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THE EFFECT OF REPRODUCTIVE HEALTH IMPROVEMENTS ON WOMEN'S ECONOMIC EMPOWERMENT

A Review Through the Population and Poverty (PopPov) Lens

AUGUST 2017

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Cover photo: © 2015 Paula Bronstein; **Caption:** A preschool teacher in Ahmedabad, India, enjoys time with her student in a daycare center run by the Self-Employed Women's Association (SEWA).

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THE EFFECT OF REPRODUCTIVE HEALTH IMPROVEMENTS ON WOMEN'S ECONOMIC EMPOWERMENT

A REVIEW THROUGH THE POPULATION AND POVERTY (POPPOV) LENS

BY **MARLENE LEE** AND **JOCELYN FINLAY**

POPULATION REFERENCE BUREAU

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A woman is economically empowered when she has the ability to succeed and advance economically, and the power to make and act on economic decisions.

Executive Summary

Women's access to employment, business opportunities, and financial resources are widely seen as critical to achieving the United Nations Sustainable Development Goals (SDGs) over the next 15 years. With increased attention to women's economic empowerment among donors and policymakers across the globe, we are at a pivotal moment for reviewing the current state of the research on women's economic empowerment to identify gaps.

This report reviews the Population and Poverty (PopPov) Research Network's most rigorous results from the past 10 years with attention to the effect of reproductive health improvements on women's economic empowerment. We also draw on results generated outside the network over the same time period, provided that they address this causal relationship and use rigorous statistical methods.

As an initial step, the report reviews the evolving definition of women's empowerment, drawing in particular on the International Center for Research on Women (ICRW) definition of economic empowerment. This definition is particularly relevant to the Population and Poverty (PopPov) Research Initiative objectives:

A woman is economically empowered when she has (1) the ability to succeed and advance economically, and (2) the power to make and act on economic decisions.[1]

Consistent with this definition, the organization also proposes specific measures of economic empowerment at the individual, household, and community levels, which are present in PopPov and other research on women's economic empowerment. ICRW separates the measurement instruments for women's economic empowerment into three categories: reach and process indicators (participation); economic advancement indicators (skills, income, work environment); and power and agency indicators (decisionmaking, autonomy, self-confidence).[2] ICRW also suggests a range of survey questions at the individual, community, and national levels to collect the necessary data.

Our review of findings revealed:

- Improvements in reproductive health do lead to improvements in women's economic empowerment.
- Expanding contraceptive use improves women's agency, education, and labor force participation.
- Higher maternal age at first birth (reducing adolescent childbearing) increases the likelihood of school completion and participation in the formal labor market.
- Longer birth intervals increase labor market participation, as does having fewer children.

Gaps remain, however, in measuring women's work and in the full exploration of women's economic empowerment.

Despite these gaps, several specific findings already suggest directions for policy action to increase women's economic empowerment:

- **Increase access to and use of contraceptives and quality family planning services.** Unmet need for family planning and low contraceptive use in many (African) countries keep women from achieving their desired family size and also limit women's economic advancement.
- **Expose the colonial roots of restrictive laws that institutionalize incentives for low contraceptive use, increasing the risk of unplanned pregnancies.** In Africa, the colonial legacy of the stricter laws in French colonies governing contraceptives, as compared to British colonies, resonates today in lower contraceptive use and higher fertility despite liberalizations in the laws since independence in the 1960s.
- **Attack barriers to contraceptive uptake other than cost.** In the developing-country context, the cost of contraception is not a major barrier to uptake of contraception.[3] Family planning policies that address other barriers to uptake, such as availability or cost of transportation, are more effective in increasing contraceptive use. Many of these costs that impede uptake must be overcome even before individuals consider the price of contraceptives.
- **Provide information services and couples communication training to promote agency for women and couples.** Most measures of empowerment include considerations of employment and agency. For this reason, informed decisionmaking (one measure of agency) is a key component of economic empowerment; the measure of work in itself does not signal empowerment. Women may work because they are forced to, and some may not work because they choose not to. In the sub-Saharan African context, an additional child means that a woman is 6 percent less likely to work, and that impact is particularly strong for older, educated women. This finding suggests that women who are likely more informed by experience and education choose not to work. But it is unclear whether these women have information about family planning and if they have the power to influence men's fertility preferences. This finding, in conjunction with results on household decisionmaking, calls into question the use of labor force participation as a measure of female economic empowerment. It also raises the issue of whether a composite measure of empowerment is needed. Informed women who decide to have more children and to work more have agency and economic participation.
- **Consider how cultural norms mitigate positive effects.** For individuals who move against cultural norms such as early marriage, the long-term outcomes can have a negative effect on their overall empowerment. Also, in contexts where contraceptive use has not been accepted as the norm, all women do not benefit equally from their use.

Introduction

From 2000 to 2015, the priorities set by the Millennium Development Goals (MDGs) helped to focus international, regional, and country efforts on the reduction of poverty. While these efforts achieved some success in lowering poverty rates, there was widespread recognition that not all segments of the population benefited equally during this press for poverty reduction. The successor to the MDGs, the Sustainable Development Goals (SDGs), calls attention to overcoming women's challenges as one of the steps toward eradication of extreme poverty. Women's employment, business opportunity, and access to financial resources are widely seen as critical to achieving the SDG targets embedded within each goal. Academic and programmatic research can provide needed information on what works to improve women's economic achievements. The Population and Poverty (PopPov) Research Initiative is one source of research on the causal effect of improvements in reproductive health on women's economic empowerment (see Box 1).

BOX 1

Population and Poverty (PopPov) Research Initiative

Since 2006, through its Population and Poverty (PopPov) Research Initiative, the William and Flora Hewlett Foundation and its partners in Europe and sub-Saharan Africa have supported the design, funding, and dissemination of research examining the linkages between population, reproductive health, and economic development in low- and middle-income countries. Through PopPov, the Hewlett Foundation sought to increase understanding of how population dynamics and reproductive health impact economic development, particularly in sub-Saharan Africa, with the hope that these interactions might be considered in design of policies and programs to reduce poverty and spur economic growth. To date, evidence generated through PopPov research has been incorporated into strategy documents on population and development, education, and women's empowerment.

Note: Examples of documents that draw on results from PopPov-supported research include: Health and Education Advice and Resource Team (HEART), *What is the Evidence for the Greater Impact of Having Targeted Programmes on Adolescence in Achieving Broader Sexual and Reproductive Health (SRH) Goals?* (Oxford: Oxford Policy Management, 2016); Mayra Buvinic, Rebecca Furst-Nichols, and Emily Courey Pryor, *Roadmap for Promoting Women's Economic Empowerment* (Washington, DC: United Nations Foundation, 2013); and Mayra Buvinic and Megan O'Donnell, *Revisiting What Works: Women, Economic Empowerment, and Smart Design* (Washington, DC: Center for Global Development, 2016).

In this report, we do not review the large amount of literature that looks at the effect of economic empowerment on fertility outcomes (see Box 2, page 6). Instead, we summarize results from PopPov research that provides information about the causal link *from* reproductive health improvements *to* women's economic empowerment. We also draw on results generated outside the PopPov Network over the past 10 years, provided that they address this causal relationship.

Our review of how reproductive health affects economic empowerment finds proof of an effect, though sometimes only in a limited context. Improvements in reproductive health do lead to improvements in women's economic empowerment. Contraceptive access and use increase women's decisionmaking power in the household, attainment of education, and participation in the labor force. Higher maternal age at first birth (or reduced chances of childbearing during adolescence) increases the likelihood of school completion and participation in the formal labor market. Longer birth intervals increase labor market participation, as does having fewer children.

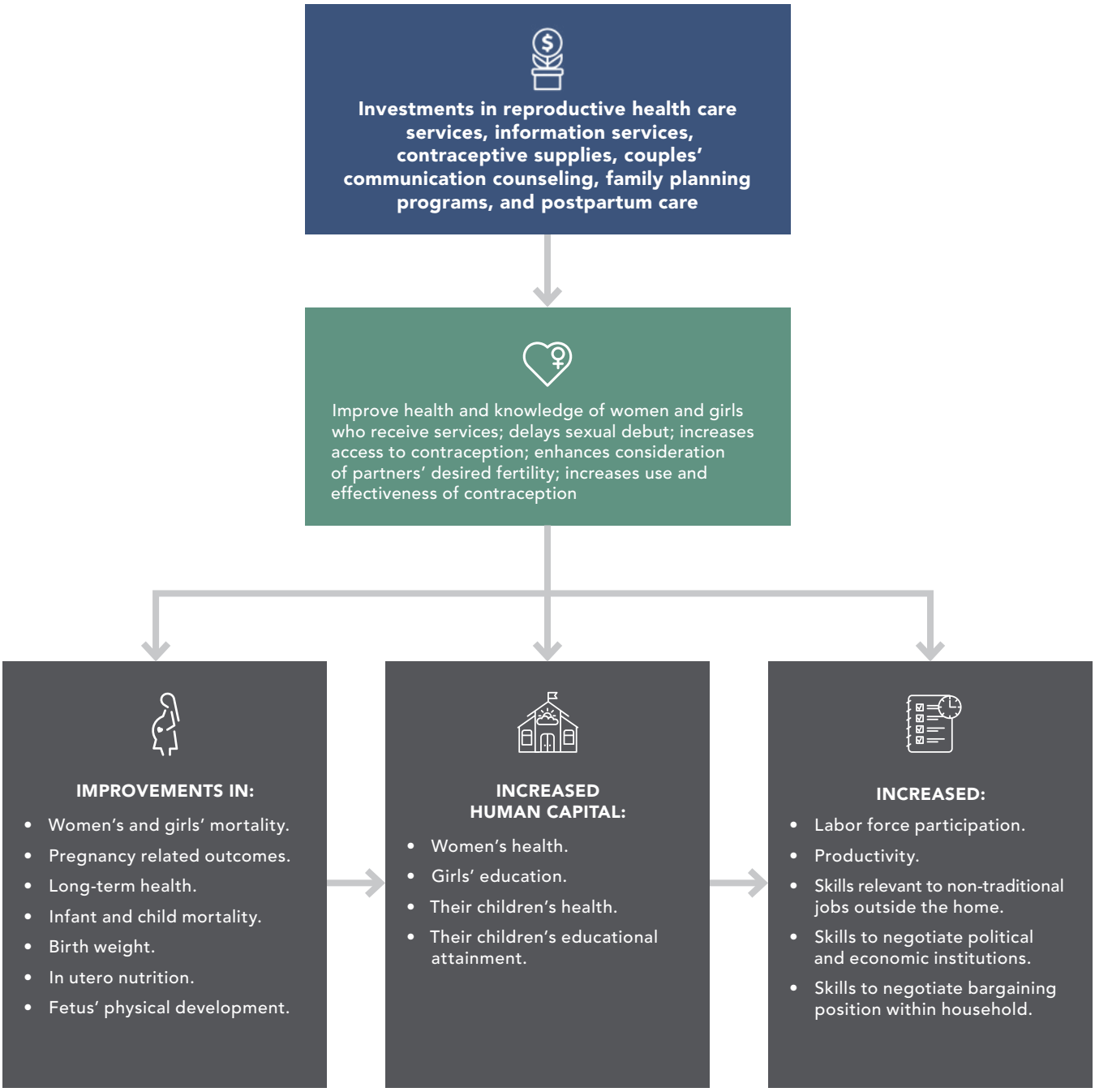
What Is the Path From Reproductive Health to Economic Empowerment?

Today, women's empowerment occupies a prominent place among the 17 global goals and 169 indicators adopted by the UN General Assembly in 2015 as part of the 2030 agenda for sustainable development (SDGs).[4] The primary goal of the SDGs is to end extreme poverty. Goal 5, "Achieve gender equality and empower all women and girls," includes targets that explicitly prioritize the health and human rights of women and girls and that acknowledge the need for women's leadership in decisionmaking and for women's access to economic resources. Goals 4 and 8, on education and employment respectively, call for aligning girls' and boys' education and women's and men's employment opportunities. Goal 3 prioritizes health and well-being for all people at all ages, with one key target being universal access to sexual and reproductive health care services and the integration of reproductive health into national strategies and programs.

The targets embedded in the SDGs, particularly in Goal 5, hint at the behavioral links among women's reproductive health, human capital, labor force participation, productivity, and poverty. To develop the PopPov research agenda, a team of experts articulated a rough road map linking demographic behaviors to economic outcomes. The route through reproductive health, taking into account some of the research questions from the PopPov body of work, is outlined in Figure 1, page 5.

FIGURE 1

Broad Overview Shows Causal Paths From Reproductive Health to Economic Empowerment



Reproductive health improvements can stimulate the kind of virtuous cycle described by Bloom, Canning, and Jamison in their overview of the relationship among health, wealth, and welfare at the national level.[5] The cumulative effect of these improvements at the national level might take some time to realize substantial growth in national income. However, the education effects at the family and household level have the potential to occur in the near- and medium-term (two to five years) as girls' improvements affect their own education and mothers' outcomes are tied to household economies that affect school attendance of children.[6]

Research supported through PopPov has covered these issues broadly, and in more recent years, both funders and researchers have placed greater emphasis on identifying the causal effect of reproductive health on women's economic empowerment. With increased attention to women's economic empowerment among donors and policymakers across the globe, now is a pivotal moment in which to review the current state of research on women's economic empowerment and to identify gaps.

Elements of the Research Agenda Address Policy Questions

Underlying the SDGs is a human rights agenda. In the official knowledge platform summarizing this development agenda, the United Nations states that these goals and targets "seek to realize the human rights of all and to achieve gender equality and the empowerment of all women and girls."[7] The WHO definition of reproductive health suggests a right to information on and access to safe, effective, and affordable options for controlling the timing and frequency of childbearing as well as the right to health services that ensure the best chances of a safe pregnancy, childbirth, and a healthy infant (see Box 3, page 7). Will the realization of reproductive health rights lead to empowerment of women and girls, specifically to economic empowerment that can contribute to the eradication of extreme poverty and to at least 50 percent reduction in women's and men's poverty? Research results can help policymakers identify what effects specific programs have, on whom, and in which contexts. However, the answers also depend on what is being measured, and the measurement of women's economic empowerment has been evolving with shifts in definitions.

BOX 2

Research on the Effect of Economic Empowerment on Reproductive Health Outcomes

Before turning to this causal relationship, we note some results from the literature that explore how economic empowerment impacts reproductive health outcomes. One review by Berge and his colleagues looks at the effects from three types of interventions aimed at expanding economic opportunity of adolescent girls.[1] To improve their economic opportunity, adolescent girls need support in education or training so they have skills to go into business or get a job. And, importantly for the sub-Saharan African context, they need to delay marriage and first birth beyond their teenage years so that they are not locked into the sole role of motherhood before they reach their full potential in terms of the breadth of domains in which they can contribute to society.

In their review, Berge and his colleagues explore three types of interventions: health information, cash transfers, and enhanced job opportunities. Results show that health information alone can influence knowledge and attitudes but is not as effective at changing pregnancy rates and sexual behavior as when combined with other interventions.

Combining health information with interventions to expand economic opportunity leads to a decrease in pregnancy rates, as found in the BRAC intervention in Uganda that combined life skills and vocational skills. In their innovative qualitative study, Berge and his colleagues asked girls to write about their reproductive health, risk of pregnancy, economic opportunity, and plans for the future. The analysis pointed to entrepreneurship training, alone or with health training, as more effective in delaying first birth than health training alone.

Reference

1 L. Berge et al., "Reducing Early Prenancy in Low Income Countries: A Literature Review and New Evidence," in *Towards Gender Equality and Development,* ed. Siwan Anderson, Lori Beaman, and Jean-Philippe Platteau (Geneva: United Nations, forthcoming).

Empowerment Consists of Process, Advancement, and Power

Though empowerment has been defined in many ways, most definitions broadly draw on ideas developed by Sen and include references to elements of "process of change," "ability," and "choice."[8] Kabeer provides a succinct definition: "[a] process of change during which those who have been denied the ability to make choice acquire such an ability."[9] Narayan's more expansive definition suggests mechanisms through which empowerment increases: access to information, inclusion and participation, accountability, and local organizational capacity.[10] Furthermore, this definition acknowledges that the evolution of capabilities is also coupled with an economic expansion and an increase in assets. Thus, Narayan's definition broaches the definition of *economic* empowerment. According to ICRW, "A woman is economically empowered when she has both the ability to succeed and advance economically and the power to make and act on economic decisions."[11]

For women to be able to succeed and advance economically, they need skills, resources, and opportunity. In other words, women need access to education or training for marketable skills, work, and institutions that facilitate a variety of work opportunities, as well as asset holdings (including land holdings for agriculture). However, generating income or owning assets are no guarantee, on their own, of economic empowerment. In some countries, very few women are sole owners of assets, while men are more likely to be sole rather than joint owners (see Figure 2, page 8). Women may contribute financially to their household, only to have their father, brother, or husband make the final decision on what purchases they can make. It is also possible for women to have legal ownership of assets, but no legal standing to obtain needed permits for an agricultural business or to sell land. Women need to have the legal and social standing to make economic decisions and to control economic resources. They need autonomy and institutions that support their sole control (for example, their own bank accounts and land tenure rights).

ICRW's precise definition of women's economic empowerment leads to measurable indicators of empowerment. But ICRW's definition is not the only one that has been operationalized. A patchwork of measures has been used up until now, with the Demographic and Health Surveys (DHS), International Labour Organization (ILO), the United Nations, and the World Bank all putting forth their own survey instruments to measure empowerment.

In recent years, concerted efforts for uniform measures of women's economic empowerment have emerged. Now, organizations such as ICRW, UNICEF, and Data2X are working with major international institutions to develop a collection of measures that will give an accurate representation of empowerment relevant to any context.

BOX 3

Defining Reproductive Health and Economic Empowerment

The World Health Organization (WHO) offers a definition of reproductive health:

Within the framework of WHO's definition of health as a state of complete physical, mental and social well-being,…reproductive health, therefore, implies that people are able to have a responsible, satisfying, and safe sex life and that they have the capability to reproduce and the freedom to decide if, when, and how often to do so.

The International Center for Research on Women (IGRW) offers one definition of women's economic empowerment:

A woman is economically empowered when she has both the ability to succeed and advance economically and the power to make and act on economic decisions.

Sources: World Health Organization, accessed at http://www.who.int/topics/reproductive_health/en/, on Dec. 12, 2017; and Anne Marie Golla et al., *Understanding and Measuring Women's Empowerment: Definition, Framework, and Indicators* (Washington, DC: International Center for Research on Women, 2011).

This effort will help us to understand not only the relative levels of and increases in empowerment within a country, but also to identify international examples of countries which have realized improvements in women's empowerment. Results of these efforts have the potential both to direct programs within countries to where they are most needed and to provide lessons learned across countries.

Thus, the work to date on the effect of reproductive health on women's economic empowerment has involved examining a moving target, since the accepted standards for measuring women's economic empowerment have simultaneously been evolving. In this report, we reference ICRW's framework and measurement which is consistent with measurement across a broad range of studies.[12] ICRW separates women's economic empowerment into three categories: reach and process indicators (participation in activities or interventions); economic advancement indicators (skills, income, work environment); and power and agency indicators (decisionmaking, autonomy, self-confidence). ICRW suggests a range of survey questions at the individual, community, and national levels.

In the papers discussed in this report, three key indicators of women's economic empowerment have been regularly used: educational attainment, labor force participation, and agency.

It should be noted that indicators of the extent of women's participation and the community's reaction to participation are seldom applied in these papers.

Better Reproductive Health Enables Women's Economic Empowerment

After reviewing the papers resulting from our search of Population Reference Bureau (PRB) archived papers, Google Scholar, and Web of Science Search, we identified five key relationships that address the causal relationship from reproductive health to economic empowerment. The first group of papers studied the effect of family planning policies on elements of women's economic empowerment as captured by education, labor force participation, and agency. A second group of papers examined the effect of contraceptive use on women's economic empowerment. A third group explored the effect of maternal age at first birth (and early marriage) on women's economic empowerment, mostly in the context of South Africa where adolescent pregnancy is a national issue of concern; these papers studied the link to empowerment primarily through educational attainment. A fourth group of papers considered the link between birth intervals and women's economic empowerment as reflected in labor market outcomes. Similarly, the fifth group of papers examined the effect of the total number of births on women's economic empowerment as seen through labor market opportunities.

EFFECTS OF FAMILY PLANNING POLICIES

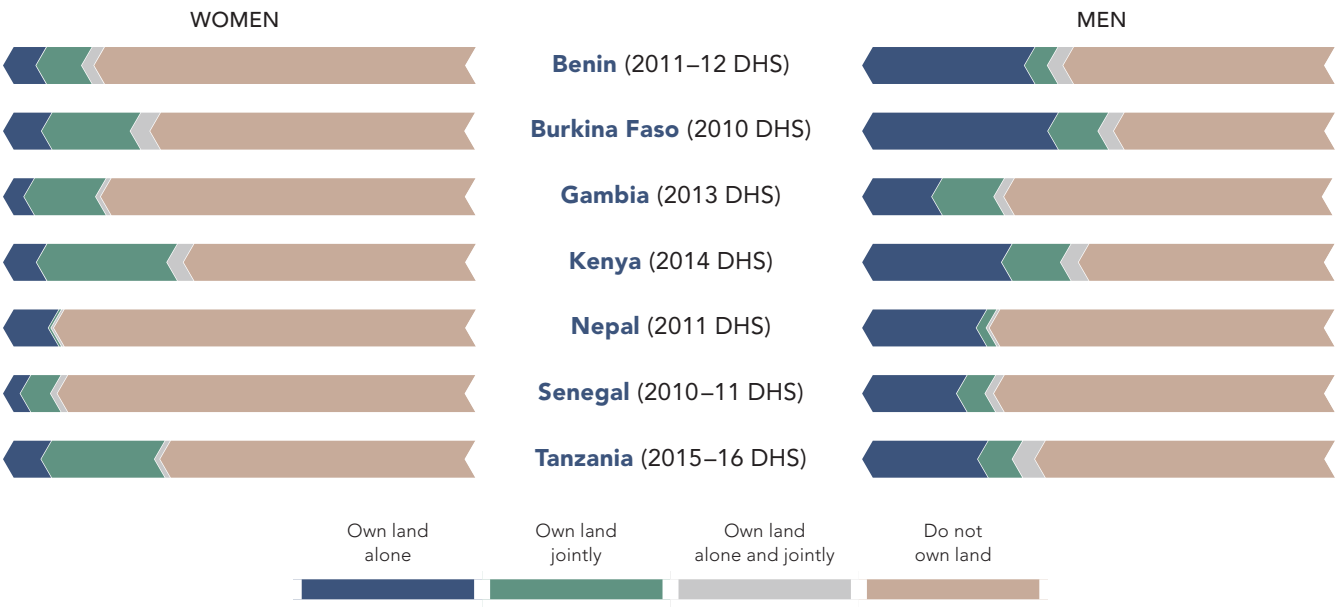
Studies of family planning programs carried out at the national level showed that reducing prices, liberalizing laws, and implementing national family planning initiatives could increase contraceptive use. Furthermore, this increase in contraceptive use led to a decrease in fertility and an increase in women's economic empowerment. These findings point to the unmet need for family planning and to low contraceptive use in many (African) countries as limiting for women not only in achieving their desired family size, but also in their economic advancement.

We reviewed the effect of family planning policies on women's economic empowerment outcomes. Family planning policies that enable access to abortion or limit family size result in higher education for young women, higher labor force participation, and better career opportunities for women.[13]

Bloom et al. used an instrumental variable approach to show that the liberalization of abortion laws leads to a decline in fertility, and having one less child increases female labor force participation by two years on average.[14] In their analysis the authors found a significant and positive relationship between reproductive health laws and fertility using cross-country

FIGURE 2

Less Than Half of Women Own Land; Men Who Own Land Are More Likely to Be Sole Owners Than Joint Owners



Source: ICF STATcompiler, 2012, accessed at www.statcompiler.com, on Mar. 1, 2017.

macroeconomic data.[15] Thus, the liberalization of abortion laws—making abortion easier to access—led to a decrease in fertility and this decline in fertility led to an increase in female labor force participation. Finlay and James expanded the analysis of the reproductive health laws and showed that current contraceptive laws reflected the colonial legacy of stricter laws in former French colonies compared to the contraceptive laws in former British colonies.[16] The stricter contraceptive laws in the present day were associated with lower contraceptive use and higher fertility rates. Thus in Africa, the colonial legacy of stricter laws in the French colonies resonates today despite liberalizations in the laws since independence in the 1960s.

Family planning policies can also influence the price of contraceptives for users, both directly and indirectly. National health insurance can cover the cost of family planning, essentially making it free for women. On the other hand, these same insurance programs or other legislation can require that only licensed medical professionals distribute contraceptives, effectively restricting the supply and increasing the price. Or there may be high costs to receiving quality family planning if the service provided by the national health system is of poor quality or is difficult to access. Studies showed mixed results in the developing-country context, depending on the extent to which the price of reproductive health services is a barrier to contraceptive use.[17] In a review article commissioned by WHO, Karra et al. find that the cost of contraception is not a major barrier to uptake of contraception in the developing country context and that family planning policies that address other barriers to uptake, such as transportation to clinics, provider attitudes, and method choice and information regarding side effects, are more effective in increasing contraceptive use.[18]

While family planning policies typically address access to abortion and contraception, some countries target fertility directly in their family planning policies, China's one-child policy being the most renowned in recent decades (although now rescinded). The implementation of China's policy has made it possible to conduct rigorous analysis of causal effects, though the authoritarian measures required to enforce this policy make it legally and ethically untenable under many other forms of government. Huang, W. et al. find that that the rollout of China's one-child policy during a female's teenage years (10 to 19 years of age in this study) induced higher female educational attainment and higher female labor force participation, nonmanual occupation,

A representative from the Self Employed Women's Association (SEWA), leads a nutrition program for mothers at a health and education center in India.

delayed marriage and childbearing, and attitudes regarding children and gender equality."[19] This paper isolates the causal impact of the one-child policy on female economic empowerment by using the regional and temporal variation in financial penalties for one unauthorized birth from 1979 to 2001 across 30 provinces for birth cohorts of women born between 1945 and 1979. The study authors find that an increase in financial penalty "by one year of household income during teenage years predicts an increase of 2.2 percentage points in the rate of senior high school completion among women of Han ethnicity," the group for whom the policy was strictly enforced. This finding suggests that China's one-child policy explains 30 percent of the increase in women's education in the birth cohorts studied.

Huang, W. et al also examine the effect of introducing the financial penalty at different ages, replacing the fertility fine during the teenage years with a series of fines at different ages.[20] Their findings suggest that a change in the rate at which fines are assessed matters most during the teenage years, a point in time when girls and their families are making important decisions about entering senior high school. The authors continue their analysis by examining the effect of these financial penalties on later outcomes including marriage age, fertility, labor market participation, and occupation. They investigate the effects of the one-child policy on these later life labor market outcomes through education; in other words, they study how the one-child policy affected later life outcomes according to the variation in the effects on education. They find that when the policy encouraged higher education, women were more likely to be working and to hold professional jobs.

Laws and policies designed to increase contraceptive use or target fertility directly, as in the case of China's one-child policy, do reduce fertility, increasing women's economic empowerment. Looking at the post-war era in countries such as South Korea, sufficient time has elapsed to observe the long-term effects of the policies designed to limit fertility. Indeed, for many countries that encouraged lower fertility in the 1960s, we now see in the early part of the 21st century that they are confronting the opposite issue of a shrinking labor force size relative to the population and are now trying policies to increase the fertility rate (albeit unsuccessfully) to reach the replacement rate.[21]

EFFECTS OF CONTRACEPTIVE USE

Programs may directly affect the uptake of contraception by targeting either the demand or supply side of the contraception market. The long-term forecast is that improvements in the uptake of contraception will lower fertility and lead to higher educational attainment and labor force participation.

Several randomized control trials have been conducted (or are currently in the field) to test interventions intended to improve contraceptive uptake. Most of these studies are realistic in assessing the magnitude of each intervention's effect and examine the effect of the family planning intervention on contraceptive uptake.[22] In one review of recent studies focusing on postpartum contraceptive uptake, Cleland et al. found that counseling before discharge likely had a positive effect on contraceptive uptake.

For the long-term outcomes related to female economic empowerment, studies have drawn on the Matlab experiment that was initially rolled out in the 1970s. In a recent follow-up, Joshi and Schultz find that more educated women (ages 25 to 55) report higher wage earnings or total income in villages receiving the family planning and maternal child health outreach program. Also, in these program villages, households where women reside have proportionally more assets and more consumer durables and jewelry.[23] Peters finds overall welfare gains from the Matlab family planning program, but unintended consequences of the program rollout reduce women's empowerment.[24] For example, Peters finds that women pay 14 percent higher dowries to obtain husbands with access to the family planning program.[25] (Geographic location determines eligibility for the program, and in Bangladesh, wives typically move in with their husband's family once they are married. This cultural norm means that the husband's residence determines access to the program.)

Most recently Bahman et al. found positive intergenerational effects on the types of jobs that children of the mothers from the Matlab treatment area hold.[26] In the long-term follow-up, they found that the now-adult children (now 24 to 29 years old) were less likely to migrate out of the study area, more likely to have semiprofessional jobs, but more likely to have lower incomes, on average (reflecting the Matlab regional average relative to the urban average).

In a seminal paper, Ashraf et al. find that women in Zambia who were given access to contraception with their husbands (as opposed to given access by themselves) were less likely to seek family planning services and more likely to have an extra child.[27] However, an unexpected corollary of this research design is that the women who were given access to contraception alone were more likely to report lower subjective well-being. When the women accessed family planning services with their husbands, their fertility outcomes matched fertility preferences of the husbands, rather than the women's preferences. However, giving the choice to the women—offering her free agency over her family planning choice—led to the use of contraception but with lower subjective well-being. The women were empowered on the one hand with the sense of choice, but on the other hand, it came with a

psychosocial cost with an information gap within their relationships.

The evidence gathered in the PopPov Network and in earlier related studies indicates that reducing the barriers to family planning access increases contraceptive use, decreases fertility, and increases wages. However, improvements to women's welfare are not evident in either the Peters study or the Ashraf study of near-term effects. In contexts where contraceptive use is not normalized, this data suggests that choice, and the downstream consequences of increased contraceptive use, do not necessarily benefit all women equally.

EFFECTS OF MATERNAL AGE AT FIRST BIRTH

The literature shows that marriage in childhood or adolescence is linked with lower educational attainment, agency, and empowerment. In sub-Saharan Africa and Southwest Asia, Delprato et al. find that delaying marriage increases educational attainment.[28] In Bangladesh, Abdullah. et al. find that young women who get married during their adolescence experience increased domestic violence and lower likelihood of being empowered.[29] The study also investigates the role of microfinance with respect to empowerment of women and finds that "while access to microcredit enhances women's empowerment in general, this result does not hold for women who underwent child marriage."

In Egypt, Crandall et al. find that "[e]arly—or child—marriage (before age 18) may diminish women's ability to exercise agency, or their capacity to act upon their goals."[30] The study's initial analysis found positive associations between a woman's age at first marriage and their postmarital agency. However, when Crandall et al. include characteristics found more often in women that marry early, such as educational attainment and work experience, they find that these characteristics are more strongly associated with women's postmarital agency than early marriage. They conclude that policymakers should consider ways to increase the marriage age or to enhance women's resources before they enter marriage in order to enhance their postmarital agency.

In the context of South Africa, Ardington et al. find that teenage mothers (younger than age 20) have worse educational and health outcomes than their peers who do not have a teenage birth. The researchers use a longitudinal dataset and find that conditions such as their prepregnancy schooling trajectories or household characteristics do not predetermine teenage mothers' propensity for teenage childbearing.[31] Moreover, they find that fertility timing matters, with younger teenage (under age 17) mothers' pregnancies having more pronounced negative effects on educational outcomes than older teenage mothers (ages 17 to 19). Similarly, Herrera and Sahn show that for young women in Madagascar, teenage pregnancy increases the likelihood of dropping out of school and reduces their cognitive skills.[32] Teenage motherhood also has an effect on the child's educational attainment: children of teenage mothers, particularly young teenagers, have lower educational attainment than children born to women older than 20.[33]

In Madagascar, Herrera et al. find that teenage mothers are 60 percent more likely to participate in the labor market than those young women who are not yet mothers.[34] However, those teenage mothers are working in the informal sector, which may allow them to meet the demands of motherhood while satisfying economic necessities. A one-year postponement in the age at which a teenage mother has her first child yields an 8 percent decrease in her chances of working in the informal sector. This effect of age at first birth on teenage mothers' employment varies by their level of school attainment, suggesting that it is teenage pregnancy's interruption of schooling that affects the mother's labor market outcomes.

While many papers have shown the benefits of delaying first birth, others have shown that the long-term welfare

Waste pickers work in a cooperative collection site in Bogota, Colombia.

Senegalese women work at a millet factory as an income generating activity.

of women can be reduced if some individuals within a society delay marriage and childbearing and others do not. Results from a study in Malawi show that girls who stayed in school and delayed marriage and first birth had worse marital prospects than their peers who married earlier and had children at a young age, as the existing social norm dictated.[35] In this small community with few employment options, the choice of spouse for girls who delayed marriage and childbirth became more limited as girls who marry earlier take the more desirable marriage partners.

Thus, while early marriage has negative outcomes for adolescent girls, it does not mean that delaying marriage is completely positive in terms of empowering women. For individuals who move against cultural norms, the long-term outcomes can have a negative effect on their overall empowerment. This point is highlighted in Fox and Romero's 2016 paper on empowerment and written about in the *World Bank Development Report 2015: Mind, Society, and Behavior*.[36]

EFFECTS OF BIRTH INTERVAL

Studies looking at birth intervals address the link between fertility and empowerment by looking at the effect of spacing on labor market opportunities. Longer birth intervals increase the probability of entering the labor market between births. There are no such studies in the African context where informal work dominates, but using data from Sweden, Karimi finds that spacing births for longer intervals allows women to reenter the workforce between births and reduces the continuous disruption from the workplace.[37] In the developing country context, shorter birth intervals are tied to poorer maternal health outcomes.[38]

However, when the birth intervals are greater than five years, there is a reversal in the positive effects of time between births on maternal and child health.[39]

In qualitative work, Finlay et al. found that women in Africa wanted to space their births three to five years apart.[40] The women explained their rationale that when the children are spaced too closely together, it is too difficult for the mother to simultaneously care for the children and work. If a woman had one infant, or child under the age of three, they could continue their informal work of trading, housework, or farming. But if the woman had two children under the age of three, implying a birth interval less than two years, then they could not work and care for the children. Having the extra mouth to feed, and not being able to work, had devastating consequences for the women who already live in poverty.

EFFECTS OF TOTAL NUMBER OF CHILDREN

Looking at data from 26 sub-Saharan African countries, de Jong, Longwe, and Smits use the birth of twins as variable proxy to assess the impact of an additional child on working.[41] They find that an additional child means that a woman is 6 percent less likely to work, and that effect is particularly strong for older, educated women. A similar result was found by Bloom et al. who used macroeconomic data on fertility and female labor force participation and applied an instrumental variables approach.[42] Using abortion laws as a proxy for fertility, these authors found that each additional child reduced labor force participation by two years.

Looking closer at the relationship between fertility and female labor force participation in sub-Saharan Africa, Canning and Finlay found a positive relationship between labor force participation and fertility.[43] That is, women with more children worked more. In this case, women needed to provide for their children and thus worked more, rather than substitute their time away from work towards childcare in the event of another child. This finding is consistent with qualitative work conducted by Finlay et al. who found that women in Burundi were responsible for

the variable costs of the family, while the husbands were responsible for housing.[44] With an extra child, the financial responsibility of the woman changed and demands increased as she had an extra child to feed, clothe, and educate. But for the husband, the cost of housing did not change, as the extra baby squeezed into place with his or her siblings (see Box 4).

Critical Gaps Remain

Despite the results from 10 years of research, both within and outside of the PopPov Network, we identified several critical gaps that remain in the causal studies within the women's economic empowerment sphere.

The sector lacks a uniform measure of women's economic empowerment and needs to address the measurement challenges in labor force participation indicators. There have been few applications of randomized control trials and expansion beyond the Matlab study would be beneficial. Furthermore, while contraception and fertility are often used as indicators of reproductive health, little has been done to examine the link between obstetric health and women's economic empowerment. Lastly, agency as an outcome has been seldom used, and more studies examining this element of women's economic empowerment would complement those that focus on education and female labor force participation.

BOX 4

"Distress Sale" of Labor

The need for women to work, rather than choosing to work, calls into question female labor force participation being used as a measure of empowerment. For example, Kabeer explores women's work as the "distress sale" of labor rather than an element of empowerment.[1] Kabeer's idea is that for women, work is not empowering, or part of the empowerment equation, and that female labor force participation may be a signal of economic desperation and a *lack* of agency. We caution against interpreting increased labor force participation as empowerment, even when causally linked to fertility decline.[2]

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THE MEASUREMENT OF WOMEN'S WORK

The usual measures of female labor force participation are the percentages of women employed or looking for work. However, the overwhelming majority of women's work in low-income countries is unpaid work for family enterprises or in the informal sector, and these are seldom accounted for in usual employment measures. This measurement issue is the source of considerable debate about what are the most relevant employment measures and is most significant for women's economic empowerment.

One could argue that the usual labor force measures capture truly empowering employment because of the social protections (sick leave, retirement, disability benefits, and protections against hazardous conditions) associated with formal employment. On the other hand, failure to measure and account for women's informal employment as well as unpaid work, both in family enterprises and in domestic chores, underestimates the size of the national economy and undervalues women's contribution to national economic growth.

For the sub-Saharan African context, statistics that measure female labor force participation are collected from surveys such as the DHS, the World Bank's Living Standards Measurement Survey (LSMS), and census surveys, as well as other country-specific surveys. But these are often not specifically labor force surveys, which can impact the quality of the questions, the training that the enumerators receive, and the precision of the recoding and cleaning of the data prior to dissemination. As an example, in the case of Ghana, the Women's Health Study data indicate that 77 percent of urban women work, the Time Use Study of Accra indicates that 85 percent of urban women work, the Census data indicate that 59 percent of urban women are employed, and the DHS indicates that 71 percent of women worked in the past week. The inconsistency in the numbers across time may signal volatility in the labor market or inaccuracies in the data collection. But the differences across surveys within the same timeframe indicate issues with measurement. These issues could relate to the question asked, the tone of the enumerator when asking the question, or inaccurate data entry from the enumerator. The latter inaccuracy may be done purposefully to rush through the survey questions or may be done unknowingly due to lack of training.

Efforts are increasing to improve the definition of women's work and the measurement of women's work. The Living Standards Measurement Survey is conducting a series of randomized control trials to experiment with different ways of asking questions regarding work and to whom in the household the questions are asked.[45] The different approaches test the accuracy of short modules ("Did you work in the past seven

Women sell fish at a local fish market in Senegal as an income generating activity.

days?") and more detailed questions to determine employment status. Work by Langsten and Salem shows that an activity list (similar to what would be in a time-use survey) captures women's economic activity more accurately than the keyword approach that the DHS applies ("Did you work in the past week?").[46] Data2X is also moving forward with a broad agenda of measuring women's empowerment, of which measuring women's work is a subject.

A COMPOSITE MEASURE OF WOMEN'S ECONOMIC EMPOWERMENT

Composite measures that consist of all the elements of women's economic empowerment (participation, work, and decisionmaking) have not been created at the individual or macro level. Such measures might address some of the issues in interpretation of labor force participation. They might also advance work on analysis of women's community economic participation which has seldom been examined in the literature.

At the macro level, the human development index provides an overview of the country level state of human development. A similar measure could be useful for women's economic empowerment.[47]

PROMISING APPROACHES TO ANALYSIS EMERGE

Few studies have been conducted using a randomized control trial approach to examine the causal impact of reproductive health on women's economic empowerment (see Appendix, Methods). Two main reasons explain the scarcity of such studies. One is the time lag between family planning implementation and observation of women's economic empowerment outcomes (labor supply, education, or agency). Second, the statistical power to observe these outcomes requires large data collection efforts. Without large samples that may be divided into numerous subpopulations, it is nearly impossible to account for the possible confounding effects of external changes in policies and economic conditions that may have differential impacts on subpopulations. Thus, the long lead time and large data collection requirements have limited the number of randomized control trials that examine the effect of reproductive health on women's economic empowerment. In addition to the study by Ashraf, the ongoing work by both Canning in Malawi and Cohen and McConnell in Kenya have used a behavioral economics framework to examine uptake of time-limited offers of vouchers for postpartum contraceptive services.[48] In preliminary results, they find that when women are given an expiration date for the voucher, uptake is higher than with an open-ended offer. This work currently examines the short-term outcomes of these interventions, focusing on family planning uptake. But the medium- and longer-term outcomes will need to be addressed to examine whether these interventions lead to improvements in women's economic empowerment per se.

In current work by Berge et al. in Tanzania, the researchers conducted a randomized control trial to examine the effect of business training and/or reproductive health education on economic empowerment.[49] Targeting adolescent girls, they find that reproductive health training positively affects reproductive health outcomes, but not the direct measures of economic empowerment within the study timeframe. The business training had an impact on economic empowerment. The link from reproductive health inputs (education) to economic empowerment outcomes was not evident in this study. Again, the timeframe may have been too short to yet capture the full benefits of reproductive health on women's empowerment over a longer period of time.

FERTILITY AND AGENCY

With most of the papers focused on education and female labor force participation outcomes representing women's

A South African woman cleans and cooks in a private home.

economic empowerment, the effect of reproductive health on women's agency was not addressed extensively within the PopPov Network's research.[50] Uptake of modern contraception could be viewed as a proxy for individual agency, indicating that a woman has the freedom to choose and act on that choice, as signaled through the use of modern contraception. However, the effect of reproductive health improvements on individual agency was not examined within the network.

OBSTETRIC HEALTH AND WOMEN'S ECONOMIC EMPOWERMENT

The WHO definition of reproductive health includes family planning and obstetric health. However, within the current PopPov literature, little has been written on the effect of poor obstetric health on women's economic empowerment, though qualitative work in PopPov research in Burkina Faso does link severe obstetric complications to women's lower economic contributions to the household.[51] The issues of pregnancy and labor force participation, pregnancy and school attendance, and obstetric complications (for example, fistula) on functioning and consequent labor market participation, participation, and agency could be addressed.

Conclusion

The PopPov Network's research over 10 years shows that improvements in reproductive health do lead to improvements in women's economic empowerment. The most rigorous evidence from this network and other studies suggest that expanding contraceptive use improves women's agency, education, and labor force participation. Higher maternal age (reduced adolescent childbearing) increases the likelihood of school completion and participation in the formal labor market. Longer birth intervals increase labor market participation, as does having fewer children.

However, we identified significant gaps in measuring women's work and how women's work translates to women's economic empowerment. Moreover, we found few studies that have applied randomized control trials to identify the causal effect of reproductive health improvements on women's economic empowerment. Current efforts must extend their timelines to capture long-term measures in educational attainment, labor force participation, and agency. Little has been done to examine the effect of obstetric health on women's economic empowerment.

In each line of research, we found a double-edged sword. Contraception may have positive impacts, but it can also have negative welfare effects, depending on how the increase in contraceptive use is achieved. Early childbearing may have negative impacts, but delaying childbearing can also lead to negative welfare effects. High fertility and high labor force participation in Africa reveals that labor force participation can represent a lack of empowerment rather than an achievement.

Therefore, we recommend more work on the long-term outcomes of existing studies until five or 10 years after the rollout of policy changes and program implementation. With this longer-term planning and follow-up, we will better understand the welfare impact of reproductive health improvements. While we have seen short-term gains in outcomes of contraceptive uptake, higher educational attainment, and lower chances of child marriage, the long-term impact is borne by the woman. Individuals who do not conform to social norms—creating information gaps with their husbands, delaying marriage and being worse off in the marriage market, or experiencing the "distress sale" of labor—are the ones who carry the long-term negative effects.

Stand-alone interventions leave no time for cultural catch-up and can lead to negative effects later. Having fewer children may have a positive short-term effect on a woman's education and labor force participation, but the longer-term impact on a woman who lives in a high-fertility community may be detrimental to her holistic definition of empowerment. We recommend further work on these downstream effects, and more holistic interventions overall, to ensure that we work towards not just immediate effects, but also for the long-term effect of reproductive health improvements on women's economic empowerment.

A woman sorts and collates inserts into newspapers on the street at dawn in Peru.

Appendix

METHODS

In this report we aim to provide a comprehensive review of academic papers, both published and unpublished, that explore the causal effect of reproductive health on women's economic empowerment. We started gathering the literature from the PopPov Network output, including unpublished work. The Population Reference Bureau (PRB) had kept a record of this work, available through its archives.

To identify relevant research that might have been overlooked or generated outside the PopPov Network, we searched using Google Scholar and the Web of Science electronic database. We limited searches to papers in the English language published from 2006 to present. In some cases, when no relevant results appeared using the last 10 years as a search parameter, we widened the search to all years to identify any relevant sources. As a result, our review encompassed a few papers published prior to 2006.

To search for papers related to the causal effect of reproductive health on women's economic empowerment, we used the following grid of search terms. Those marked with a "*" were given priority in the search (see Table 1 and Table 2). This search resulted in the inclusion of 52 papers within this review.

To identify articles that linked reproductive health and female economic empowerment, we combined the terms from each domain, such as "contraceptive use" and "education." We took careful account of the direction of causality to ensure that we focused on papers that showed the effect of reproductive health on women's economic empowerment. For example, in Google Scholar, the search for "child marriage and female empowerment" yielded an article on "How Empowering Girls Can Help End Child Marriage." This title implies that it is empowerment that leads to reproductive health. While this is very important—and our review does not imply that this direction is in some way wrong—it does not reflect the causal direction that we are examining in this review. Our primary interest in this review is the causal direction similar to the ICRW co-authored paper entitled *Economic Impacts of Child Marriage*.[52]

To identify any additional literature, we reviewed the bibliography section of particularly relevant papers and completed some targeted searches in order to improve coverage of papers that measured educational attainment, women's work, and agency.

To distinguish the causal effect of reproductive health on women's economic empowerment from the reverse, the PopPov Network relied on rigorous statistical methods, typically from applications in economics. In the early years of the network, an instrumental variables approach was applied: for example, twins as a proxy for fertility in order to identify the causal effect of fertility on investments in children's education

TABLE 1

Reproductive Health Terms

PROXIMATE DETERMINANTS OF FERTILITY	Child marriage*
	Sexual activity
	Contraceptive use*
	Abortion
	Breastfeeding
	Postpartum abstinence
PREGNANCY AND DELIVERY	Antenatal care
	Delivery attended by health care provider
	Neonatal care
FERTILITY	Maternal age (adolescent childbearing) *
	Birth intervals (spacing)*
	Completed fertility (total fertility rate) *

Note: Items marked with "*" denote those search terms that were given priority.

TABLE 2

Female Economic Empowerment Terms

ECONOMIC ADVANCEMENT INDICATORS	Education*
	Investment in business (microfinance)
	Labor force participation*, women's work*
	Income
	Saving
	Consumption smoothing (not having to sell productive assets for catastrophic expenses)
	Safe work environment
	Property rights (can own land and assets)
POWER AND AGENCY INDICATORS	Control over assets
	Decisionmaking power within household*
	Female leadership roles in community
	Autonomy and mobility (visit friends, use public transport)
	Self esteem
	Wage inequality*
	Women's health and nutrition

Note: Items marked with "*" denote those search terms that were given priority.
Source: Female economic empowerment terms from Anne Marie Golla, Anju Malhotra, Priya Nanda, and Rekha Mehra, *Understanding and Measuring Women's Economic Empowerment: Definition, Framework and Indicators* (Washington, DC: ICRW, 2011).

or reproductive health policy as a proxy for fertility to ascertain the effect of fertility on women's labor market participation.[53] Other studies have exploited natural experiments such as the gradual rollout of a national family planning program.[54]

Then, following the lead of Ashraf and her colleagues, randomized control trials became the preferred method for capturing true causal relationships: for example, the Matlab, Bangladesh, experiment and a study in Nvrongo, Ghana, where there are treatment and control groups, but not randomization.[55] These papers remain widely cited, however, and efforts are underway to generate more evidence on the effect of reproductive health improvements on women's economic empowerment using the randomized control trial method.[56]

MEASUREMENT

Measuring Education

Widely accepted to improve welfare among the poor, education plays a crucial role in achieving national economic growth. Moreover, education—women's education—is a central indicator of their empowerment. The measure of education commonly takes two forms at the individual and household levels: currently enrolled and completed years or level of education. At the community level, the number of dropouts and literacy are common measures. Average years of education is also sometimes used at community levels. Disparities in education between girls and boys are often highlighted as an issue and this indicator speaks to the issue of gender inequality in economic empowerment.[57]

The type of measure of education that is applied in a study depends on the age range of the subjects. An indicator for those currently enrolled is relevant for 7-to-18-year-olds, and dropout rates are relevant for the same age range. These measures capture current participation in formal schooling. The currently enrolled indicator records those who are in school, and the dropout indicator records those who are not currently enrolled in school but are of schooling age. Enrollment is also a "flow" variable: It can change from one year to the next, and each additional year enrolled in school adds to the "stock" of schooling. The "stock" of schooling is measured by completed years of education. This is relevant if age-adjusted for the 7-to-18-year-old age group. However, it can also be used for people over the age of 18 to suggest the stock of schooling that a person attained in his or her lifetime.

Literacy is a measure of the schooling outcome. Literacy can be positively correlated with the quality of education, years in school, and the intelligence of individuals or the quality of informal education within the home. Literacy can be taken as an absolute measure of education, meaning that we can compare the average literacy rates across countries. Years of schooling, on the other hand, is more of a relative measure and five years of formal schooling in one country (or subnational region) may mean a different level of educational attainment (in terms of literacy and numeracy) than in another country. Constraints on data availability and relevance of the research question can determine which measure is most appropriate for the analysis.

Measuring Female Labor Force Participation

Beyond debating what concept of work makes sense in measuring "economic advancement," there is also concern about how to elicit this information from women. Using the ILO as a benchmark, labor force surveys, or surveys that include questions regarding work, typically apply the time-use framework. Women are engaged in activities that take up their time: work, childcare, education, leisure. Surveys are detailed in probing on time use, from the simple (DHS: "Did you work in the past week?") to the detailed time-use surveys that capture all dimensions of women's time allocation to primary, and sometimes secondary, activities. Secondary activities capture women's combining of work and childcare.[58]

Efforts are continuing to unify and improve the measurement of women's work (see Critical Gaps Remain, above).

Measuring Agency

While education and work provide resources for women, the concept of agency enables women to define their goals and act on them. Recall the ICRW definition of women's economic empowerment: "A woman is economically empowered when she has both the ability to succeed and advance economically and the power to make and act on economic decisions."[59] The power to make and act on economic decisions is determined by the women's agency. Measuring agency—power, capability, action—could take a subjective line, but a few dedicated individuals have sought to anchor the measurement of agency.[60]

Preliminary work by Donald et al. aims to conceptualize three key elements of agency: goal setting, ability to achieve goals, and acting on goals.[61] These authors move away from the existing measures of agency which are often captured by variables around decisionmaking assignment in the household, or even proxied for by education levels (which we have also discussed in this report, but in the context of resources rather than agency). Donald et al. examine "the measurement of agency through the lens of how women arrive at different decisions, based on their own preferences and goals, and propose a framework for the constructs needed to measure agency."

To date the most common operationalization of agency is women's participation in household decisionmaking. Peterman and her co-authors explore how decisionmaking rankings are affected by variation in the construction of the indicator and framing.[62] They find no effect of questionnaire framing on the resultant decisionmaking indicators. Finally, they explore the association between decisionmaking indicators and other proxy measures of women's empowerment; they find no strong association between decisionmaking indicators and other proxy measures of agency (education), but they do find that older women have more decisionmaking power.

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