Women’s Reproductive Health and Economic Activity

Jocelyn E. Finlay*\(^a\)

*Department of Global Health and Population, Harvard TH Chan School of Public Health, Boston MA 02115, USA

ABSTRACT

In this paper I review the literature that addresses the connection between women’s reproductive health and women’s economic activity. Women’s reproductive health, gender equality and decent work, are all part of the Sustainable Development Goals. This review highlights how these goals do not stand alone and are interconnected. The review focuses on two main connections. The first is the relationship between fertility and women’s work, where I consider timing, spacing and number of children on the fertility side, and career advancement and job quality on the work side. Secondly, I consider the emerging literature that connects gender-based violence to women’s labor force participation, particularly on the household-bargaining framework that demonstrates that increasing women’s labor force participation can lead to increases in intimate partner violence. Literature from both developed and developing countries are discussed, highlighting that the context of the study matters for external validity and policy development. The discussion section includes suggestions for future research directions. Research in low- and middle-income countries is lacking compared to the evidence generated from high-income countries. In high income countries, policy discussion centers on childcare and maternity leave to better enable women’s labor market participation and career advancement. Broadening the research agenda beyond these enabling factors and targeting underlying social norms the place unequal burden on women for child rearing, would be relevant for both developing and developed countries. (225 words)

Keywords: reproductive health, fertility, gender-based violence, economic activity, women’s labor force participation, women’s economic empowerment.

Introduction

Reproductive health, because of its time intensity, its creation of vulnerability, the sexed assignment of roles, and its perpetuation of gendered norms, connects it to any activity a woman does, including her economic activity. In this review I explore the academic peer review literature to date that analyzes the connection between women’s reproductive health and women’s economic activity. The underlying theories that connect reproductive health and women’s economic activity draw mainly on the developed county context. However, I make

\(^a\) Department of Global Health and Population, Harvard TH Chan School of Public Health, 665 Huntington Avenue, Boston MA 02115, USA. Tel: +1-617-372-7355, Email address: jfinlay@hsph.harvard.edu, jefinlay@gmail.com
efforts in this review to also include literature from developing countries. Among the Sustainable Development Goals (SDGs) are the aims for good reproductive health (SDG 3), gender equality (SDG 5) and decent work for all (SDG 8). This review of the connection between reproductive health and women’s economic activity highlights the interconnected nature of women’s experience in the development process. Achieving the SDG targets in a way that works for women, must account for the competing demands on women’s time and resources, and this review highlights some of these complexities.

Reproductive health, according to the definition by the World Health Organization, implies that people are able to have a 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. Of relevance to women’s economic activity, reproductive health matters including gender-based violence (safe sex life), abortion, contraception, and child marriage (proximate determinants of fertility that are related to enabling fertility decisions), and the timing, spacing and number of children, are all addressed in this review.

Economic activity can be defined through the inputs to production: technology, capital (physical and human), labor, and land. As this review focuses on the connection between reproductive health, per se, and economic activity, the channels work clearly through labor-related economic activity. The connection of reproductive health and technology, capital and land, all relate through labor. Labor is time intensive, as is childbearing and rearing. Thus, the connection between reproductive health and economic activity is through time, and the tradeoff women must make between fertility decision and time-intensive economic activity (labor supply). Gender-based violence also relates to economic activity through labor supply, as addressed in detail in this review.

The neoclassical economic theory that connects fertility and women’s labor force participation emphasizes two main mechanisms.

The first theory is the child quality-quantity trade off, where families (women) demand fewer children in favor of having each one more highly educated. Having fewer children then frees up women’s time and she can increase her labor market participation. In this case, the casual impact flows from declining fertility leading to an increase in women’s labor force participation.

The second theory is the opportunity cost of women’s time as women’s relative wages increase. With increasing female wages, the cost (foregone income) of taking time out of the labor market for childbearing and child rearing increases. The pull to stay in, or enter the labor market intensifies, and increases women’s labor force participation. With the shift in time allocation to the labor market, there is a decrease in the number of children. In this case, the causal flow runs from women’s labor force participation to fertility.

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b Note that in this review, I exclude the elements of reproductive health of “satisfying sex life” and the “capability to reproduce”, where the latter may refer to infecundity. These elements of reproductive have a tenuous connection with economic activity relative (where the choice of childlessness differs from infecundity) to the other elements of safety and fertility.
Each of these causal pathways have been explored at length at the country level, time series across (and within) countries, and at the individual level. I cover this literature in detail in this review, but I find that most of the economics literature focuses on the economic outcome of women’s labor supply, rather than the demographic outcome of fertility. Thus, there is an emphasis in the literature in the effect of fertility on female labor force participation, with the underlying theory of the quality-quantity tradeoff.

With respect to the connection of gender-based violence and women’s economic activity, this academic exploration is nested within household bargaining theory. Women working pose a threat to the male breadwinner gendered role, and this can invoke retaliation in the form of intimate partner violence. A woman’s defense, her bargaining power within the household, to avoid this retaliation varies in its mode across countries depending on the viability of divorce as a credible threat from the woman. I discuss this emerging literature in this review.

Women’s reproductive position, the woman as the child bearer, has shaped gender norms of the primary care giver of the child to be the woman. By this gender norm, her place is within the home bearing and raising children rather than out of the home and working. Gender norms then connect strongly to women’s access to technology (Alesina, Giuliano, & Nunn, 2013), physical capital, human capital, and labor force participation (Field, Pande, Rigol, Schaner, & Moore, 2019; Seema). This highlights that the study of the connection of reproductive health and women’s economic activity, is nested within a broader context of gender norms and economic activity (Boserup, 1970; Duflo, 2012; Nussbaum, 2011; Sen, 1989). However, in this review of reproductive health and economic activity I focus on the direct connection between reproductive health and economic activity, and thus the mediating role of gender norms in explaining the connection between the two is not fully explored in this review.

This review is a narrative review and not a systematic review. I structured the review in terms of themes and inform the themes with literature that I find, primarily on Web of Science and the Harvard University Library and then looking through the bibliography of seminal papers. The focus in on the themes and understanding the themes rather than on counting each article within a theme as would be done in a systematic review. That being said, I have tried to be a comprehensive as possible and included all articles I found related to each theme. The cited texts are predominantly from economic journals, with some important texts coming from sociology and public health. Previous reviews have been conducted, but were limited in their scope compared to this review (Canning & Schultz, 2012; Jocelyn E. Finlay & Lee, 2018)

Before I start with the body of the review, a few clarifying notes are needed with respect to women’s economic activity.

First is a note on education. Fertility and women’s education are strongly related (Ardington, Menendez, & Mutevedzi, 2015; Herrera Almanza & Sahn, 2018). One relationship, there is a direct impact on the age at first birth. Another relationship is that education is a mediator between reproductive health and economic activity. More educated women experience less gender-based violence (Jewkes, 2002), and more educated women have fewer children and better job opportunities (Averett, Argys, Hoffman, Blau, & Winkler, 2017). In most cases, better
education leads to better jobs for women (Rachel Heath & Jayachandran, 2017). Thus while education has a direct effect on women’s employment, and is a mediator between fertility and women’s work, I do not explore this literature in detail in this review as it deviates from the central theories and empirical studies that explore the direct connection between reproductive health and women’s economic activity.

Second is a note on women’s empowerment, or women’s economic empowerment. When I discuss women’s economic activity and women’s labor force participation this should not be interpreted as women’s economic empowerment. The connection from women’s labor force participation to women’s economic empowerment is a complex function (N. Kabeer, Mahmud, & Tasneem, 2018). In some cases, women’s labor force participation is a signal of poverty and the distress sale of labor (Naila Kabeer, 2012). Women’s work may not represent autonomy (S. Anderson & Eswaran, 2009), or be an expression of her capabilities and freedom. Women’s work may in fact be forced as in the case of slave labor, kidnapped sex workers, underpaid or unpaid international domestic workers who lack individual rights to basic freedom. Women may be working for the family unit, but see no returns to her work or skill building for outside employment (S. Anderson & Eswaran, 2009). Women’s labor force participation is a pathway (a necessary condition) for women’s economic empowerment, but it is by no means a sufficient condition to ensure empowerment (Gammage, Joshi, & Rodgers, 2020).

Third, and my last clarifying point, I do not delve into the second order effects of reproductive health and economic activity improvements. There is a large literature on the benefits of enabling women’s economic participation at the macroeconomic level (Doepke & Tertilt, 2019; Mammen & Paxson, 2000), and at the micro (household) level where economic participation may increase a woman’s bargaining power within the household (Field et al., 2019). Similarly, there is a large literature on the welfare benefits of enabling women to take command of their fertility decisions (Balbo, Billari, & Mills, 2013; John Bongaarts & Casterline, 2018). These are all important lines of research that show the broader benefits of reproductive health improvements and the benefits of enabling women’s economic activity. However, this discussion is secondary to the central review of connecting reproductive health and women’s economic activity.

These three clarifying points emphasize the scope of this review is confined to the direct connection between reproductive health and women’s economic activity. The mediating factors (for example education or gender norms) and the second-order effects (positive economic development, increased bargaining power, greater realization of desired fertility, would require separate reviews due to the breadth and complexity of those relationships.

Thus, within this review, I consider the direct connection between reproductive health and women’s economic activity. The review is in two distinct parts. In Part 1, I explore the connection of fertility and women’s economic activity. In Part 2, I explore the connection of gender-based violence and women’s economic activity.

Specifically, in Part 1, exploring the link between fertility and women’s economic activity, I consider studies that address the connection between the number of children and women’s labor
force participation, early childbearing and women’s work, and birth spacing and women’s work. The last topic then leads to the discussion of fertility and career advancement. I include a short discussion of the impact of women’s work on fertility. In Part I, I also discuss in detail the impact of the proximate determinants of fertility on women’s labor market participation. From there I transition to Part II and review the literature that addresses the connection between gender-based violence and women’s economic activity. The paper concludes with a discussion that outlines gaps that still exist in the research on the connection between reproductive health and women’s economic activity.

**Part I: Fertility and women’s economic activity**

In connecting birth rates and economic development (not just women’s economic activity), theories extend back to the Malthusian hypothesis (Malthus, 2013) that states that in times of economic boom birth rates will be high as resources (food) are abundant. In times of economic scarcity, fertility rates will be low as families employ moral restraint as they cannot provide for additional children. This positive relationship between fertility and economic development continued into a post-Malthusian regime where there was considerable technological advancement (Galor & Weil, 1999) but fertility rates continued to increase along with income in that second phase. It was not until the advent of the demographic transition, that declines in mortality triggered declines in fertility, that a negative relationship between fertility and income emerged. This is our modern regime (Galor & Weil, 1999).

Women’s labor force participation, through the arc of economic development, has been empirically characterized by a U-shape (Goldin, 1995). Women’s labor force participation is high in agrarian societies. As economies develop and manufacturing jobs begin to dominate the labor market, women’s labor force participation decreases. Goldin cites two reasons for this decline. One being that manufacturing work is considered to be a man’s job and a woman working in such a job would bring stigma to the husband and household. Second, households practice income sharing, which enables women to rely on her husband’s labor force participation for survival. As the economy develops further, service sector jobs increase. These high skill, low physical effort, jobs are then considered well suited for women, and women’s labor force participation increases from the manufacturing economy state. It is important to mention this seminal model of women’s work, as it has motivated much analysis of women’s labor force participation behavior across countries, and within countries across time.

Based on the Goldin U-Shape of female labor force participation, fertility is neither a cause nor a consequence of the labor market decision. In these models, women’s labor force participation is determined by her wage, the household income (which implies income-sharing within a co-operative household), the stigma her (blue-color) work may invoke for the family. The time spent in childcare is the remainder of her time once the labor supply decision is taken. Thus, while she splits her time between childcare and work, the amount of time she devotes to childcare is the residual of her work decision. In these models, the trade-off for the woman is the
type of work she does, and to work or not. The trade-off is not between her decision for more children or more work.

Models that do connect the fertility and work decisions are well explored, and do not disregard this U-shape in women’s labor force participation across the arc of economic development. However, at the center of these models is the joint fertility and work decision.

There are two theories that connect fertility and women’s work. The child quality-quantity tradeoff provides a theoretical base for the impact of fertility changes (decline) on (increases in) women’s labor force participation. Explaining the reverse causal relationship, rising women’s relative wages, increasing the opportunity cost of an extra child, provides a theoretical explanation for the impact of (increasing) women’s labor force participation on (declining) fertility.

In an a-theoretic approach, using time series data from G7 countries between 1960 and 2006 (Mishra, Nielsen, & Smyth, 2010), these authors find that the long-run Granger causality flows from changes in the total fertility rate to women’s labor force participation. On average, they find that that as the aggregate (country level) fertility rates increases by 1%, this is followed by a decrease in women’s labor force participation by 0.4%. Justifying the use of the time series data, the authors make an interesting (and empirically salient) point that the relationship between fertility and female labor force participation is not likely to be instantaneous, and thus the use of contemporaneous survey data with no time series element will likely miss this dynamic nature of the causal relationship of the impact of fertility on female labor force participation.

Studies of the connection between fertility and women’s labor force participation can be macroeconomic (country level data), microeconomic (household level data), cross-sectional (across units of analysis such as across countries or across household at one time point), or within-unit (country or household) across time. Analysis can be concentrated in developed countries or developing countries. The type of data, and the group of countries, that are the center of a study to find a particular relationship between fertility and women’s economic activity, must be interpreted with caution. For example, drivers of a (surprising) positive relationship between aggregate fertility and women’s work for a group of rich countries across time, may be quite different to the drivers of a positive relationship between fertility and women’s work at the household level in a developing country context. Both formulate an interesting analysis as the positive relationship goes against the theoretical prior of an inverse relationship. But the mechanisms will differ, and thus as with all studies, issues of external validity are also present in our analysis of fertility and women’s economic activity.

**Fertility (Number of Children) and Women’s Work**

Empirical research in the 1970s and 1980s emerged as the observation of the negative correlation between women’s labor force participation and fertility became apparent in the post-war era (Rosenzweig & Wolpin, 1980a), defying the Malthusian hypothesis of a positive relationship between income and fertility (Ahn & Mira, 2002). Identification of the casual impact of fertility
changes on women’s labor force participation was tested using various statistical instruments for fertility such as twins (Rosenzweig & Wolpin, 1980b), sibling-sex composition (Angrist & Evans, 1998), and variations in fertility-related policies (Bloom, Canning, Fink, & Finlay, 2009). Clark (Clarke, 2018) provides a comprehensive review of the literature on the casual impact of a decrease in the number of children on women’s labor force participation.

The explanation for this negative relationship between fertility and women’s labor force participation centered on the child quality-quantity tradeoff as returns to education investment (future wages of children) increased, reducing the demand for the number of children and increasing the education of each child. As women had fewer children to care for, this freed up her time for entry into the labor market. The decline in fertility led to an increase in women’s labor force participation.

This literature emphasized that the number of children in the household was important for a woman’s labor supply decision, as was the age of the child(ren), as children under the age of six were considered more time intensive than those six or older. This literature was not concerned with the maternal age at first birth, and birth intervals, and the impact of these elements of fertility on women’s labor force participation decisions. I will come to these literature shortly.

Following this research on the negative causal impact of fertility on women’s labor force participation, came the observation in cross-country studies of a reversal of the correlation between fertility and women’s labor force participation in developed countries. Fertility and women’s work were now positively correlated. The switch occurred in the mid-1980s (Ahn & Mira, 2002), and was possibly attributable to technological change and a skilled premium decreasing the relative cost of (unskilled) childcare (Martinez & Iza, 2004), thus both fertility and women’s labor force participation could increase. This positive correlation was later questioned and it was suggested that at best the negative correlation between fertility and women’s labor force participation had weakened (Kogel, 2004). More recently, others observed that there is evidence of a mirrored-J shape in the association of fertility and the human development index (a broader measure of development than gross domestic product) (Myrskyla, Kohler, & Billari, 2009), explaining the positive relation for the most developed countries. But these results may have been over stated according to a more nuanced analysis of the components of the human development index (Harttgen & Vollmer, 2014), leaving the question of the possible positive relationship between fertility and women’s work at high levels of economic development open for ongoing research.

It seems important to know whether policies in developed countries to increase fertility and other policies to promote gender equality and women’s equal participation in the labor market are effective. In which case we should observe at very high levels of economic development, where the observed fertility rate is close to or below replacement, both fertility and female labor force participation are increasing. Indeed, in a recent paper (Oshio, 2019) the author is able to use the methods of Kogel (Kogel, 2004) but have the benefit of time on their side and extend the dataset to 2017 (contrasting to Kogel’s 2000 upper bound). With the addition of the 17 years, over which a number of developed countries became increasingly concerned with both low fertility and labor market gender discrimination, Oshio (Oshio, 2019) finds that there is a positive relationship
between fertility and female labor force participation for the 24 OECD countries. To add to this ongoing discussion however, there is evidence that in the US case that women are having fewer children and working less than their US counterparts at the end of the baby boom (Vere, 2007). Thus, while in this US case the correlation is still positive, the decrease in both fertility and female labor supply are in opposition to the policies that are designed to promote, increase, fertility and female labor force participation.

Vere’s (Vere, 2007) paper highlights that context matters, and the social policies in the US may not have been sufficiently effective to promote fertility and female labor force participation, as they could have been in other OECD countries. These papers further highlight that context matters, as the discussion of the positive correlation centers on responses to policies in developed countries where fertility rates are close to or below replacement. In these OECD countries, with functioning governments, policies have traction. However, in developing countries where the informal sector dominates, national policies to protect and promote women’s labor force participation will have a lesser impact on the national average.

The concerns and motivations for women and work in developing countries differ from those of women in the developed country context. Mammen and Paxson consider women’s work across the arc of economic development (Mammen & Paxson, 2000) and point out that the barriers women in developed countries face within the labor market—gender wage gaps, glass ceilings—are of little relevance to women in developing countries where the majority work in the informal sector, for family members, and often unpaid. Women in developing countries, have limited access to credit, are limited in their ability to accumulate assets (including through paid work) and face discrimination with regard to inheritance laws. Thus, context matters for women navigating fertility and work decisions, and policies that are relevant for developing countries.

In the developing country context, studies have emerged that demonstrate the impact of fertility changes on women’s labor force participation. Using examples from developing countries, studies have shown that there is a negative casual impact of the number of children on women’s labor force participation in Latin America (Cruces & Galiani, 2007), Turkey (Gunduz-Hosgor & Smits, 2008) and Bangladesh (Joshi & Schultz, 2012). Using a pooled sample from sub-Saharan African countries, de Jong et al (de Jong, Smits, & Longwe, 2017) found that the number of children below age six had a significant negative effect on the woman's ability to work in the non-farm sector; it reduces the odds of employment of African mothers by 6%. Aguero and Marks (Aguero & Marks, 2008) found that the number of children does not change a woman’s intensity to work, but does change they type of work a woman does, as Caceres-Delpiano (Caceres-Delpiano, 2012) also found. These studies in developing countries highlight that the type of work a woman does, not just if she works or not, is an important examination.

Early Childbearing and Women’s Work

Turning now to the research on early childbearing and women’s labor market opportunities, this has been studied in the US context (Geronimus & Korenman, 1992; Ribar, 1999). Concern rose in the 1970s as US teen pregnancy was markedly higher than in other developed countries.
(Kearney & Levine, 2012). Intersections with welfare dependency were mixed into this discussion (Moffitt, 1983).

In a seminal study, Goldin (Goldin & Katz, 2002) found that the introduction of the pill in the United States in the 1970s gave young women the opportunity to reliably complete college education. This encouraged young women to take on the challenge of studies for careers with higher income returns (medicine, law). The result of increased college completion by women was a delay in the age of marriage and first birth. As noted in a previous review (Jocelyn E. Finlay & Lee, 2018), this change benefitted women if two conditions were met: first, the time gained when delaying marriage was used to invest in one’s human capital (education), and/or second, social norms progressed in unison with women’s increased opportunities for education and career such that men in the marriage market also came to value women’s higher lifetime earnings. In the case of Malawi, a few years later (Baird, Chirwa, McIntosh, & Özler, 2015) the importance of these conditions played out in a developing country context. There, in Malawi, women were incentivized to delay marriage and first birth, but the study findings revealed that the time gained was not always used for capital investment (for example, education). Moreover, for the women who did increase their education, the men did not adjust their preference for women with higher lifetime earning capacity, but rather still preferred homemaker partners without regarding the importance education in this role.

In the developing country context, child marriage and/or early childbearing are arising in the context of the lack of viable employment opportunities for young women. For these young women, the relationship between early marriage, childbearing, and limited economic opportunity comes from many channels: lack of parent’s investment in girls’ education as parents see low returns (that is, low future wages for their daughters) (Chakravarty, 2018), teens seek subsistence survival through marriage as other opportunities are unavailable in their view (Stark, 2018), and teen pregnancy can cause school drop-out and early marriage (Menon, Kusanthan, Mwaba, Juanola, & Kok, 2018), lack of contraception can also lead to teen pregnancy and school dropout (A. R. Miller, 2011), and then higher rates of employment in the informal sector (Herrera, Sahn, & Villa, 2019). These trade-offs in the adolescent years then have life cycle consequences (Hotz, McElroy, & Sanders, 2005) and limit a woman in her labor market outcomes across her life course.

**Birth Intervals and Women’s Work**

So far, I have discussed how the number of children and age at first birth relate to women’s work. In addition, birth intervals relate to women’s work outcomes. In the US context, Gough (Gough, 2017) outlined how there is a motherhood penalty across the reproductive life-course for women, and that short birth intervals or early childbearing that cut short education for women and limit her life course labor market opportunities.
Fertility and Career Advancement

In the previous three sections I focused on the impact of the number of children, early childbearing, and birth intervals on women’s labor force participation. With a few comments on the type of work, but mostly focusing on the elements of fertility and its impact on women’s work in general. I now turn to consider how childbearing impacts the nuances of work for women. In consideration of the nuances of work, research often takes the life cycle approach and addresses the impact of fertility on career advancement, which then leads to questions of job quality and wage inequalities.

We left off from Gough’s work on birth intervals (Gough, 2017) in the previous section, and I will pick it up here again as she addresses the issue of career advancement. In that paper, Gough considers not only the timing of the first birth, but critically the timing (birth interval) to the second birth, and how these fertility elements impact women’s labor market outcomes across her life course. Noting the policy context of the US, which has less favorable maternity leave and childcare subsidies than other OECD countries, Gough cites that the labor force participation of new mothers is high in the US (62% of US women with a birth in the last year were in the labor force). Citing a number of studies across OECD countries (D. J. Anderson, M. Binder, & K. Krause, 2003; Deborah J. Anderson, Melissa Binder, & Kate Krause, 2003; Blackburn, Bloom, & Neumark, 1993; Budig & England, 2001; Noonan & Corcoran, 2004; Stone & Lovejoy, 2004; Troske & Voicu, 2013; J. Waldfogel, 1997), Gough formulates a testable hypothesis regarding the human capital theory that emphasizes the importance of minimizing the time out of the labor market, to avoid human capital depreciation, skill depreciation, productivity declines, and wage cuts.

Gough tests whether the motherhood penalty is lower when birth intervals are longer, secondly whether the age at first birth has an impact on the motherhood penalty, and thirdly if college education moderates the impact of timing and spacing on the motherhood penalty. Gough finds evidence for these hypotheses using data from the US and finds that the age at first birth (above 30 years old) mitigates the motherhood penalty more so than longer birth intervals. This works through the human capital accumulation theory, and Gough finds that women with higher education suffer a lesser motherhood penalty. Although Hotchkiss (Hotchkiss, Pitts, & Walker, 2017) finds the opposite in the case of Georgia, USA, where high school graduates suffer about half the motherhood penalty college graduates experience.

The human capital theory is supported in Gough’s US data, rather than the competing theory of selection that predicts that women who are currently in a career slump with stagnating wages choose to have children – the career penalty causing childbearing (Killewald & Gough, 2013). Although it should be noted that others have found some evidence of this selection effect (Lundberg & Rose, 2000).

In another study using data from Germany, Adda et al (Adda, Dustmann, & Stevens, 2017) decompose the effects of skill loss, earnings loss, and lower accumulation of experience on women’s career development with interruptions due to childbearing. In this model, occupational choice and movement across sectors and positions, is central to the analysis. Because of the
inclusion of occupational choice, the authors show that in the German context that selection into different careers occurs well before the birth of the first child. Further, the authors highlight that pro-natalist policies will impact women’s occupational type well before their fertility decision are made. Different occupations are more compatible with childrearing, and women will select into these occupations well before they make any actionable fertility decisions, with the intention of building a family in the future. These occupations are more flexible and lower paid, and thus the motherhood penalty is taken even before the woman is pregnant.

In yet another study, this time in the context of Sweden, (Albrecht, Edin, Sundström, & Vroman, 1999), where both men and women are legally permitted time out of work for parental leave, but where women still hold the gendered norm of childrearing. Men are penalized for their exit from the labor force, over and above the human capital depletion explanation, and more than women are penalized. The authors argue that this is suggestive evidence of a signaling penalty, and that men who choose to use their paternity leave are not as committed to their gendered role of career-making as those men who do not take paternity leave (when they are permitted). Employers penalize these men for selecting into the group who signal their secondary commitment to the labor market.

These papers raise central issues that are explored within this literature on fertility and career advancement. Informed by lifecycle models (Attanasio, Low, & Sánchez-Marcos, 2008; Goldin & Mitchell, 2017) the human capital effect from decreasing or exiting the workforce even temporarily (Datta Gupta & Smith, 2002), the selection effect prior to family formation or the downgrading of job-type after the birth of the child (Adda et al., 2017; Blazquez Cuesta & Moral Carcedo, 2014). Inequality within the household in terms of time spent not only childrearing but unpaid household production of cooking and cleaning (Juhn & McCue, 2017), and inequality in the labor market of gender wage gaps that may be attributable to the motherhood penalty (Baum, 2002; Caucutt, Guner, & Knowles, 2002; Eckstein & Lifshitz, 2011; Heckman, Lochner, & Taber, 1998; Juhn & McCue, 2017; Leibowitz & Klerman, 1995; Mincer & Ofek, 1982; Siegel, 2017; J. Waldfogel, 1997; Jane Waldfogel, 1998; Wilde, Batchelder, & Ellwood, 2010). Policies to improve access to, or make more affordable, childcare, are central to the issue of enabling women to work and have children and to lessen the motherhood penalty (D. M. Blau & Robins, 1989; David M. Blau & Robins, 1991; Connelly, 1992; Fehr & Ujhelyiova, 2013; Furtado & Hock, 2008; Hardoy & Schöne, 2015).

These issues hold salience within the developed country context, and indeed all of the studies are within OECD countries that have functioning welfare states. For women in developing countries, issues of job quality come to the fore. While this is well incorporated within the research on developed countries and career progression, there the discussion centers on human capital loss/returns and selection. Whereas, in developing countries the discussion centers largely on the Sustainable Development Goals framing of decent work – job quality.

Formal childcare is not a reality for most women in developing countries (Clark, Kabiru, Laszlo, & Muthuri, 2019; Wong & Levine, 1992), relying instead on informal, or maybe more accurate to say impromptu, childcare. Other women in the household, or neighbors, may share the responsibility of caring for children. This enables women in developing countries to be
economically active, but the informality of the childcare contributes to her labor force options and plays a role in pushing her into the informal labor market (Quisumbing, Hallman, & Ruel, 2007). Across six low- and middle-income countries (across three continents), at the macro level it was found that declines in fertility did not immediately translate to higher female labor force participation. Although women had fewer children on average, they still had some children, and the lack of formal childcare and family friendly policies, may contribute for this observed lag in emerging economies (Gammage, Sultana, & Glinski, 2020).

Indeed, it is not always the case that women are pushed into the informal sector. Upon childbearing, for many developing countries, the size and composition of the formal labor market may be so limited, that opportunities in the formal sector are few – with or without children. Furthermore, women may select into the informal sector, where they believe they can more easily combine childcare and economic activity, as was found in the case of a study in Indonesia (Radhakrishnan, 2010). However, with this flexibility comes vulnerability, as women – and ultimately their children – are not protected with social policies for job stability, healthcare, and other tax-breaks (Gammage, Sultana, et al., 2020).

The impact of women’s economic activity on fertility

To this point in this paper, I have analyzed the impact of the number – or changes in the number, timing and spacing – of children on women’s economic activity. Following the theoretical base of the quality-quantity trade off, where families are incentive to have fewer children in the wake of rising returns to human capital and invest more in each child. The reduction in the number of children then frees up women’s time (as the primary caregiver) to consider her labor market participation. Indeed, there is a large body of evidence to suggest that changes in fertility causally affect changes in women’s labor force participation.

However, there is a competing explanation for the connection between fertility and women’s economic activity. That is, that changes in women’s labor force participation causally affect fertility. Indeed, in a macroeconomic analysis it was found that the causal direction can move either to or from women’s labor force participation, from or to fertility (Engelhardt, Kogel, & Prskawetz, 2004).

Becker highlighted the rising opportunity cost of childbearing for women in response to woman’s rising wages that encouraged women’s labor market participation (Becker, 1991). It was the rising female wage, the increase in women’s labor force participation, that then led to the decline in fertility.

This then digs up an old literature on the economics of fertility (Davis & Blake, 1956; Easterlin, 1975; Leibenstein, 1974; Schultz, 1973). The (economic) analyses of fertility, has shown wealth signaling (Ferrara, Chong, & Duryea, 2012) and wealth effects on fertility (Lovenheim & Mumford, 2013). In demography and public health, the effect of women’s work on fertility outcomes has been explored in the case of Ghana (Dodoo et al., 2019), Tanzania (Westeneng & D’Exelle, 2015), and Nigeria (Odutolu, Adedimeji, Odutolu, Baruwa, & Olatidoye, 2003). In a
meta-analysis, Matysiak (Matysiak & Vignoli, 2008) bring together some papers on women’s work and fertility, but on examination the cited papers these authors do not focus on the causal link from women’s employment to fertility.

Despite the strength of the underlying theory of the causal direction from changes in female labor force participation to fertility, analysis of this theory has attracted less attention in the economic literature.

Abortion, Contraception and Marriage and Women’s Economic Activity

In addressing the timing, spacing and number of children as a component of reproductive health, I have thus far focused on the connection between fertility and women’s economic activity. However, there is a literature on fertility control – abortion, contraception and marriage – and its direct link to women’s economic activity.

Fertility itself has both proximate and social determinants (J. Bongaarts, 1978, 2015). Abortion, contraception and marriage are among the proximate determinants of fertility (J. Bongaarts, 1978). Abortion and contraception have a first order effect on the occurrence of a birth. Marriage is a proxy for exposure to sexual activity, which is a (sufficient) requirement for the probability of conception.

Education and wealth, among the principal social determinants, are mediators when studying the impact of fertility on women’s economic activity. Higher education, and higher household wealth, are associated with both lower fertility and higher women’s labor force participation and other economic activity (entrepreneurship and capital utilization, technological utilization). Back in the introduction, I explained that I would not address these mediators within this review.

The proximate determinants of fertility -- abortion, contraception, sexual exposure (marriage/union), breastfeeding and postpartum abstinence – determine fertility. It can be argued, as Bloom et al did when using abortion laws as the instrumental variable for fertility to estimate the casual impact of fertility on female labor force participation (Bloom et al., 2009), that the proximate determinants impact fertility, and the only way these factors impact labor force participation is through the fertility channel.

For access to abortion Kalist (Kalisk, 2004) found that prior to Roe v. Wade women, especially single black women, had favorable labor market outcomes compared to those women in restrictive states. A result that was confirmed by Myers (Myers, 2017) who shows that access to abortion enabled the reproductive control needed for women to plan their labor market aspirations.

Fertility control enabling career aspirations is central to the Goldin and Katz paper on the power of the pill (Goldin & Katz, 2002). These authors show that when women had access to reliable contraception, they were able to aspire to college completion that led to more challenging careers in the likes of medicine and law. This result was particularly robust for young women in the US from birth cohorts up to 1960 as shown by Goldin (Goldin & Katz, 2002).
Bailey uses US state variation in prescription drug consent laws, which included consent for the contraceptive pill, and finds that women in states with legal access to the pill before the age of 21 reduced the likelihood of first birth before the age of 22, increased the number of women in the formal labor market, and increased the annual hours worked by these women. Bailey’s (Martha J. Bailey, Hershbein, & Miller, 2012) research continued with these data, and showed that women who had access to the contraceptive pill at a younger age had higher wages across their life course. Furthering this research again, Bailey (M. J. Bailey, 2013) found that the benefits of access to contraception at younger ages had beneficial intergenerational effects, and the children of these women, who had increased access to contraception thanks to family planning programs from 1964-1973, go on to have higher college completion rates, higher labor force participation, higher wages and higher family incomes.

In contrast, however, it should be noted that there has been recent mixed evidence of the impact of contraception on education attainment among more recent cohorts (1975) in the US (Eckstein, Keane, & Lifshitz, 2019).

The hypothesis that enabling control over fertility, particularly for school age and college age women, has invited much deep empirical analysis. In the case of Columbia, Miller (G. Miller, 2010) finds that increased access to affordable contraception through the nationwide family planning organization of Profamilia, contributed less than 10% of the explanation for the fertility decline that occurred during Columbia’s demographic transition. However, the important impact of Profamilia was had for young women who could now postpone first birth, thanks to the access to affordable contraception. This postponement in the first birth then enabled young women in Columbia to complete their education, and to go on to better paying jobs. While the Profamilia program had little impact on the number of children (thus little contribution to the demographic transition), it did have important welfare effects for young women to reliably control the timing of their first birth and complete their education.

Before we conclude that access to contraception, especially for adolescents to enable them to reliably complete their education, is the panacea to women’s empowerment, it is worth recalling findings from Malawi that were previously discussed. Goldin (Goldin & Katz, 2002) provides two conditions that are required for the delay in childbearing (due to access to contraception) to be beneficial to women. The first is that the gained time from the delay in childbearing is used for (human) capital investment. The second is that social norms move in unison with individual capabilities, and women’s choice to delay marriage and increase education attainment is appreciated by society (and future husbands). In the case of Malawi (Baird et al., 2015), neither of these conditions were fully met, and women ended up with lower welfare outcomes in the medium-term. Again, these conflicting findings across continents and time highlight that policy implementation based on research results should be contextually specific.

Part II: Gender-based violence and women’s labor market participation

One of the most common forms of violence that a woman can experience is that performed by her husband or intimate partner. This stands in contrast to the violence men experience, where in
his case his attacker is more likely to be a stranger or acquaintance (Krug, Dahlberg, Mercy, Zwi, & Lozano, 2002). Around the world, between 10% and 69% of a country’s female population report having been physically assaulted by their male intimate partner at some point in their lives (Krug et al., 2002). Physical and sexual intimate partner violence is “any behavior within an intimate relationship that causes physical or sexual harm to those in the relationship...[including]: acts of physical aggression – such as slapping, hitting, kicking or beating; and/or, forced intercourse and other forms of sexual coercion.” (Krug et al., 2002). Intimate partner violence is between intimate partners and is a type of gender-based violence. Where gender-based violence is an overarching definition of violence that is based on unequal gender-based power relations within the family or community. Violence is frequently used to result a crisis of male identity (Jewkes, 2002).

With respect to the connection of gender-based violence and women’s economic activity, this is nested within household bargaining theory (Eswaran & Malhotra, 2011). Women working pose a threat to the male breadwinner’s gendered role, and this can invoke retaliation in the form of intimate partner violence (Akerlof & Kranton, 2000). A woman’s defense, her bargaining power within the household, to avoid this retaliation varies in its mode across countries depending on the viability of divorce as a credible threat from the woman (S. Anderson & Eswaran, 2009).

Women face gender-based violence from many directions if they participate in the labor market. The commute to work can be fraught with the threat of gender-based violence (Dunckel-Graglia, 2013). Once at work, the woman is subject to workplace sexual harassment (Hersch, 2011; McLaughlin, Uggen, & Blackstone, 2017; Weziak-Bialowolska, Bialowolski, & McNeely, 2020). Then at home, the woman faces the threat of retaliation in the form of intimate partner violence as women’s participation in the labor market is a move against gender norms (of woman in the home), and this threatens the man’s masculine role as breadwinner (Akerlof & Kranton, 2000; Macmillan & Gartner, 1999).

A recent review covers the public health and sociology literature (MacGregor, Oliver, MacQuarrie, & Wathen) and highlights that the research connecting intimate partner violence and women’s work has proliferated since 2010. The authors of this review note that there is a lack of research regarding the male perpetrator, as was also noted and documented at length by Baez and Stern (Baaz & Stern, 2013).

Commuting to work, especially on public transport, has been identified as a problem within many countries, and has led to the increase in the number of female-only train carriages during work-commute hours in Japan, for example, and in Mexico (Dunckel-Graglia, 2013).

At work, sexual harassment can cause disruption to a woman’s career progression as she leaves her job to escape the harassing situation (McLaughlin et al., 2017). This is also true within the developing country context (Weziak-Bialowolska et al., 2020).

Within the home, there are three theories from the sociology literature with respect to resources and retaliation (Atkinson, Greenstein, & Lang, 2005). The first theory leans on the idea that violence is a resource along with material resources, and men with more material resources are less likely to use violence. According to Goode (Goode, 1971) “husband’s command force”
within the household, and men with more material wealth need to rely on violence less to ensure obedience within the household. While there are some sociological studies that provide evidence for this absolute resource theory, Atkinson et al (Atkinson et al., 2005) find no support in their data for this theory.

The second theory relating resources and retaliation examines relative resources. That is the resources of the woman (wife) relative to the man (husband). According to this theory, men want to have (resource) superiority over their wives, and in the event that women earn more than men (or hold more property), then men will use violence against women to compensate for the lower relative wealth. Men recoup power (resources) with violence. This theory is discussed in detail by Anderson (K. L. Anderson, 1997), who also includes status as well as wealth and violence in the additive equation of resources.

The third theory outlined by Atkinson (Atkinson et al., 2005) builds on the relative resource theory, and incorporates gender identity and gender ideology. While outlined in the sociology context in Atkinson (Atkinson et al., 2005) the relative position of men and women in the household, and assignment of men and women to gender-appropriate activities, is the foundation of Akerlof’s (Akerlof & Kranton, 2000) economic theory. By incorporating the idea that each man may have a different gender ideology on what it means to be male, this enables men to create their own benchmark for the relative resource threshold. Rather than the binary outcome of women having more resources relative to men, or not, invoking violence, adding the nuance of gender ideology means that for some men certain types of work, or certain resources, may be permissible, while others not. Note that this benchmarking is set by the man, the “first mover” in the game theory model as in Akerlof (Akerlof & Kranton, 2000).

Atkinson (Atkinson et al., 2005) tests all three theories and finds greatest support for the gendered ideology theory. Atkinson’s results provide important clarifications to potential stereotypes of violent behavior. The poor are not systematically violence compared to the rich (that is, no support for the absolute resource theory). There is only weak support for the relative resource theory, such that it is not that case that all men who have less wealth relative to their wives will be violence perpetrators. It is the moderating factor of gender ideology that enables a clearer interpretation of the relative resource theory. Men who strictly conform to gender norms regarding activities (men as the breadwinner, woman at home) will be more likely to react according to the relative resource theory than men who adopt an egalitarian gender ideology.

There are an increasing number of studies that explore the empirical reality of the connection between intimate partner violence and women’s labor force participation. A study in Turkey found that increasing girls’ education, improved women’s labor market outcomes, but led to an increase in psychological intimate partner violence and financial controlling behavior (Erten & Keskin, 2018). Women in Jordan experienced an increase in intimate partner violence on entering the labor force according Lenze (Lenze & Klasen, 2017).

For women in Bangladesh, especially those who start with low bargaining power, entering the labor force was considered a threat for their husbands and increased the likelihood of intimate partner violence (R. Heath, 2014), and such results were reiterated in a qualitative study soon
after (Naved, Rahman, Willan, Jewkes, & Gibbs, 2018). Although Schuler (Schuler & Nazneen, 2018) finds that overall increases in women’s agency and empowerment in Bangladesh may have contributed to a decline in intimate partner violence, others have found that some sub-groups of women in Bangladesh remain highly vulnerable to intimate partner violence despite their supposed relative empowered status (Sanawar, Islam, Majumder, & Misu, 2019). Intersectionality of women’s age, years of marriage, childlessness, number of male children, and education status, combined in ways to reveal more or less vulnerable sub-groups (Sanawar et al., 2019).

In the case of India, Krishnan (Krishnan et al., 2010) found evidence of heightened risk of intimate partner violence for women who entered work, and also from men who transitioned jobs. In this case in India, the vulnerability of the man triggered the violence rather than the threat posed by women’s labor market participation. Other studies have shown that it is not only women’s work in India invoked intimate partner violence, but also property ownership (Bhattacharyya, Bedi, & Chhachhi, 2011; Panda & Agarwal, 2005).

Evidence from Ecuador in Latin America and Ghana (Oduro, Deere, & Catanzarite, 2015; Tenkorang, 2018) and Tanzania (Vyas, Mbambo, & Heise, 2015) in sub-Saharan Africa, suggest that women’s work decreases the risk of intimate partner violence. For these women entering the workforce was not the threat to their male partners. However, for women with relatively higher income (compared to their husbands), in one study in Tanzania these women had an increased risk of intimate partner violence (Abramsky et al., 2019). Thus, it was not the act of working that triggered the violence, but rather the relative power women held in terms of relative resources. This highlights the role of gendered ideologies and how this may differ across the continents. Women may be expected to work in some cultures, as was discussed in Boserup (Boserup, 1970) with respect to some agrarian sub-Saharan African communities.

Comparing these few studies across continents we see that women’s work does not trigger violence in all cultural contexts, as Vyas (Vyas & Watts, 2009) also found in their review, as did Leite (Leite et al., 2019). In the review by Vyas (Vyas & Watts, 2009), they found that for programs that were designed to empower women, women implemented their own strategies to reduce conflict within the household. For example, women gave money to their partners for alcohol or cigarettes. Complementing Vyas’s conclusion, Leite also comments that women’s empowerment programs needed to be complemented with programs that enabled women to navigate the changing risk of intimate partner violence (Leite et al., 2019).

Here I have discussed gender-based violence and women’s work in terms the commute, workplace sexual harassment and intimate partner violence. However, even more grave situations exist in the context of gender-based violence and women’s labor force participation when considering topics such as prostitution, transactional sex, sex-slavery, and human trafficking (Cho, Dreher, & Neumayer, 2013). Add to this list of gender based, sexual, exploitation the use of child brides as forced labor units in lieu of dowries.
Discussion

Women face limits on their time, and gender roles place the burden of childbearing and child rearing on them. Women face barriers of career progression and achieving decent work as their careers are interrupted for childbearing. Women face extreme discrimination, violence, when they do work or try to advance economically. Work is not empowering for so many women, yet it is necessary for survival of herself and her children. Enabling women to work, enabling work to be empowering, enabling women to enjoy the balance of children and work, is the driving goal that is underscored in all the research included in this review.

The connection between fertility and women’s work for the very rich countries remains fuzzy. I believe this lack of clarity and mixed results is in part due to the asymptotic nature of the data, particularly fertility as it asymptotes rates just below replacement. However, in gathering the literature together it does seem that to better understand the role of policy in increasing both fertility and women’s labor market participation, we need to look beyond childcare as an enabling factor.

Childcare is a step forward but does not provide a comprehensive solution to enabling women to have children and participate meaningfully in the labor market. Childcare services and schools are open for limited hours (and days), nannies are rightfully protected by labor laws that limit the regular working week to 40 hours. Children are regularly sick, all public holidays are honored, and teacher training/conferences ensure regular days off from school. The commute for children, in addition to the work commute for the parents, provides an added time constraint. Pick up at 2:50pm is not permissible of a regular working day. Childcare and school are nice to have, but the real constraint on women’s time remains as they are typically the default primary parent.

Gender norms assign women as the primary caregiver. Gender wage gaps decide for the couple that the male breadwinner’s job should be protected over the lesser-paid women’s job. Fevers, holidays, vacation weeks, summer weeks with no camp, consume the woman’s time. Her ability to commit to a decent job is compromised. Offsite trainings, a flurry of ideas with colleagues at 5pm, conferences, work related travel, relocation for better work opportunities, overnight emergency call-outs, all verge on impossible for the primary caregiver, the woman, and limit the possibilities of her meaningful labor market participation and engaging in decent work. External childcare does not provide women with the reasonable flexibility that is needed to succeed in the workforce.

Policies that promote gender equality within the home in child rearing would enable women to participate in family and work life in a more balanced way. Policies in Sweden that enable paternity leave are a step towards this, but entrenched gender norms make it difficult for the policy to enact its full potential. An untouched topic in field of fertility and women’s work is the role of increasing social isolation that heightens the pressure on the nuclear family to provide all the care for raising children. Gone are the days when children play on the streets, drift between their friends’ houses, and are home only for dinner. The intensity of care, coupled with the decline in the number of carers due to social isolation, only increases the demand on women’s time caring for children. This taps broader policy issues that not solved by spilling children out
onto the streets once more. They interconnect with larger social issues of specialization and relocation for job opportunities, commute times, and public safety. In all of this, we hear too little on the role of fathers, and how important they are in having a role in raising their own children.

There is also a lack of research that focuses on low-income countries, where fertility rates remain higher than those in high income countries, and informal labor market participation dominates. Studies that do focus on developing countries need to reconsider the underlying theoretical drivers of the connection between fertility and women’s work. Labor force behavior in agrarian societies vastly differs from counties dominated by the service sector, yet in both contexts women’s labor force participation is high. Why it is high, and how women’s labor participation responds to an extra child will differ in both contexts. In agrarian societies, poverty may enforce a distress sale of labor. Income sharing is not practiced in all cultures (Boserup, 1970). Women may have financial responsibility for all variable costs within the household; the costs for food, clothing, education, health is borne by the woman (Jocelyn E Finlay, Ef evbera, Ndikubagenzi, Karra, & Canning, 2018). The costs associated with extra children will be the woman’s responsibility, and the flexibility to reduce labor supply thanks income sharing as explained by Goldin’s U-shaped model is not practicable in many places across sub-Saharan Africa.

Informal institution rule across many low-income countries, and formal labor market participation and formal childcare are replaced with an informal labor market opportunity and informal childcare. The role of other women in the household, older siblings or aunts, may be a greater enabling factor for women in these settings to earn income. Combining child rearing and informal work may be possible with careful family planning and ensuring that there is only one child under five or six in the house at a time. Research in these avenues in explaining the high labor force participation and high fertility in agrarian, or low-income countries, is an underexplored line of research.

The violence women face due to their interaction with the labor market is astounding. The commute to work, workplace sexual harassment, and once home working women are vulnerable to intimate partner violence. Again, studies that address the role of men and the nuances of their motivations and behavior are lacking.

Empowering women in their right to work, and enabling women to balance child rearing with work, centers too heavily on childcare as the silver bullet. Lifting gender discrimination, balancing gender norms, are so much harder, but these should be among the policy avenues that enable decent work for women as they also achieve their desired family size.

This review was of the connection between women’s reproductive health and women’s economic activity, the major gap that emerges is the consideration of the role of men in the family unit. In developed countries, policies of childcare center on freeing women’s time, ignoring the role or potential role fathers can take in the household. In developing countries, research that addresses the violence women face due to their labor market participation does not fully explore the gradient of men’s attitudes and behaviors. As the research has addressed fertility elements (number, timing and spacing of children); work elements (informal and formal sector and career
advancement); our understanding of the connection between reproductive health and women’s economic activity would be improved by a more detailed understanding of the other member of the household beyond the women and children – the man. (9675 words)
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