across domains. For example, policies on marriage and family (e.g., minimum age, status of married and divorced women, birth registration and citizenship, child care) are likely to influence women's fertility, education and decisions to work. Similarly, economic policies governing property rights and inheritance, as well as opportunities for men and women in the workplace, affect the same range of outcomes. Women in much of the developing world also suffer inequalities in basic human rights, including the ability to seek justice against domestic violence that broadly impact their day-to-day lives.

Policies and institutional capabilities can go hand in hand with local cultural and social norms, but are also often instrumental in generating opportunities and security for women when societal constraints have held them back. When women's outcomes are lagging behind men's, understanding what policies and institutions exist is an essential first step to closing these gaps. Accurate policy data is needed to track the development and content of policies as well as their implementation and outcomes.

Policies can have several layers, however, making tracking and compiling them very difficult. For example, they can be official or customary, and executed at different levels of government. There is also a distinction between laws, which are executed by the judiciary, versus policies and regulations, which can still affect citizens but are originated by the executive and have different means of enforcement. Depending on the circumstances and individuals involved, legal cases within the same country could be heard in a civil court, or a religious or tribal law court. As laws and policies change and are updated, different versions can co-exist for some time before contradictions are resolved. Because laws, policies, and regulations can affect women's lives similarly, we cover all under the umbrella term "policies" in this section.

These challenges, while common to all policies, tend to be more pronounced for policies affecting women, many of which still have customary origins (such as marriage and family laws) and/or have varying enforcement rates even within

countries.²⁷ For example, even though some countries in Sub-Saharan Africa and Asia have constitutional guarantees of married women's rights over land and property, these rights can be superseded by customary law that favors husbands in the event of widowhood or separation (UN Women, 2012b). For these reasons, collecting comprehensive, regularly updated data across countries on gender-targeted policies has been difficult.

To assess data gaps in policies, we identify four desirable features associated with policy data. They are a subset of the desirable data features presented earlier and are applicable to this type of data in particular.

The four features are: (1) Cross-country coverage and comparability: Wide country coverage is an important feature needed in global tracking of policies on women, as well as comparability of policy areas across countries. (2) Quality: Is the information on policies accurate, based on reliable sources, and does it include important distinctions, such as is the data separated by civil versus customary or religious jurisdiction? (3) Enforcement and institutional capabilities: Policies and institutions in place to promote women's empowerment may signal a commitment by the government, but the lives of individual women living under these policies differ significantly depending on implementation and resources devoted to that implementation, as well as customary laws. Policies can signal a serious commitment by leaders or may be mere window dressing. Is information on enforcement of policies collected at different levels of government, in different regions or geographical jurisdictions? What institutions are in place to implement them? (4) Frequency of production: Laws and institutions can change rapidly, particularly during times of political flux, with implications for policy and enforcement. Data on policies need to be updated frequently to remain a relevant benchmark to compare women's observed outcomes and behavior with the policies in place during a given period.

Accurate tracking of policies on the books, institutions in place to implement those policies, customary laws, and the experience of women under those policies can help obtain a well-rounded picture of the variables that influence women's well-being and progress.

2. Available data sources and gaps

We looked at the available data gaps prioritizing policies and laws that are measurable, internationally comparable, and have implications for women. Data areas we examined for availability include: equality and non-discrimination laws in the constitution; physical mobility and autonomy of married and unmarried women; citizenship, including the ability to move outside the country and apply for a passport; marriage and family laws, including legal age of marriage, parental authority over children, and inheritance; laws on property ownership; maternity benefits and child and elder care policies; labor legislation; laws and policies against sexual assault, harassment, rape, and domestic violence. Data gaps are listed below.

Enforcement is carried out through institutions, and is also influenced by cultural and social norms on reporting and seeking justice. Since many laws and policies do not reach or benefit women, particularly when customary laws are also taken into account, enabling policies must be accompanied by institutions in place to implement them. This is an emphasis in the WomanStats Database (see below), although systems to track enforcement in a systematic, comparable way are needed.

Interface between official and customary law: In some settings customary norms may override official laws and policies. For issues where this is the norm – such as property laws, inheritance rights, and age at marriage – data needs to track both official and customary laws.

27 The Convention on the Elimination of All Forms of Discrimination against Women (CEDAW), for example, adopted in 1979 by the UN General Assembly, covers equal opportunity and access to education, health and employment for women, as well as citizenship rights and protection from all forms of exploitation. Countries that have ratified the convention are legally bound to adopt all measures necessary to fulfill these obligations, whether through legislation or special temporary measures in the interim. They are also committed to submit national reports at least every four years on measures they have taken to comply with their treaty obligations. However, even though 187 countries have ratified CEDAW, enforcement of these criteria varies widely across countries.

3. Initiatives

While there are a number of databases on governance more broadly, only recently have new efforts emerged to track data on policies that specifically relate to women. These efforts are briefly described below. Appendix G analyzes each database against the four desirable criteria for policy data, and also shows which domains are covered.

- **WomanStats Database** reports information from literature reviews and expert interviews on women's physical security, economic security, legal security, community security, family security, security for maternity, security through voice, security through societal investment, and security in the state. Published information – including laws, statistics, statements of general fact made by experts and authorities, anecdotes, and interpretations – is collated from government reporting, NGO reports, and experts. This collection does not verify the quality of information. As such, the database provides a good starting point for background information and published sources on a given topic for a given country, but cannot be used as a comparative global data base.
- **OECD Gender, Institutions and Development Database** forms the basis for the Social Institutions and Gender Index –SIGI (see Appendix A). SIGI introduces 12 indicators on social institutions grouped into five categories: Family Code, Physical Integrity, Son Preference, Civil Liberties and Ownership Rights and ranked between 0 and 1. The score and country rankings provide an overview of gender discrimination in social institutions, and the sub-indices help identify areas of particular concern. Country notes from the database provide in-depth information related to social institutions. Regional and in-country experts are part of the verification process. The data is not entirely comparable and there is some uncertainty about the quality of different data sources.
- **World Bank's Women, Business and the Law Database** examines laws and regulations that influence women's ability to earn an income through entrepreneurship or wage employment. The database highlights gender differences in: accessing institutions, using property, getting a job (including labor legislation), providing incentives to work, building credit and going to court. Information is drawn from published formal laws and regulations and is compiled by a World Bank team. The data can be compared across countries. There is some data on women's ability to go to court compared to men's, but no information on enforcement more broadly.
- **The World Legal Rights Database** is an initiative within the World Policy Analysis Center and covers policies affecting health and well-being, and equity. It has information on work schedules and hours, paid leave, sick leave, pregnancy, birth or adoption, leave for children's needs, or elderly/disabled care. The Work Family Equity Index is drawn from the World Legal Rights Database and compiles data on labor laws and protections.
- **IMPOWR Project** database has good coverage on whether and when a country signed or ratified CEDAW. This information is comparable. The database also covers countries' legal systems (although not for all countries), but the information is not gender specific and the accuracy of the information is not verified. There is no information on whether countries have codified CEDAW principles into national law.

4. Ways forward: perceptions on policy effectiveness

Further efforts to improve the robustness and expand the coverage of the above databases is warranted. In addition, individual-level data could provide valuable information on how well policies are enforced. These sources of data include micro-level surveys, government administrative data, and big data. Individual perceptions of policy effectiveness can help fill priority gaps on enforcement as well as customary laws.

Cross-Cutting Gender Data Initiatives

The World Bank is conducting an assessment of household survey and census questionnaires to understand if and how gender issues are collected. They have assessed over 1,400 questionnaires from 1998 to 2013, and as of February 2014 are in the process of cleaning the data. The findings from the project are expected by summer 2014, and can help improve understanding of where and why data are missing. The FAO has conducted a similar assessment of survey questionnaires on land ownership using agricultural censuses, and UNFPA has conducted an assessment of gender issues using census data.

Gender Indices

The table below briefly summarizes main features of available indices on gender equality and women's empowerment

Source and Details	WEF Global Gender Gap	EIU Women's Economic Opportunity	OECD Social Institutions and Development Index	UNDP Gender Inequality Index	IFPRI Women's Empowerment in Agriculture Index
What It Measures	The Global Gender Gap benchmarks national gender gaps in four sub-indices: economic participation and opportunity, educational attainment, health and survival, and political empowerment.	The Women's Economic Opportunity (WEO) Index measures progress in the economic advancement of women, by examining the underlying factors affecting women's access to economic opportunity in the formal economy.	The Social Institutions and Development Index (SIGI) captures and ranks discriminatory social institutions through five areas: family code; physical integrity; son preference; civil liberties; ownership rights.	The Gender Inequality Index (GII) is an experimental composite measure of inequality, analyzing achievement between women and men in three dimensions: reproductive health, empowerment, and the labor market. The GII is designed to provide empirical foundations for policy analysis and advocacy efforts. High value indicates high inequality between women and men.	The Women's Empowerment in Agriculture Index (WEAI) measures the empowerment, agency, and inclusion of women in the agriculture sector in an effort to identify ways to overcome those obstacles and constraints. The tool is composed of two sub-indices: Five domains of empowerment (5DE): decisions about agriculture production, access to and decision making power over productive resources, control over use of income, leadership in community, and time use. Gender Parity Index (GPI): gender parity in empowerment
Index Composition (measures)	<p>1. Economic Participation and Opportunity ratios:</p> <ul style="list-style-type: none"> Female labor force participation over male value; Female-over-male wage equality for similar work; Estimated female earned income over male value; Female legislators, senior officials and managers over male value Female professional and technical workers over male value); <p>2. Educational Attainment ratios:</p> <ul style="list-style-type: none"> Female literacy over male value; Female net primary level enrolment over male value; <p><i>continued next page</i></p>	<p>1. Labor Policy and Practice:</p> <p>Labor policy: equal pay for equal work; non-discrimination; maternity and paternity leave and provision; legal restrictions on job types for women; difference between statutory (pensionable) retirement age between men and women</p> <ul style="list-style-type: none"> Labor practice: equal pay for equal work; non-discrimination; degree of defacto discrimination against women in the workplace; availability, affordability, and quality <p><i>continued next page</i></p>	<p>1. Family Code:</p> <ul style="list-style-type: none"> Legal age of marriage (whether women have the same rights with respect to the legal minimum age of marriage) Early marriage (prevalence of early and forced marriage) Parental authority (whether women have the same right to be a legal guardian of a child during marriage, and whether women have custody rights over a child after divorce) Inheritance (whether widows and daughters have equal rights to their male counterparts as heirs.) <p><i>continued next page</i></p>	<p>GII:</p> <ul style="list-style-type: none"> 1. Overall Gender Inequality Index rank/value 2. Maternal mortality ratio (MMR - deaths per 100,000 live births) 3. Adolescent fertility rate (births per 1,000 women ages 15-19) 4. Seats in national parliament (% female) 5. Population with at least secondary education (% ages 25 and older) 6. Labor force participation rate (% ages 15 and older) 	<p>5DE:</p> <ul style="list-style-type: none"> 1. Production (input in productive decisions; and autonomy in production); 2. Resources (ownership of assets; purchase, sale, or transfer of assets; access to and decisions on credit); 3. Income (control over use of income); 4. Leadership (group member; and speaking in public); 5. Time (workload; and leisure)

Index
Composition
(measures)
continued

- Female gross tertiary level enrollment over male value

3. Health and Survival ratios:

- Female-over-male sex ratio at birth
- Female healthy life expectancy over male value

4. Political Empowerment ratios:

- Females with seats in parliament over male value;
- Females at ministerial level over male value;
- Number of years a female head of state of government in last 50 years over male value

of childcare services, and the role of the extended family in providing childcare.

2. Access to Finance

- Building credit histories (composite measure of the ability to build a credit history)
- Women's access to finance programs (availability of outreach programs to women that target provision of financial services through either government initiatives or private lenders)
- Delivering financial services
- Private-sector credit as a percentage of GDP (indicator banded to reflect both risk - unsustainable levels of credit that could result in macroeconomic instability, and poor financing conditions - low levels of credit availability.

3. Education and Training

- School life expectancy (primary and secondary); School life expectancy (tertiary); Mean years of schooling Adult literacy rate; Existence of government or non-government pgms offering SME support/development training

4. Women's Legal and Social Status

- Addressing violence against women (existence of laws protecting women against violence)

continued next page

2. Physical Integrity:

- Violence against women (existence of women's legal protection from rape, assault and sexual harassment, the prevalence of domestic violence and attitudes towards domestic violence)
- Female genital mutilation (prevalence of FGM)
- Reproductive integrity (measures the extent to which women can exercise reproductive autonomy)

3. Son Preference:

- Missing women (gender bias in mortality due to sex selective abortions, female infanticide, or insufficient care given to baby girls)
- Fertility preferences (measures gender bias in fertility preferences using the share of males as the last child.)

4. Civil Liberties:

- Access to public space (restrictions limiting women's freedom of movement and access to public space);
- Political voice (measures the level of discrimination against women with respect to political participation)

5. Ownership Rights:

- Access to land (women's access to agricultural land);
- Access to credit (women's access to bank loans and other forms of credit.)

<p>Index Composition (measures) continued</p>		<ul style="list-style-type: none"> • Citizenship rights (freedom of movement, dress code in public, access to passport) Property ownership rights (this indicator considers if men and women have equal ownership rights) • Adolescent fertility rate (age-specific fertility rate for 1,000 women, 15-19 years or age) • Prevalence of contraceptive use, modern methods • Country ratification of the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) • Political participation (percentage of women in ministerial positions, and in parliament) <p>5. General Business Environment Regulatory quality</p> <ul style="list-style-type: none"> • Procedures, duration, cost, and paid-in minimum capital for starting a business (a composite measure for starting a business) • Infrastructure risk <p>Access to technology and energy (percentage of population with access to mobile phones, Internet, water, sanitation, electricity)</p>			
<p>Data Sources</p>	<p>Sources:</p> <ul style="list-style-type: none"> • ILO • Key Indicators of the Labour Force Market • WEF • ILO LABORSTA • UNDP HDR • UNESCO Institute for Statistics • CIA World Factbook <p><i>continued next page</i></p>	<p>Sources by sub-index:</p> <p>1. Labour Policy and Practice: ILO; Social Security Scheme; World Bank: Women, Business, and the Law database; World Economic Forum: Executive Opinion Survey (2009); Economist Intelligence Unit analyst qualitative assessment;</p> <p><i>continued next page</i></p>	<p>Sources by sub-index (in addition to country-specific sources):</p> <p>1. Family Code: UN World Marriage; DHS; Multiple Cluster Indicator Survey;</p> <p>2. Physical Integrity: DHS; Multiple Cluster Indicator Surveys;</p> <p><i>continued next page</i></p>	<p>Sources:</p> <ul style="list-style-type: none"> • Barro and Lee • ILO • IPU • UNDESA • UNESCO Institute for Statistics • WHO 	<p>Source:</p> <p>This is an aggregate index, reported at country or regional level, based on individual-level data collected by interviewing men and women within the same households.</p>

<p>Data Sources continued</p>	<p>Sources:</p> <ul style="list-style-type: none"> • WHO Global Health Observatory database • Inter-Parliamentary Union 	<p>2. Access to Finance: World Bank Group: Doing Business Project; IMF: International Financial Statistics; Economist Intelligence Unit analyst qualitative assessment; CGAP: Financial Access 2010; International Postal Union; OECD Development Centre;</p> <p>3. Education and Training: UNESCO; Barro-Lee Data Set; UNDP; Economist Intelligence Unit analyst qualitative assessment;</p> <p>4. Women's Legal and Social Status: UN Secretary-General's Database on Violence against Women; OECD Development Centre; World Bank; UN ESCAP; UN ESCAP; UN Treaty Collection; UN</p> <p>5. General Business Environment: Worldwide Governance Indicators; World Bank: Doing Business Project; Economist Intelligence Unit: Risk Briefing; International Forum for Rural Transport and Development; International Telecommunications Union; World Development Indicators Database; Columbia University Earth Institute</p>	<p>UN Women - Progress of the World's Women (2011); WHO; Population Reference Bureau;</p> <p>3. Son Bias: UN Population Division and Central Intelligence Authority (2011); DHS; Multiple Indicator Cluster Surveys</p> <p>4. Civil Liberties: Inter-Parliamentary Union (Feb 2012); Quota Project (International IDEA and Stockholm University; UN Women Progress of the World's Women 2011 Statistical Annex</p>		
<p>Coverage: number of countries</p>	<p>135 (in 2012)</p>	<p>128</p>	<p>102 ranked (22 other countries included, but no sufficient data)</p>	<p>186 (with 8 other countries or territories, e.g. Monaco)</p>	<p>19 (three countries were first piloted - Bangladesh, Guatemala, and Uganda)</p>
<p>Data Generation (production frequency)</p>	<p>Annually since 2006</p>	<p>Produced twice (first in 2010, then 2012)</p>	<p>First launched in 2009, SIGI data informed the 2010 Atlas, but the full set of data was made available online for the first time in 2012.</p>	<p>Overall report: annually (since 1990); GII annually since 2010 (still in experimental phase)</p>	<p>In pilot phase, aiming for first launch soon.</p>
<p>Data Gaps</p>					

Uses of Index	<p>The program around the GGP has also:</p> <ul style="list-style-type: none"> • Created the Corporate Gender Gap Report (assessing the business world's success in implementing practices that help close the gender gap in the workplace.) • Conducted unique research with 75 governments to pool information on policies that promote women's economic integration. 		<p>Since SIGI was launched, countries have introduced new laws, there have been changes in practices, and data sources have improved.</p>	<p>Created in response to reform request for the Gender-related Development Index (GDI) and the Gender Empowerment Measure (GEM).</p>	<p>Allows for the identification of women who are disempowered and understand how to increase autonomy and decision making in key domains.</p>
Advantages and limitations	<ul style="list-style-type: none"> • Widely used to rank countries on gender equality. • Focus on gaps detracts from focus on levels. 	<ul style="list-style-type: none"> • Deep dive into factors that directly influence economic opportunity that others don't (e.g. labor practices). • Does not include health and other factors that may contribute to the overall ecosystem in which entities are trying to promote economic opportunities for women. • Does not capture informal sector work. 	<ul style="list-style-type: none"> • Has influenced country practice. • Considers son preference, a factor that would directly impact gender dynamics within households. 	<ul style="list-style-type: none"> • The GII is viewed as one of the more complex indicators, with moving parts that are difficult to interpret or calculate. • Fails to capture the informal work and unpaid domestic or care work. 	<ul style="list-style-type: none"> • WEAI is a useful tool to track progress toward gender equality (one of the MDGs) • Focus on agriculture is welcome. • Based on data collected at individual-level, from a small number of countries.

Appendix B

Country Coverage on the Minimum Set of Gender Indicators

The World Bank's Gender Data Portal tracks the number of IDA, IBRD, and OECD countries for which data is available for the minimum set of 52 gender indicators, by domain. The analysis covers a total of 144 countries IDA and IBRD countries (82 IDA and 62 IBRD; we omit OECD for purposes of this document). The list below outlines the indicators and whether there are gaps in coverage/production or standards in each of the five domains covered by the IAEG-GS.²⁸ For indicators for which more than 40 and fewer than 80 countries have coverage, we list the gap in coverage/production as 'partial'; we do not note a gap for indicators for which 80 or more countries have data. Data availability was updated as of February 2014, and is updated quarterly on the World Bank GenderStats database. The Tiers noted in the table are those assigned by the IAEG-GS, updated as of the December 2013 Statistical Commission Meeting (45th Session).

Below each domain, we list indicators recommended by either the 2005 UN Millennium Task Team, the 2007 Global Monitoring Report, or UN Women's proposed indicators for a Stand-Alone Gender Equality Goal (indicated with *) that are not included as one of the 52 set of minimum indicators.

The UN IAEG-GS identifies gaps by assigning a Tier to each indicator as follows:

Tier 1	Indicator is conceptually clear, with an agreed international definition and regularly produced by countries.
Tier 2	Indicator is conceptually clear, with an agreed international definition but not regularly produced by countries.
Tier 3	Indicator for which international standards need still to be developed and not regularly produced by countries.

²⁸ Four of the five categories covered by IAEG-GS are mapped in this report. *Human rights of women and girl children*, covered by IAEG-GS, is not included as a domain in this report. Human security, included in this report, is not covered by the IAEG-GS.

I. Economic structures. Participation in productive activities, and access to resources

Type of Gap (Based on IAEG-GS Tier and WB Gender Data Portal)	#	Indicator	Tier (IAEG- GS)	Total IDA or IBRD countries with data (WB gender data portal) - of 144
Coverage/Production	1	Average number of hours spent on unpaid domestic work by sex. Note: Separate housework and child care if possible.	2	3
Coverage/Production	2	Average number of hours spent on paid and unpaid work combined (total work burden), by sex	2	0
	3a	Labor force participation rates for 15-24, by sex	1	130
	3b	Labor force participation rates for 15+, by sex	1	130
Coverage/Production	4	Proportion of employed who are own-account workers, by sex	1	70
Coverage/Production (partial)	5	Proportion of employed who are working as contributing family work- ers, by sex	1	67
Coverage/Production (partial)	6	Proportion of employed who are employer, by sex	1	66
Standards	7	Percentage of firms owned by women	3	95
Coverage/Production (par- tial); Standards	8	Percentage distribution of the employed population by sector, each sex	1	66
Coverage/Production	9	Informal employment as a percentage of total non-agricultural em- ployment, by sex	2	33
Coverage/Production (partial)	10	Youth unemployment by sex	1	69
Standards	11	Proportion with access to credit by sex	3	108
Coverage/Production; Standards	12	Proportion of (adult) population who own land, by sex	3	0
Coverage/Production; Standards	13	Gender gap in wages	3	0
Coverage/Production	14	Proportion of employed persons working part-time, by sex	2	32
Coverage/Production; Standards	15	Employment rate of persons aged 25-49 with a child under age 3 living in a household and with no children living in the household, by sex	3	0
Coverage/Production; Standards	16	Proportion of children under age 3 in formal care	3	0
Coverage/Production	17	Proportion of the population who are Internet users, by sex	1	22
Coverage/Production	18	Proportion of the population who are mobile cellular telephone users, by sex	1	0
Coverage/Production; Standards	19	Access to mass media, ICT	3	0

- Hours per day (or year) women and men spend fetching water and collecting fuel (at country level)
- Housing title, disaggregated by male, female, or jointly held
- Gender gaps in earnings in wage and self-employment
- Labor force participation rates among women and men aged 20-24 and 25-49
- Percentage of people earning their own income, by sex*
- Ownership of dwelling, by sex*
- Old age pension recipient ratio 65+, by sex*
- Proportion employed in vulnerable employment, by sex*
- Percentage of low pay workers, by sex*
- Proportion of children under primary school age enrolled in organized childcare*
- Percentage of households with access to electricity, by urban/rural location*
- Average weekly time spent on firewood collection, by sex*
- Average weekly time spent in water collection (including waiting time at public supply points), by sex*

II. Education

Type of Gap (Based on IAEG- GS Tier and WB Gender Data Portal)	#	Indicator	Tier (IAEG- GS)	Total IDA or IBRD countries with data (WB gender data portal) - of 144
	20	Literacy rate for 15-24 by sex	1	103
	21	Adjusted net enrollment ratio in primary education by sex	1	106
	22	Gross enrollment ratio in secondary education by sex	1	119
	23	Gross enrollment ratio in tertiary education by sex	1	107
	24a	Gender parity index in primary level enrollment*	1	127
	24b	Gender parity index in secondary level enrollment*	1	119
	24c	Gender parity index in tertiary level enrollment	1	107
Coverage/Production (partial)	25a	Share of graduates in science, tertiary level, who are women	2	56
Coverage/Production (partial)	25b	Share of graduates in engineering, manufacturing and construction tertiary level, who are women	2	55
	26	Proportion female among third-level teachers or professors	2	86
	27	Net intake to primary by sex	1	91
	28	Primary completion rate by sex	1	118
	29	Graduation at lower secondary by sex	1	87
	30	Transition to secondary	1	111
	31	Education attainment of population aged 25 and over by sex	1	100

- Ratio of female to male completion rates in primary, secondary, and tertiary education.
- Secondary completion rate, by sex*
- Percentage of population using the Internet, by sex*

III. Health and related services

Type of Gap (Based on IAEG- GS Tier and WB Gender Data Portal)	#	Indicator	Tier (IAEG- GS)	Total IDA or IBRD countries with data (WB gen- der data portal) - of 144
Coverage/Production (partial)	32	Contraceptive prevalence among married or in-union women aged 15-49	1	73
	33	Under-five mortality rate by sex	1	143
	34	Maternal mortality ratio*	1	134
Coverage/Production (partial)	35	Antenatal care coverage	1	76
	36	Proportion of births attended by skilled health professional	1	91
	37	Smoking prevalence among 15+ by sex	1	109
	38	Proportion of adults obese by sex	1	140
	39	Women's share of population 15+ living with HIV/AIDS	1	117
Coverage/Production	40	Access to anti-retroviral drug, by sex	1	0
	41	Life expectancy at age 60, by sex	1	138
Coverage/Production	42	Adult mortality by cause and age groups	1	0

- Proportion of contraceptive demand satisfied
- Percentage of reproductive-age women, and their sexual partners using modern contraceptives
- Percentage of population undernourished, by sex*
- Prevalence of lower respiratory tract infections, by sex*
- Available emergency obstetric care facilities per 100,000 population*
- Unmet need for family planning*
- Age of mother at birth of first child ever born*
- Percentage of households using solid cooking fuels, by urban/rural location*
- Proportion of population using an improved drinking-water source*
- Proportion of population using an improved sanitation facility*

IV. Public life and decision-making

Type of Gap (Based on IAEG- GS Tier and WB Gender Data Portal)	#	Indicator	Tier (IAEG- GS)	Total IDA or IBRD countries with data (WB gen- der data portal) - of 144
	43	Women's share of Government ministerial positions	1	140
	44	Proportion of seats held by women in national parliament	1	139
Coverage/Production (partial)	45	Women's share of managerial positions	1	45
Coverage/Production	46	Percentage female among police officers	2	0
Coverage/Production	47	Percentage female among judges	2	0

- Percentage of seats held by women in local government bodies
- Percentage of women who have a say in household decisions regarding large purchases*
- Percentage of women who have a say in household decisions regarding their own health*
- Percentage of women who have a say in household decisions regarding visiting relatives*
- Percentage of people who think important decisions in the household should be made by both men and women, by sex*
- Proportion of seats held by women in local governments*
- Percentage of the population with basic national identity documentation, by sex*
- Birth registration coverage, by sex*
- Proportion of women in decision-making roles in relevant regional organizations involved in preventing conflict*
- Proportion of women in company boards*
- Proportion of media professionals who are women*
- Proportion of managers of civil society institutions who are women*
- Proportion of women who are members of civil society organizations*
- Proportion of law enforcement professionals who are women (including judges and the police)*

V. Human rights of women and girl children

Type of Gap (Based on IAEG- GS Tier and WB Gender Data Portal)	#	Indicator	Tier (IAEG- GS)	Total IDA or IBRD countries with data (WB gen- der data portal) - of 144
Coverage/Production	48	Proportion of women aged 15-49 subjected to physical or sexual violence in the last 12 months by an intimate partner*	2	0
Coverage/Production	49	Proportion of women aged 15-49 subjected to physical or sexual violence in the last 12 months by persons other than an intimate partner*	2	0
Coverage/Production	50	Prevalence of FGM/C (for relevant countries only)	1	17
Coverage/Production (partial)	51	Percentage of women 20-24 years old who were married or in union before age 18	1	55
	52	Adolescent fertility rate	1	138

- Total and age-specific rate of ever-partnered women subjected to sexual and/or physical violence by a current or former intimate partner in the last 12 months, by frequency*
- Total and age-specific rate of ever-partnered women subjected to sexual and/or physical violence by a current or former intimate partner during lifetime, by frequency*
- Rates of female genital mutilation and other traditional harmful practices*
- Percentage of people who think it is never justifiable for a man to beat his wife, by sex*
- Percentage of people who think a woman can refuse to have sex with her husband under any circumstance, by sex*
- Proportion of women over 15 years old subjected to physical or sexual violence in the past 12 months who reported it to the justice system*
- Proportion of the population who feel safe walking alone at night in the area where they live, by sex*
- Proportion of national budgets allocated to the prevention of, and the response to, violence against women*

Appendix C

Cross-Cutting Data Initiatives

There are several new initiatives to improve gender data, covering the different domains.

The EDGE project

Around the same time that the minimum set of indicators was developed, a new initiative called Evidence on Data and Gender Equality (EDGE) was launched.²⁹ The EDGE project aims to develop international guidelines on a subset of 17 of these 52 indicators spanning health, education, employment, as well as Tier 3 indicators on asset ownership and entrepreneurship.

On health, the indicators highlighted by the EDGE project are life expectancy at age 60 and under-five mortality rate by sex, as well as the adolescent fertility rate.

On education, the variables (by gender) are adjusted net enrollment ratio in primary education, gross enrollment ratios in secondary and tertiary education, and the share of tertiary education graduates in science, engineering and construction who are women.

For employment, the variables by gender are labor force participation rates for individuals above 15, as well as aged 15-24; percentage distribution of the employed population; youth unemployment; and proportion of seats held by women in the national/central government. Family friendly policies (length of maternity leave in weeks) are also included in this list.

On entrepreneurship, the indicators include percentage of firms owned by women, and proportion of employed women who are themselves employers versus own-account workers. Finally, on assets, the indicators include the proportion of the population who own land and have access to credit. The EDGE project has also recently begun working with the World Bank to integrate additional questions on asset ownership in a few LSMS surveys from Africa.

World Bank Gender Data Portal and ADePT

The World Bank Gender Data Portal, announced in July 2012, is a resource center for gender equality data. It contains statistics, tools and reference materials covering employment and access to productive activities, as well as other outcomes for women and girls covering education, health, demographic outcomes, public life and decision making, and human rights. Featured data sets and resources are drawn from the World Development Indicators, national statistical agencies, UN databases, and surveys conducted or funded by the World Bank.

The portal also has links to new tools for analysis such as ADePT Gender, which produces tables and graphs using household surveys chosen by the user to help diagnose and analyze gender inequalities. ADePT Gender is organized around the framework proposed by the World Development Report 2012 on Gender Equality and Development, covering gender differences in outcomes in three primary dimensions of gender equality: human capital (or endowments), economic opportunities, and voice and agency. Outcomes are disaggregated by gender and by population groups such as sex of household head, age groups, place of residence, and income. This tool aims not only to help to profile a country in terms of gender equality, but also lead to a better understanding of the gender dimensions of poverty.

OECD Gender Data Initiatives

The OECD's Gender Initiative created an online Gender Data Portal that provides internationally comparable indicators in the areas of education, employment, and entrepreneurship. The data portal covers OECD countries, as well as Russia, Brazil, China, India, Indonesia, and South Africa. Although the coverage of developing nations is limited, the data portal could be updated to include additional countries. Data and indicators for the OECD Gender Data Portal align with the EDGE Initiative and with the World Bank's work on gender data. OECD also hosts WikiGender, an online platform dedicated to sharing information (including existing databases) on gender equality. It provides a one-stop resource for those seeking information about the most recently published gender data.

²⁹ EDGE was created with the impetus of the US government, the United Nations Statistics Division and UN Women, in collaboration with key regional and international agencies, including the OECD and the World Bank.

ILO

Since 2003, the ILO has maintained a checklist of good practices for mainstreaming gender in labor statistics, although the organization does not have a stand-alone gender statistics program.

Appendix D

Nationally Representative Household Data on Women's Outcomes

I. Surveys spanning multiple domains of women's empowerment

1. Living Standards and Measurement Surveys (LSMS), <http://www.worldbank.org/lsm/> – The LSMS was started by the World Bank's Development Research Group in the mid-1980s, and provide a detailed view of households' economic and demographic characteristics across different countries. The LSMS surveys currently cover 38 countries, across all regions of the developing world; some are panel data surveys with 4 or 5 waves. Each LSMS country survey typically follows a similar format, with a roster of individuals in the household, their ages, marital status, education, migration, employment characteristics, health and fertility, and access to credit. Household aggregates are also elicited on socioeconomic status, landownings and property ownership, access to water, sanitation, and electricity; agricultural outcomes, ownership of durables, and household consumption and income. Community questionnaires on access to local institutions, infrastructure and markets are also included for each survey.

Health: Questions on recent illnesses/injuries of household members are asked, as well as medical expenses. In some surveys, data on anthropometric indicators as well as fertility preferences are collected. Some waves also have more detailed health modules covering maternal and child health, reproductive health, questions on HIV/AIDS, insurance or benefits for health services, public health education, mental health and domestic violence. Community surveys also have questions on access and services provided by local health facilities.

Economic: Detailed questions on individual employment are asked, as well as borrowing and lending for adult household members. In some cases, individual ownership of assets and property is elicited. Data on unpaid work, as well as individual asset ownership and access to financial services can also be tabulated from these surveys, and benchmarked against other household-level modules. The LSMS community survey also describes access to financial services (banks/other sources of credit and savings), details on commodity and labor markets, as well as access to roads, electricity and other infrastructure. Recently, many LSMS surveys have begun introducing additional modules that include questions on time use and time spent in unpaid/domestic work.

Education: Different measures of schooling attainment are collected for each household member of school age or older. While specific questions vary by country survey, broad topics include literacy, level of schooling attained, reasons if any for dropping out, numeracy, preschool and child care, expenses and funding, and apprenticeship/ occupational training. The community surveys also typically include questions on facilities of schools serving the locality, including number of teachers, classrooms,

Conflict and Human Security: Most recent waves of the LSMS have modules on shocks experienced by the household (economic, deaths in the household, environmental, political, security and violence related, as well as other shocks), as well as post risk management and coping strategies. Additional questions on involvement of the household in recent communal conflicts are typically limited, however.

2. Demographic and Health Surveys (DHS), <http://www.measuredhs.com/Data/> – Started in 1984, DHS are nationally-representative surveys with primary funding by USAID. Each survey includes a household-level questionnaire and a roster of births for each mother in the household, as well as separate questionnaires for men and women of reproductive age (15-59 for men, and 15-49 for women); married couples; and children and their mothers. The primary emphasis of the DHS is on maternal and child health, reproductive issues and fertility, and other demographic variables related to marriage, household decisionmaking, and domestic violence. The DHS is currently on phase 6 and covers 86 developing countries, including most of Africa and other regions of the developing world except for the Middle East. The DHS do not have community modules, although recent waves have begun including GPS locations of sampled reporting areas that could be tied with other surveys. The DHS are also typically not panel surveys, except in one case from Morocco in the mid-1990s.

Health: covers a rich set of information on fertility and reproductive health; health and nutrition of women and children, as well as modules on domestic violence and FGM. The module on domestic violence is used in 25 countries to date.

Economic: There are some questions on women's economic status related to whether or not they have engaged in paid work, but details on the nature of work, unpaid work, as well as other indicators of asset ownership and access to finance are not asked.

Education: Questions on educational levels attained, school attendance, and literacy levels are included.

3. Multiple Indicator Cluster Surveys (MICS), http://www.unicef.org/statistics/index_24302.html – Started in the mid-1990s, the MICS are conducted by UNICEF and is intended to address some gaps in data on women and children on areas of health, education, child protection and HIV/AIDS. The MICS are currently on round 4 and cover over 60 countries across all the regions of the world. The MICS closely follows the DHS format, and in recent rounds for some countries, households can also be linked across the MICS and DHS so that a wider range of indicators are available.

Health: The MICS has comprehensive data for health, education and HIV/AIDS, with a focus on children and women. It is particularly strong to derive information on the health and well-being of girls and mothers.

Economic: While one can understand the extent of child labor across these surveys (and how it varies for boys versus girls), adult women's labor force participation or other measures of financial independence are not asked.

Education: Questions on school attendance (including preschool) are asked of household members aged 5 and older. Adult men and women are also asked about literacy.

4. Core Welfare Index Questionnaires, <http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/AFRICAEXT/EXTPUBREP/XTSTATINAFR/0,,contentMDK:21104598~menuPK:3091968~pagePK:64168445~piPK:64168309~theSitePK:824043,00.html> – The CWIQ are annual national surveys conducted in Africa, and have been developed jointly by the World Bank with UNDP and UNICEF. As of now, 13 countries in Sub-Saharan Africa have been covered. The CWIQ are short surveys intended to provide a quick and informative view of basic household indicators as well as beneficiary access to, use of, and satisfaction with services.

Health: Questions on illnesses/injuries, as well as household access to health facilities are included.

Economic: Indicators on household assets, landownings, housing, and individual employment (work in the last 7 days, sector and form of payment, as well as whether members are looking for work) are asked. While these surveys can be useful for comparing women's versus men's participation in different programs as well as differential access to services, the CWIQ do not measure changes in income and expenditure, intrahousehold allocations, or mechanisms underlying household behavior. These surveys also do not cover topics on agriculture.

Education: Literacy, school attendance and completion, reasons for not attending school, as well as reported problems with the school (lack of books/supplies, poor teaching and/or lack of teachers, poor facilities) are asked.

Conflict and Human Security: Although questions on conflict are not asked directly, the CWIQ presents itself as a rapid survey that can quickly assess socioeconomic indicators of households during times of crisis.

5. Population Censuses. Country population censuses conducted by national statistical offices are another source of nationally representative information for basic household indicators on demographics, education, employment, and consumption. They are typically conducted every 5-10 years. Population censuses may be somewhat limited in more specialized modules on time use, expectations, individual asset/property ownership, and other characteristics of intrahousehold allocation.

6. Country-specific time use surveys, <http://unstats.un.org/unsd/demographic/sconcerns/tuse/default.aspx> – many of these are managed by the United Nations Statistics Division (which houses 75 country surveys, spanning most regions except Central Asia and the Middle East), and are set up as a time diary of activities that individuals in the household spend their time on during a specific period – for example, over 24 hours of the day or 7 days of a week. These surveys are typically conducted independently of one another so there is no standardized questionnaire, although as mentioned earlier there is a trial International Classification of Activities for Time-Use Statistics (ICATUS) in progress to help create the same definitions across countries. Depending on the country, time use surveys may restrict the respondents to a

certain reference group defined by age (such as members of the household aged 10 and over, or household members aged 18 to 65). These surveys can provide a more detailed overview of how individuals spend their time across paid and unpaid work, household activities, studying, as well as leisure, to better understand how policies might directly affect individual behavior. One challenge faced by time use surveys is that they rely heavily on recall, and so may be subject to significant measurement error; in many countries time use can also be season-dependent so a single snapshot may not provide an accurate picture of time use throughout the year. Many time use surveys cover individuals in the same household at different points in the year to address this issue.

7. Country-specific administrative data. These are country and topic-specific, and are particularly useful for employment information (e.g., employment exchange registers, unemployment insurance schemes). These data sets typically provide a listing of individuals participating in certain programs, along with some of their basic socioeconomic characteristics.

II. Surveys for specific domains

A. Health indicators

- **Dedicated domestic violence surveys**, http://www.who.int/gender/violence/who_multicountry_study/en/ – There is wide agreement that dedicated surveys in this area are preferred, to both get accurate information and protect the safety of the female respondent. The WHO Multi Country Study of Violence Against Women is the largest dedicated survey of its kind. Occurring since 2000, it covers representative samples of women aged 15-49 with partners in 11 countries from South Asia, Africa, Latin America, East Asia, and Eastern Europe,³⁰ and provides data on prevalence, and risk and protective factors. The survey does not cover violence reports from adolescents and women who do not have partners.
- Additional household surveys by the MEASURE DHS Program
- **The MEASURE DHS program**, which houses the Demographic and Health Surveys mentioned above, also conducts household surveys across countries on specific topics to monitor programs in these areas.
- **AIDS Indicator Survey**, <http://www.measuredhs.com/What-We-Do/Survey-Types/AIS.cfm> – The AIDS Indicator Survey (AIS) was started alongside the Demographic and Health Surveys to provide countries with a standardized tool to obtain household indicators for effective monitoring of national HIV/AIDS programs. Topics include HIV prevalence among households as well as knowledge and individual attitudes on HIV prevention. The surveys, which began in 2003, have been conducted so far in the Congo (2009), Cote D'Ivoire (2005), Guyana (2005), Mozambique (2009), Tanzania (2003-04, 2007-08, 2011), Uganda (2004-05), and Vietnam (2005).
- **Malaria Indicator Survey**, <http://www.measuredhs.com/What-We-Do/Survey-Types/MIS.cfm> – The Malaria Indicator Survey (MIS) was developed by the Monitoring and Evaluation Working Group (MERG) of Roll Back Malaria, an international partnership developed to coordinate global efforts to fight malaria. A stand-alone household survey that has been conducted in 11 Sub-Saharan African countries since 2006, the MIS collects national and regional or provincial data from a representative sample of respondents, with additional questions on mosquito net use, intermittent preventative treatment against malaria, and malaria and anemia testing that are focused on vulnerable groups such as children under 5 and pregnant women. The survey gathers additional information on indoor residual spraying (IRS), and background data on the characteristics of household members and ownership of household assets such as electricity, bicycles, radios, and indoor plumbing. Almost all of the questions in the MIS instrument are derived from the Demographic and Health Surveys and the Multiple Indicator Cluster Surveys mentioned earlier.
- **CDC Reproductive Health Surveys**, <http://www.cdc.gov/reproductivehealth/Global/Surveys.htm> – CDC assists countries throughout the world with developing, implementing, and analyzing large national reproductive health surveys that provide high quality, population-based data about reproductive health indicators. Each country's needs guide the survey content. 15 Young Adult Reproductive Health Surveys (YARHS) were conducted between the years of 1985 and 2001, focusing on young men and women aged 15-24. While

³⁰ The countries covered are Bangladesh, Brazil, Ethiopia, Japan, Peru, Namibia, Samoa, Serbia and Montenegro, Thailand and the United Republic of Tanzania. Other countries, including Chile, China, Indonesia, and Viet Nam, have adapted or used parts of the study questionnaire.

largely focused on Latin America and Eastern Europe in recent years, RHS data are available for countries in other regions of the world as well. The topics covered in the surveys generally include fertility, family planning, infant and child mortality, maternal and child health including pregnancy, delivery and postpartum care, birth weight, immunization, breastfeeding, HIV/AIDS, adolescent and young adult sexuality, and general health practices. Selected surveys have also included information on abortion, STI's, anthropometric measures, anemia, violence against women, maternal mortality, maternal morbidity, school attendance and child development. While all of the surveys involved interviews of reproductive age women, some of the surveys have also included interviews with men.

Education

- **Socially excluded populations** – In September 2012, the Education for All Global Monitoring Report published the World Inequality Database on Education (WIDE) (www.education-inequalities.org). The WIDE is based on DHS and MICS data from over 60 countries, and enables users to compare education attainment between groups within countries, including wealth, gender, ethnicity, and location.

Economic opportunities

- **Labor Force Surveys (LFS)** – managed by the International Labor Organization (ILO), the LFS cover standard indicators of work by individuals aged 15 and older in the household. The LFS covers about 185 countries all over the world. In addition to demographic characteristics (age, sex, marital status, place/country of birth, nationality, educational attainment, relationship to household head), a range of characteristics on individuals' employment status are covered. These topics include, for each individual occupation, hours of work, industry, absence from work, unemployment and underemployment, job permanency, full time/part time status, characteristics of the last job, search for another job, reasons and methods for seeking another job, and unemployment benefits. A very detailed picture of labor force participation can therefore be made across men and women. Data on individual asset ownership and access to financial services are not asked. Consumption/income aggregates to assess the relative financial situation of the household are also typically not surveyed in the LFS.
- **Agricultural Censuses** – These surveys are focused on structural characteristics of household agricultural operations. As with national censuses, agricultural censuses are widespread across countries, are normally undertaken every ten years; many countries will carry out at least two agricultural censuses during 1990–2015, that also applies to the Millennium Development Goals reference period. Variables include the size of landholding, land tenure, land use, crop area harvested, irrigation, livestock numbers, labor and other agricultural inputs. In some censuses, questions on individual plot ownership are asked (including plot ownership across men and women), so gender differences in productivity and property/asset ownership can also be explored. However, these surveys by definition are very sector-specific. In recent years, greater emphasis has been placed on incorporating other household indicators such as demographic characteristics and employment (FAO, 2005). A new series of surveys under the LSMS umbrella, called the Integrated Surveys on Agriculture (ISA), have been collected in a set of countries in Africa. The ISAs have a similar format as the LSMS surveys but more detail on agricultural production. Many of the LSMS surveys have been collected in multiple rounds as a panel, so one can observe changes in different indicators over time.
- **Global Financial Inclusion (Global Findex) Database** – started in 2011, the Global Findex survey has been conducted in 148 countries. To address growing policy concerns about improving financial education and access among households worldwide, it measures how adults – spanning basic socioeconomic levels, gender, as well as urban/rural areas – save and manage their finances, and cope with access issues.
- **Enterprise surveys** – these surveys are firm-level and cover a representative sample of an economy's private sector. Business data are available on approximately 130,000 firms across 135 countries, from 2005 to the present. The surveys are administered to business owners and top managers, who are asked about various topics related to their business (including sector, firm size, workforce composition, costs, income, interactions with the government) as well as the business environment (such as access to finance, corruption, infrastructure, and competition). The gender of the business owner is also recorded, but their other socioeconomic characteristics are not asked.
- **Access to ICTs (mobile phones and the Internet)** – The International Telecommunications Union (ITU), the UN specialized agency for ICTs, keeps the World Telecommunication/ICT Indicators database. The database contains time series data for more than 150 telecommunications/ICT statistics, including access and use by households and individuals. The ITU relies primarily on official country data, which is available for over 200

economies. Sex-disaggregated data is available for percentage of population with access to the Internet. (ITU, 2013).

B. Political participation

- **Political representation** – Data on women’s representation in national parliaments and government ministerial positions is readily available. The Inter-Parliamentary Union is the standard international reference for this information.³¹ This data provides the number and percentage of women in lower or single houses of parliament. Where applicable, data on upper house or Senate seats are also available.³² It includes the percentage of women in ministerial positions (ministers and deputy ministers), and a breakdown of the portfolios held by them. It has information on the date at which, for the first time in the country’s parliamentary history, a woman became Presiding Officer of Parliament or of one of its Houses and lists those countries with women heads of state or heads of government.³³ Parliamentary data, provided by national parliaments, is available for 190 countries.
- **Quotas** – The Quota Project, a collaboration of International IDEA and the Inter-Parliamentary Union, has created a comprehensive web resource with data on gender quotas in politics for all countries with electoral gender quotas. Data on set quotas and women’s actual participation are both available, since quota requirements are not always implemented. Data is collected from constitutions and electoral laws, parliamentary websites, and political party websites.³⁴
- **Civic participation** – Some surveys collect information about opinions and perceptions about women in politics and leadership positions, as well as voting preferences disaggregated by sex. They include the LSMS, World Values Survey as well as the Latino Barometer and the Afrobarometer, the latter two restricted to their corresponding world regions.
- **World Values Survey** – the World Values Survey has had 5 waves since 1981, collects nationally representative self-reported citizen information on whether the respondent votes in elections, perceptions of fairness about the political process, citizenship, and membership in different community groups (including women’s groups). The survey covers 97 countries, although coverage is missing in Western, Southern, and Central Africa, and Central Asia.
- **Barometer survey** – As with the World Values Survey, the Barometer surveys collect respondents’ attitudes and perceptions about a number of aspects of the political process, including perceptions on women in politics, respondents’ participation in community groups, and voting in the last election (or reasons for not voting). The three surveys use national probability samples to select respondents of voting age and disaggregate responses by sex.
- **Citizenship** – UNICEF has compiled data from Demographic and Health Surveys (DHS), Multiple Indicator Cluster Surveys (MICS), and national vital statistics agencies on child registration (under age 5). A registered child is one whose birth certificate has been seen by the enumerator or whose mother or caretaker says the birth has been registered at the time of the survey. The data is disaggregated by sex, place of residence (rural/urban), and wealth quintiles, and most developing countries are covered.

C. Human Security

- **UN High Commissioner for Refugees Statistical Online Population Database (UNHCR)** maintains a database on persons of concern (refugees, asylum seekers, returned refugees, internally displaced persons³⁵ and stateless people) at the country, regional, and global levels. The database provides information on country of asylum, place of origin, age, location and legal status, and includes all registered refugees globally except for Palestinian (covered under UNRWA). It is updated on an ongoing basis and the most recent version available for download is from 2010.

31 Data tracked by IPU are presented clearly in this infographic: http://www.ipu.org/pdf/publications/wmnmap12_en.pdf.

32 <http://ipu.org/wmn-e/classif.htm>.

33 <http://www.ipu.org/wmn-e/speakers.htm>; http://www.ipu.org/pdf/publications/wmnmap12_en.pdf.

34 Quota Project: About the Project.

35 UNHCR’s IDP statistics are not necessarily representative of the entire IDP population in a given country but are exclusively limited to the ones who are protected and/or assisted by the Office. For global IDP estimates, consult the Internal Displacement Monitoring Centre (IDMC) of the Norwegian Refugee Council (NRC) website (<http://www.unhcr.org/45c06c662.html>).

- **The UNHCR** country offices usually report estimates based on their own registration data, that of host governments, and that generated by NGOs; censuses and representative surveys may be combined with official registers in order to triangulate findings for the best possible estimate (UNHCR, 2013). Since the information is collected at an individual level, disaggregation by sex is possible. Currently, information provided by some national offices is disaggregated by sex and age while some is not.
- **The UCPD project at Uppsala University** has expanded over the past decade from its original focus on state-based armed conflicts and now contains data related to non-state actors, one-sided violence, yearly fatality estimates, and issues of reconciliation, prevention, peacemaking, and the social impact of conflict. The UCPD stands out as a premier database on the drivers and impact of conflict and, given its expansion into new areas related to the study of conflict, is a potential source of expertise and support for new data initiatives focusing on individual- and household-level impacts. It has no sex disaggregated data as of yet.
- **A project at PRIO** is working to create the most comprehensive cross-national data set to date on wartime gender-based violence. The researchers will use the data set to examine findings from a pilot study, which showed that gender-based violence by armed actors continues years after the official cessation of lethal violence.
- **UN Women** collected a short survey of data on women's representation in 31 major peace processes between 1992 and 2011 (UN Women, 2012a). These data present the percentage of women signatories, lead mediators, witnesses, and negotiating team members for the peace processes analyzed. This is the only data set we could locate on women, peace and security.
- **The Woman Stats Project** was launched in 2001 by US university researchers. A free on-line data base, it has qualitative and quantitative data for 310 indicators covering 174 countries on the link between the situation of women and the security of nation states. The Project collects statistics on women, as well as practices and laws affecting women. It contains indices (scales) and provides world maps for selected indicators. It constructs very ambitious indicators and shows the kind of data on women it would be useful to have. Unfortunately, the investigators who populate the data base cannot vouch for the quality and comparability of the data.

Appendix E

Ongoing Nationally Representative Household-Level Data Sources

Economic Indicators

Individual labor force participation										
Type of survey	Coverage, by region	Measure of work	Type of work (sector, including informal sector, whether self/wage)	Paid/ unpaid work	For paid work: type/ amount of earnings	For entrepreneurs : firm size, sector	Unemployed/ looking for work?	Individual time use	Individual asset ownership	Individual access to financial services and technology
LSMS Surveys	37 countries, across all regions	Hours/days worked	Yes	Yes	Yes	Yes	Yes	Varies/ survey dependent	Yes, varies by survey	Individual data on borrowing ; access to technology at household level
Country-specific time use surveys	76 countries, across all regions	Hours worked	Yes ; varies/ survey dependent on informal sector	Yes	Varies/ survey dependent	Varies/ survey dependent	Varies/ survey dependent	Yes	No	No
Labor Force Surveys	185 countries, across all regions	Hours/days worked	Yes ; some have module on informal work	Yes	Yes	Sector, yes ; firm size : varies	Yes	Varies/ survey dependent	No	No
Agricultural Censuses	Most countries	Varies/ survey dependent	Yes		Varies/ survey dependent	No	No	Typically, no	Yes, some surveys (agricultural plots)	No (?)
Population censuses	Most/all countries	Yes/no ; time spent varies by survey	Varies/ survey dependent	Varies/ survey dependent	Varies/ survey dependent	Varies/ survey dependent	Varies/ survey dependent	No	No	Usually household-level
Demographic and Health Surveys	86 countries - most of Africa and other developing regions except Middle East	Only yes/no	Partial	Yes	Partial	No	No	No	No	No
Core Welfare Index Questionnaires	Sub-Saharan Africa (13 countries)	Only yes/no	No	Yes	No	No	Yes	No	No	No
Multiple Indicator Cluster Surveys	60 countries, all regions of the world	Hours/days worked only for children	Yes, for children	Yes, for children	No	No	No	No	No	No

Appendix F

Big Data: New Sources of Gender Data

1. Introduction

In the last few years, international organizations and national statistical offices have begun exploring the use of “big data,” which includes Internet traffic, data from online social networking websites, and mobile phone networks, to help obtain real time feedback on individuals’ perceptions and behavior, and use it to inform public policy. These data can also help provide interim evidence on different indicators between rounds of other official surveys like census data.

2. What is big data?

Big data does not have a clearly agreed-upon definition; as the term becomes more widely used, the concept grows increasingly vague, slowly coming to encompass all forms of high-volume information. There are three major sources of big data in the developing world: transactional, crowdsourcing, and remote sensing. The key difference between these sources has to do with whether fine-grained information or big-picture patterns are desired.

The primary sources of transactional and crowdsourcing data are mobile phones and Internet activity, which can provide information on both individual and group behavior. Data can be captured directly from the user through search engines and social media, or through automated means, such as through records of financial flows or consumer purchases. Transactional data yields disaggregated information on individual and group behaviors, and can be useful in understanding disparities in access to services by key demographics.³⁶ Data from crowdsourcing can shed light on individuals’ perceptions, as well as narratives underlying health, political and economic trends; these are subjective issues that official surveys typically collect through qualitative or expectations data, but which big data can provide in real time. The 2013 UN Global Pulse research agenda, for example, includes using Twitter feeds and web search data to examine issues like gender discrimination and perceived mobility in the workplace.

Remote sensing data, meanwhile, is generally captured by automated devices such as satellites, temperature and rainfall gauges, and cameras, and provides information on population- and ecosystem-level patterns. This data can be used to identify spatial and temporal barriers to health clinics, schools, and markets, and is already being used extensively in research.

Appendix E provides examples of ways these main sources of big data can be used for development across agriculture and food security, education and health sectors. A continuous stream of big data can complement more standard program evaluation data by offering the perceptions and opinions of the clients using the service or benefiting from the programs.

3. Challenges with big data

There are three main difficulties facing the use of big data in development: technological, analytical, and ethical.

The key technological challenges include inventorying sources, centralizing information, and storing and physically analyzing data. Health information comes from thousands of community health workers in the field, mobile phone transactions from millions of bank account holders, and Google searches from billions of users. Research on any given topic demands not only storing all the individual records of each type in a single database, but also procedures for translating diverse types of data into a common format, as well as storing all of this public and private data in a centralized location. Overcoming these challenges and fostering effective partnerships between governments and private companies that house this data is a priority.

On analysis, a main concern is selection bias and access to the tools that generate big data sets, both at country and individual levels. The countries where gender gaps are greater tend to lack material resources overall, meaning they may also lack the infrastructure necessary to benefit from big data initiatives across the different domains. Historical changes in big data collection and storage can also be driven by business imperatives – and a little more quickly than with changes in official statistics. At the individual level, the digital divide occurs along multiple dimensions, including poverty, gender, ethnicity, disability, and region. The gender digital divide is significant: globally, a woman is 21% less likely to own a mobile

³⁶ Note here that “transactional activity” refers not only to consumer behavior, but also to unpaid goods- and services-related interactions, for example community health worker activity.

phone than a man (Cherie Blair Foundation & GSMA, 2010). Although the Internet is spreading rapidly in developing countries, women are nearly 25% less likely than men to be online (Intel & Dalberg, 2013). While connectivity is growing rapidly in developing countries and the gender divide is bound to shrink over time, the use of big data to fill gender data gaps has to be cognizant of the problem of selection bias and take measures to minimize it.

A second concern is interpretation: user-generated data can be prone to falsification. It may be difficult for programs to pick up on subtext, such as exaggerations or satire, or to understand truth versus fiction. Big data is messy, although these validity problems are likely to diminish as the number of users increase. The large amounts of information in big data sets frees researchers from the headaches of doing estimations from small samples and enables researchers to divide large samples into smaller subgroups to obtain disaggregated information. But the messiness of 'big data' usually precludes researchers from being able to make causal inferences. Big data yields measures of associations rather than causal relations between variables or events (Cukier & Mayer-Schoenberger, 2013).

Perhaps most difficult of all are the ethical challenges of privacy and security. There are unresolved questions about whether individuals and businesses have a right to control information about their behavior, even if this data is kept anonymous. The standards of informed consent in social science research would seem to demand a more careful approach to big data collection than has thus far been the case (Ioannidis, 2013). As pointed out earlier, big data needs to be centrally stored in order to be analyzed effectively, raising concerns about who, regardless of legal guidelines, ultimately retains *de facto* control of data. Further, digital data is by its nature easily replicable, increasing the danger of sensitive information becoming publicly available. This is of particular concern when the security of girls and women may be negatively affected by public disclosure of their information.

4. Looking ahead

The rise of big data brings important opportunities for researchers and policymakers concerned with gender inequalities. Big data can help deepen knowledge into women's individual preferences and the collective behavior that results from these preferences. More importantly, perhaps, big data sets also use the same technological infrastructure to understand as well as resolve gender inequalities.³⁷ In brief, big data can help fill the following gender data and research gaps:

- Help to better understand the behavioral aspects of gender inequality, as well as provide information on women's mobility, opinions about conditions that affect them and their perceptions about policy.
- Complement more standard program evaluation data by offering the perceptions and opinions of beneficiaries.
- Capture information that is difficult to elicit through regular surveys, such as prevalence of violence against women in conflict situations or dimensions of voice and agency that other data sources are not able to pick up because of response bias.

The future of big data to contribute to greater information on the progress of girls and women is bright, but researchers and policymakers must act to create the technical infrastructure to support storage and analysis, as well as initiate the dialogue on privacy and security issues. Given the challenges that remain, real time business data is good as a supplement, but not substitute for official statistics, and can help in some areas in redesigning questions in official statistics.

For information on how big data may contribute to each of the data gaps for priority policy areas identified in this report, see 'Ways forward' under each domain.

³⁷ Mobile phones, for example, can enable women pastoralists to obtain better prices for their livestock, provide women entrepreneurs with an easier (and confidential) way to access financial services, and transmit epidemiological information that will be used to create a more responsive health care system for mothers and children.

5. Typology of Big Data in Development

	Sector		
Type	Agriculture & Food Security	Education	Health
Transactional Data	<ul style="list-style-type: none"> • Loan information: payment histories • Sales patterns of crops and livestock • Bank account levels or frequency of transfers • Changes in cell phone activity (lower use, less recharge, etc.), implies change in economic welfare 	<ul style="list-style-type: none"> • Patterns in money transfers, bank account levels, spending in the context of the educational calendar (implies school expenses, saving, etc.) 	<ul style="list-style-type: none"> • Money transfers, bank account levels, spending and linkages to seasonal illness cycles (malaria, acute respiratory infections, etc.) • Health worker-sourced information about illness prevalence, outbreaks, population coverage of key health services, etc.
Crowdsourcing Data	<ul style="list-style-type: none"> • Crop, fertilizer, seed, land rental prices • Population movements • Pest/ disease outbreaks • Employment conditions • Searches or social media trending topics: food prices, government performance, etc. 	<ul style="list-style-type: none"> • School performance, teacher quality • Barriers to school access • Social media trending topics: attendance, purchase of school materials, etc. 	<ul style="list-style-type: none"> • Disease outbreak locations, severity • Barriers to health services/ goods access • Health clinic/ hospital performance • Searches or social media trending topics: outbreaks, specific illnesses, pregnancy and child care-related information, etc. • Health workers' Internet activity can suggest current illness trends, skills/medicine shortages
Remote Sensing	<ul style="list-style-type: none"> • Rainfall, temperature • Pest, disease conditions • Biomass/ "greenness" satellite-based indices 	<ul style="list-style-type: none"> • Weather conditions and GPS comparison of school and population locations can identify seasonal and idiosyncratic barriers to access 	<ul style="list-style-type: none"> • Vector prevalence, densities • Climatic conditions used to infer illness risk • GPS sensing of health worker movements can illustrate coverage of services

Appendix G: Global Databases on Policies Related to Women

						Domains ^(a)				
	Country coverage	Comparable data across countries?	Level of detail and quality of reporting	Enforcement & institutional capabilities	Frequency of production	Health	Education	Economic	Political	Human security
WomanStats Database	174 countries	Partial; depends on policy area	National and subnational policies; customary laws included, depending on policy area. Based on third party sources.	Yes; depends on policy area	Information is updated regularly/annually (depending on policy area) since 2000; some data are backcoded to 1990s	■	■	■	■	■
OECD's Social Institutions and Gender Index (SIGI)	102 countries	Yes	Country-level indices constructed from country notes covering a combination of official and customary laws	No	First round completed in 2012 (began in 2009)	■		■	■	
Women, Business and the Law Database	142 countries	Yes	Compiled by WB researchers from formal laws and regulations, survey data from local legal experts. Elicits whether customary laws is considered valid to override constitutional laws on nondiscrimination and equality	No	Data available for 2009 and 2011 (project began in 2009). 2013 round upcoming. Historical data available on reforms affecting women's property rights and legal status from 1960 - present			■		
World Legal Rights Database	All 193 UN member states	No	Official laws and policies applying to policies and rights in the workplace; compiled by World Policy Analysis Center	No	Project began in 2005; in 2009 first round of data became public			■		
IMPOWR Project	190 countries	No	Varies by country and policy area; relies on volunteer input and varied quality	No	Varies by country; project began in 2008	■		■	■	

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