

Menstrual Mismanagement: An Economic Synthesis of Period Poverty and its Overlapping Facets in Low- and Middle-Income Countries

Bridget Bartley – POV 423 – Professor Art Goldsmith

I. Introduction

According to a Kulczyk Foundation report, half the world's population—over 1.9 billion individuals—go through menstruation about every month. 500 million of those individuals are estimated to live with inadequate menstrual management and hygiene provisions (“A Bloody Problem”). *Global Citizen* defines period poverty as “the lack of access to sanitary products, menstrual hygiene education, toilets, hand washing facilities, and/or waste management” (Sánchez & Rodriguez 2019). The issues surrounding period poverty hinder society from attaining the UN goals of achieving gender equality and of providing everyone access to safe water & sanitation. Supplying safe and suitable menstruation management provisions is essential to eradicating extreme poverty across the world (Rodriguez 2021). In an interview with *Forbes*, gynecologist Dr. Shree Datta claimed, “The evidence suggests that menstrual health impacts on women's health, education, work and wellbeing (Broster 2020). Solving the problems posed by period poverty is key to supporting women and young girls.

Existing literature splits experiences of menstrual poverty across hardware and software deprivation lines. Hardware period poverty, or physical/material, deprivation consists of the lack of sanitary absorbents or of suitable Water, Sanitation, and Hygiene (WASH) facilities (Hennegan & Montgomery 2016). Material deprivation is experienced by girls all across the globe—residents of both the developed and developing worlds—because of highly taxed and highly priced absorbents and inadequate facilities. Software period poverty, or psychosocial/knowledge deprivation, consists of the lack of adequate education and preparation knowledge on menstruation (Hennegan & Montgomery 2016). This facet of menstrual poverty is experienced more often in low- and middle-income countries than in the developed world.

This paper will focus on both facets of period poverty specifically in low- and middle-income countries. It will begin with a theory-based economic modeling analysis which examines externalities and the current marginal costs and marginal benefits of menstrual health provisions. Once the theory is explained, the analysis will attempt to assign example-based values to the efficient level of menstrual health provisions and the price associated with achieving such an efficient level. As opposed to keeping the experiences of each facet of menstrual poverty separate, I will then synthesize any overlaps that exist between the hardware and software facets of period poverty. This analysis will be completed in an attempt to guide policy toward an efficient starting place. The theory-based answers provide a surface level look at what should be done. The examination of what goes into a high menstrual health status will depict a more detailed image of what period poverty alleviation strategies could look like. If one facet of menstrual poverty accentuates the other with greater power, it may be a good idea to guide policy toward the catalyzing facet first. However, I hypothesize that they will both heighten the impacts of each other—they are contingent upon one another—and policy should be urgently pointed towards alleviating both facets of period poverty to move forward towards a society without extreme poverty.

II. Literature Review

a. Hardware Period Poverty

Much has already been written about both of these separate facets of period poverty. Many papers provide useful definitions of the hardware facet of period poverty. In their 2017 analysis of period poverty alleviation intervention effectiveness, Hennegan & Montgomery coined material deprivation as the lack of access to absorbents or adequate water, sanitation, and

hygiene (WASH) facilities (Hennegan & Montgomery 2017). This definition is expanded upon by Crichton et al. (2013) to include lack of privacy and lack of accessible disposal facilities. This deprivation is experienced by girls and women across a number of low- and middle-income countries.

In 2017, Girod et al. examined the existing differences in hardware accessibility among public and private schoolgirls in Nairobi, Kenya. They report a malfunctioning public school supply chain of pad provision and no pad provision at all in private schools (Girod et al. 2017). Though sanitation facilities were provided in both public and private schools, they were shared amongst hundreds of other students and did not accommodate the water accessibility needs of the schools adequately (Girod et al. 2017). Across numerous low- and middle-income countries, the situation is quite similar surrounding access to menstrual management materials.

In Tanzania, numerous surveyed schoolgirls brought attention to the poor facilities provided for them at school (Sommer 2009b). An urban student name Amina stated, “the toilets near to the classrooms are not in good condition...and dorms ones are flush which is a problem...the girls don't like them because they cannot throw their pads in there” (Sommer 2009b). From this quote, it can be concluded that schoolgirls in Tanzania wish there were better disposal facilities in their bathrooms. In Egypt, 24% of respondents claimed they lack privacy for menstrual management at school, and 97% said they lacked privacy at home (El Gilany et al. 2005). From these responses, it is clear that many girls feel their facilities are not ideal.

b. Impacts of Hardware Deprivation

This lack of access to physical resources like sanitation facilities or menstrual products, also considered hardware/material period poverty, has prominent impacts on average hygiene levels and school attendance rates. Without access to sanitary means for menstrual management,

women tend to resort to whatever they can find—often not a healthy option. In their survey of Nigerian teenage secondary schoolgirls, Adinma & Adinma discovered over half of their respondents aged 15-17 to be using unsanitary menstrual absorbents due to lack of access to pads (Adinma & Adinma 2008). Unsanitary management methods can lead to dangerous health conditions¹ and are found to be utilized far too often in place of sustained provision of safe absorbents.

Without access to appropriate materials, girls will often default to not going to school instead of attempting to manage their period in a problematic environment. In an analysis of menstrual experiences across numerous low- and middle-income countries, Chandra-Mouli & Patel discovered schoolgirls to be much more likely to skip school and avoid social interaction than to seek any sort of medical consultation (Chandra-Mouli & Patel 2017). When surveyed, a Tanzanian urban school dropout named Subira claimed, “there is no tap, no water - so [schoolgirls] won't feel comfortable. Some stay home” (Sommer 2009b). In a survey of various low- and middle-income countries, “most girls said that they tried not to miss school during menstruation, but menstrual poverty did cause occasional absenteeism and more frequently undermined girls’ concentration in class” (Crichton et al. 2012). School attendance and performance are found to be negatively impacted by inability to manage menstruation. The issues that stem from hardware period poverty have severe widespread negative implications.

c. Software Period Poverty

Likewise, much existing literature defines the software facet of period poverty effectively. Hennegan & Montgomery continue their descriptions defining software poverty as

¹ According to Days for Girls International, unsanitary menstrual management can lead to urinary and genital infections and unmanaged menstrual cramping pain (“Days for Girls International”).

deficits in knowledge/awareness on menstruation (Hennegan & Montgomery 2017). Again, Crichton et al. expands this definition in a more comprehensive and psychosocial light including the lack of emotional and practical support from friends and family during menstruation (Crichton et al. 2013). In a 2006 survey of schoolgirls in Pakistan, 50% of respondents were found to lack correct understanding of the origins of menstrual blood (Ali & Rizvi 2009). Without suitable understanding of what was happening, fear was a widely felt emotion of these girls upon their first menstruation (Ali & Rizvi 2009). In Kenya, schoolgirls in both private and public schools felt they had incomplete information about menstruation from their teachers (Girod et al. 2017). Again, similar experiences are felt by girls in a multitude of areas of this status.

An astounding 83.6% of girls in El-Gilany et al.'s 2005 assessment said they needed more information on menstrual hygiene. In their mapping of the situations in numerous low- and middle-income countries, Chandra-Mouli & Patel (2017) found a number of software deprivations experienced by girls and women. Mainly, they discovered girls to be widely unprepared for menstruation, and they found this to be true because mothers and female family members who were not well informed themselves were overwhelmingly the girls' main source of information (Chandra-Mouli & Patel 2017). Crichton et al. (2011 & 2012) also found that girls in Kenya typically turn to her mother for help, and Deo & Ghattargi (2005) found the same to be true in India. Also in Kenya, teachers claim there are limited opportunities within school curriculum to properly educate their students on menstruation, and they have limited knowledge about it themselves (Crichton et al. 2012). The cyclical nature of inadequate education on menstruation is severely dangerous if not broken.

d. Impacts of Software Deprivation

The inadequate education on and preparation for menstruation, considered software/psychosocial period poverty, experienced widely by girls in low- and middle-income countries plays into the vast stigmatization and misconception surrounding periods in these areas. In a survey of schoolgirls in Tanzania, a topic brought up by a majority of respondents was the harassment they have witnessed and experienced by their male peers when suspected to be menstruating (Sommer 2009a). Stigmatization of menstruation is often dangerous to the young girls and women who are targeted. Crichton et al. (2012) found that “Menstrual blood was commonly perceived as dirty or polluting, which may add to the feelings of embarrassment and shame experienced by girls affected by menstrual poverty.” In a Tanzanian school, there was a myth being passed around schoolgirls that telling your mom about starting menstruation would kill her (Sommer 2009b). This originates from the association of a girl’s first period with her sexuality and ability to become pregnant, yet another example of stigmatization (Sommer 2009b). Stigmas are too often rooted in complete lack of understanding, and, until a generation receives accurate information, this ostracization will continue.

Not only does lack of information cause stigmas, it also can cause direct detriment to a girl’s physical well-being in addition to the adverse psychological consequences. Malaysian schoolgirls responded to surveys with numerous misconceptions about cramping associated with menstruation. Some believed that washing your hair caused harsher cramping, and many accepted that cramping was not able to be alleviated (Wong & Khoo 2010). In India, it is commonly believed that showering while menstruating lengthens the period of bleeding, so many women abstain from cleaning themselves during their period (Ali & Rizvi 2009). These misconceptions too often lead girls that believe them to limit their hygiene and/or suffer through unnecessary pain.

e. Intervention Recommendations

Results of most research provides guidance toward implementable solutions to the material period poverty facet. Though many school districts attempt to provide subsidized pads, such programs must provide a regular supply (Yilmaz et al 2017). The need for newer developed WASH facilities is prevalent in many schools (Sommer et al. 2017). Such facilities are encouraged to adequately address schoolgirls privacy and disposal needs (Yilmaz et al. 2017). In low- and middle-income countries often reside diverse populations attending schools. It is therefore suggested that facility capabilities acknowledge diverse populations who may practice abolition for religious purposes (Girod et al. 2017). Much existing literature provides hardware period poverty alleviation strategies already.

Existing research helps guide policy toward implementable alleviations of software poverty as well as hardware poverty. Crichton et al. suggests interventions that improve the quality of communication around menstruation and encourage communication to begin at earlier developmental stages (Crichton et al. 2011). Mothers and teachers must become more educated themselves so that girls' support systems reach farther (Adinma & Adinma 2008). The need to expand reproductive health class curriculum to adequately address menstrual health education gaps is widely suggested (Wong & Khoo 2010) (El-Gilany et al. 2005). Again, there are detailed plans already in existence for software period poverty alleviation methods. Surely, this paper can and will prioritize discussing these existing alleviation strategies for both facets of menstrual poverty in its conclusions.

III. Methodology

There exist clear external effects resulting from the problems of period poverty. I will

first complete an economic modeling analysis to explain these externalities. In parsing out the wide range of effects menstrual poverty has, the necessity of alleviating it will become even more apparent. Using a marginal cost/marginal benefit model, I will examine the potential for positive externalities that lies among high menstrual health status. Then, I will explain what is instead going on in the current situation in low- and middle-income countries and the detrimental effects associated with that. In this economic analysis, a theoretical solution will be made clear. From the starting point of theoretical models, previous literature and data findings will then fill in to provide concrete examples of the determined theoretical values.

Using the existing research above, I will analyze previous study results and draw conclusions about what factors play into a woman's menstrual health status by synthesizing which experiences and facets of period poverty are suffered most prominently. By doing this, I can expose the hardest hitting aspects of period poverty and thus inform policy and intervention methods for alleviating period poverty accurately. After completing some economic modeling, I will use literature to inform what an optimal level of menstrual health management provision may look like.

Then, I will analyze the positive feedback, if any, that exists between facets of menstrual poverty. I will look at material period poverty consequences and independently determine if they have any impact on the found consequences of psychosocial period poverty. Also, I will examine independently existing psychosocial period poverty consequences and determine if they would have any direct amplifications of material period poverty's effects. My hypothesis is that both facets will play into a positive feedback loop of intensifying each other in a multitude of ways. Upon completion of this, I will propose an efficient alleviation strategy. By determining solution-based policy recommendations, I hope to provide quantitative values to fill-in the

remaining theoretical assignments from the economic modeling. Through this analysis, I will direct policy creators toward solutions and alleviation strategies that effectively prove the pressing nature of these issues as well as an providing an efficient place to start alleviating them.

IV. Analysis

a. Economic Theory & Modeling

Private Perspective

This analysis begins by setting out a basic marginal cost – marginal benefit curve framework. The costs of menstruation to the individual are represented by MC^P . This curve represents the extra an individual has to spend on each additional unit of menstrual health provision (M). The benefits of menstruation to the individual are represented by MB^P . This curve represents the additional utility one more unit of M would give them. The costs rise as more M is engaged in due to the law of supply: higher prices of M that the individual is willing to pay lead to the producer's ability to produce higher quantities. The benefits diminish as too much M decreases the benefit from each individual unit of M, so willingness to pay decreases. In this market, rational decision makers will engage in any level of activity where the marginal benefits (MB^P) exceed the marginal cost (MC^P) and will exclude themselves from activities where marginal costs are greater than marginal benefits. Therefore, that a rational person engages in the level of activity where $MB = MC$ to maximize their benefit at a minimal cost.

Social Perspective

In reality there are more factors influencing the marginal costs and the marginal benefit, that are experienced by society, rather than merely the individual. There exists a number of positive externalities that come to attention when the social benefits of ample menstrual management provisions are considered. If a young girl is provided with a suitable amount of M,

she will not only be happier and in better health herself, but also, she will be a more productive member of society. With lower stress levels and higher confidence levels, she will attend more days of school and perform better in the classroom thus motivating her classmates to do the same (Wotus 2015). She will also be a happier member of her family and will cause less stress to her relatives (Wotus 2015). With a greater amount of education and preparation for her own menstruation, she will be better equipped to educate and prepare her own children and generations to come (Wotus 2015). With the private market equilibrium, we are not accounting for the benefits that society would feel if M was distributed appropriately. Hypothetically, menstrual health provisions have the potential to immensely benefit society as a whole in addition to the individual girl they are given to.

Modeling the Private & Social Perspectives

Below, Figure 1 models the private costs and benefits of a simple, all-else-equal relationship. At point “a,” the two curves reach an equilibrium. At this equilibrium, the intersection is located at an efficient amount of M. To the left of the equilibrium point “a,” the marginal private costs of providing menstrual management provisions undervalue the vast marginal private benefits they result in. Beyond point “a,” the cost of an additional hypothetical unit of M outweigh the benefits. As seen in Figure 2, a shift outward of the marginal benefit curve models social benefits being taken into consideration. At the original M_a , the *total* benefits are actually greater than originally noted, so the socially optimal level of M is really located at point “b” at a higher level of menstrual health provisions.

The Reality of this Market for M

These positive social externalities only provide those good spillovers if the optimal level of M is provided. The opposite externalities can be observed in the market for M too. Today, the

situation shows that the total marginal costs, when both private and social costs are taken into consideration, are higher than simply the private marginal costs. Society is worse off due to negative externalities instead of benefiting from the potential positive externalities of adequate provisions. As it turns out, girls are more stressed and less happy with the level of M they are currently provided. This leads to a lower productivity level in society. They are unhappier in the classroom and bringing lots of stress home with them to their families. As students are also not receiving adequate levels of education and preparation for menstruation, they are less prepared for supporting children when they themselves grow into adults. The sad reality for these girls and their surrounding environments is much worse than it should be for full economic efficiency. As seen below in Figure 3, at the original M_A^P , the total marginal costs are actually higher when including the heavy social costs felt by society. This is due to the fact that, in these areas, what seems to be the efficient level of M (i.e. the level of M chosen to be provided to schoolgirls), is far too little.

Policy Response Options to Externalities

Despite this discouraging reality for so many young girls in low- and middle-income areas, there is hope for alleviating these existing negative externalities and reversing them to their full positive potential. A subsidization of menstrual health management provisions would push the market to adequately account for M's full positive externality potential. A subsidization is shown by a shift of the marginal cost curve far to the right (See Fig. 4). In theory, this subsidy would be the exact amount necessary to shift the marginal cost curve to the right enough for its intersection with the private marginal benefit curve to be located at the amount of M most efficient for promoting positive externalities. This point is depicted by point "d." At this total marginal cost, benefits of M are maximized to an economically efficient level. Thus far, this

analysis has not included any numerical values. Next, this analysis will attempt to determine how to evaluate efficient levels of M and the price associated with such a level.

b. What Goes into High Menstrual Health Status?

The problems created by both hardware and software menstrual poverty that are shared across low- and middle-income countries leave situations that must be alleviated. The gap between women with high menstrual health status and those with low menstrual health status consists of a combination of factors. The gap can depend on cultural norms based on location, but many factors from country to country are found to benefit menstrual health status similarly. A major contribution to good menstrual health in every country is adequate access to safe period management materials. Females all over the world struggle to acquire absorbents due to affordability (Sommer 2009). Therefore, adequate access to such products via school systems or lowering of prices can vastly improve safety and sanitation surrounding menstruation.

Similarly, menstruating females with greater access to sufficient WASH facilities also have high menstrual health status (Sommer et al. 2017). Sufficient facilities contain adequate access to water not shared by a large number of pupils (Girod et al. 2017), the privacy level desired by facility users (Crichton et al. 2012), and acceptable forms of waste disposal (Yilmaz et al. 2017). Satisfactory WASH facilities therefore play into a greater menstrual health status for menstruating individuals as well.

Another contributor to a higher menstrual health status shared among girls in many countries is an educated mother. In study after study, the mother is found to be a girl's main source of information on menstruation (Chandra-Mouli & Patel 2017) (Ali & Rizvi 2009) (Crichton et al. 2011) (Adinma & Adinma 2008) (Deo & Ghattargi 2005) (Wong & Khoo 2010) (Crichton et al. 2012). Girls that are informed usually learn from their mom, but moms and other

female relatives are often uneducated themselves (Chandra-Mouli & Patel 2017). Today, a well-educated mother/familial resource is crucial to increasing a girl's menstrual health status.

This leads to another crucial factor playing into menstrual health: education and knowledge base. Curriculum surrounding menstruation must be present in order for females to achieve high menstrual health. In order for family members to be an effective support system to young girls, they must be educated on menstruation themselves. Not only does improved education on menstruation help young girls, but a strong knowledge base can pass information and support on for generations to come. An increase in educational opportunities on menstruation for boys also has positive spillover effects. Many schoolteachers are male (Sommer 2009b), so having a strong knowledge base for them could mean assisting their female students when necessary. A greater understanding of periods and menstruation can reduce detrimental misconceptions and help bring harmful stigmas to an end, thus increasing mental well-being of females across the world.

c. The Overlapping Spheres of Period Poverty

Previous literature has presented material deprivation period poverty and psychosocial period poverty in separate spheres of research. Though they are associated with separate facets of menstrual health, the two spheres may overlap more than one might think based solely on existing literature. In many of these countries, cultural norms and lack of education about menstruation lead to the enhancement of stigmas and misconceptions. With high barriers built around conversations about menstruation, many young menstruating girls do not know who to turn to as they find it difficult to talk to their moms about it (Crichton et al. 2012). Instead of asking for help, menstruating girls are left to figure out what their body is doing and how to manage it on their own, thus often leading to heightened unsanitary management practices

(Chandra-Mouli & Patel 2017). Stigmatization leading to material mismanagement is a way in which the psychosocial period poverty heightens material period poverty.

Another example of enhancement between spheres exists in the wider impacts of physical management material deprivation. It is the lack of adequate materials to manage menstruation that often leads young girls to miss several days of school each month (Sommer 2009a). If students are to learn about menstruation at school through a lesson in class or through socializing with friends, a girl that does not go to school because she did not have an absorbent would also be facing a lack of knowledge about the process her body is going through. In Pakistan, among interviews of girls of varying ages, adolescent girls going to school were found to be most informed about menstruation (Ali & Rizvi 2009). This particular positive feedback loop between hardware and software period poverty may not be occurring much in present day as many girls use their mother as their primary resource (Deo & Ghattargi 2005). However, should education on menstruation be enhanced in school curriculum, the girls who feel uncomfortable talking to their moms about their period or the girls whose mothers are not educated on menstruation themselves could largely benefit from being able to attend school every day with adequate management materials on hand. Inadequate access to management materials leading to missed school and socialization is therefore an example of the intersection between hardware period poverty and software period poverty.

Most women of all ages wish for privacy when it comes to the timing of their menstruation. In low- and middle- income countries, hygiene facilities in schools do not provide adequate privacy to menstruating girls (Girod et al. 2017). In Egypt, 97% of women observed felt they had a lack of privacy for managing menstruation at home (El-Gilany et al. 2005). At the root of longing for privacy lies misconceptions and stigmatization. The girls in Kenya that

experience fear and anxiety surrounding their period due to instances of harassment by their male classmates (Girod et al. 2017) are joined by numerous girls residing in countries all over the world (Sommer 2009a) (Sommer 2009b). Stigmatization and misconceptions stemming from inadequate understanding of menstruation lead women to feel the need for privacy when managing their periods. This is yet another example of psychosocial period poverty heightening the problems surrounding hardware period poverty.

Another shared experience by menstruating females across the developing world is that of inadequate hygiene and WASH facilities. This hardware facet of the period poverty experience brings plenty additional negative externalities. While the obvious is a decreased sanitation level, inadequate facilities can also increase psychological distress among young girls (Yilmaz et al. 2017). The presence of satisfactory WASH facilities at school also increases comfort when menstruating in a classroom setting. Therefore, as claimed by Chandra-Mouli & Patel (2017), “Improved infrastructure can lead to not only education gains, but also improved self-confidence and personal development.” The potential for WASH facilities to benefit classroom performance and psychological wellbeing, and consequently the lack of such facilities, exhibits another example of the hardware period poverty experience negatively impacting the software material poverty experience.

d. Informing Policy and Intervention Methodology

Plenty of pressing issues surrounding period/menstrual poverty are thus shared across the experiences of girls and women in many low- and middle-income countries. From these problems and experiences, many decisions can be guided in terms of effective policy and intervention attempts for alleviation. Ultimately, educational curriculum must be developed and implemented in some form (i.e. school or after-school programming) in order to give young

people a sufficient knowledge base about menstruation. Educating young girls effectively will have lasting impacts on generations to come, and educating young boys will lead to less misconception and stigmatization and a vast growth in respect and understanding. Additionally, material deprivation problems must be fixed. Safe and sanitary management products must become available in an affordable manner, and adequate WASH facilities must be installed at least in school buildings. Based on this analysis, it is still unsure which facet of period poverty interventions should aim to alleviate primarily as they both heighten the impacts of one another.

At the small-scale local level, a church in Uganda provides a superb model for period poverty alleviation programming. A local church in Mulatsi organized a program to train community members to make reusable sanitary towels (Mwinemwesigwa 2019). In Nigeria, it was suggested that religious organizations could be an easy place to begin the increase in educating on menstruation (Adinma & Adinma 2008). They can make a set of 7 towels for \$1.50 which can last an individual up to a year. Simply by word of mouth, their training ended up educating a lot of community members on menstruation (Mwinemwesigwa 2019). One group whose knowledge grew vastly was male community members. A father in the community named Milton claimed, “I thought it was not proper for a girl to talk to me about sanitary towels. I have a 16-year-old, when she would come to me, I would refer her to her mother” (Mwinemwesigwa 2019). He continues to educate other men in the community, and the Mulatsi church as a whole continues making considerable moves toward alleviating period poverty (Rolley 2019). The network of teaching each other and the educating of men in the community are benefactors to this program that heighten its positive impacts (Mwinemwesigwa 2019). Allowing one community member to teach others who then teach others improves the sustainability potential of this program. Educating boys reduces misconceptions and stigmas which are extremely

detrimental to women (Sommer 2009b) deprived of adequate menstrual health as previously mentioned.

On a larger scale, Days for Girls have improved menstrual health provisions for over 2 million individuals in over 144 countries (“Days for Girls International”). They operate internationally and have a few different operations going on with the ultimate goals of alleviating period poverty everywhere. Their DfG kit is a drawstring bag full of variations of pads, underwear, liners, storage bags, and instructions. Days for Girls provide these kits at distribution events, and they sell them on their website for \$5 to \$11 depending on the variation of kit (“Days for Girls International”). They also offer a number of knowledge building curricula on menstruation. At distributions, they provide a lesson to the community they are in, they have a Men Who Know education program that educates boys on menstruation, and they train individuals to educate others (“Days for Girls International”). Additionally, they teach local individuals entrepreneurship skills for empowering them towards sustainable implementation (“Days for Girls International”). Again, male education (Chen 2018) and entrepreneurial networking prove effective in alleviation strategy.

V. Conclusion

This analysis of menstrual poverty experiences in low- and middle-income countries proves a number of things to be true. From the theoretical economic models, a subsidy seems necessary. A subsidization of menstrual health management would lead the market for these provisions to reach economic efficiency where the costs and benefits equal one another. The theory provides strong backing for subsidizing menstrual health management provisions to provide girls in low- and middle-income areas with more than they have access to in the current

state. The question then is, what does an efficient level of menstrual health management provisions look like?

From existing literature, there are many factors found to have distinct positive impacts on an individual's menstrual health status. It is fairly obvious that access to affordable absorbents improves menstrual health status significantly, yet so many individuals do not have effective access. Accessibility to satisfactory WASH facilities also largely plays into a high menstrual health status, yet this inadequate access still plagues the lived experience of many who menstruate. A sturdy support system improves menstrual health, too. An educated mother or person to turn to for learning about menstruation and getting advice on how to manage it improves an individual's menstrual health. Too many adults are uneducated themselves for this contribution to be effective towards the menstrual health status of younger generations. Finally, a robust knowledge base has direct positive impacts as well. With more education on menstruation, an individual is better equipped to manage their own period as well as provide support and advice for generations to come.

The interaction between hardware and software period poverty is prevalent. As predicted, both facets heighten the impacts of each other. Software poverty exacerbates the problems of hardware poverty in a number of ways. Stigmatization leads to material deprivation as individuals who menstruate do not want to inquire about their needs. Misconceptions lead to stigmas which lead individuals who menstruate to feel the need to be private about their periods. Perhaps if misconceptions and stigmas were to be minimized, girls would inquire more about safe absorbents and facilities that do not provide adequate privacy would be associated with less problems. Hardware poverty also exacerbates the problems of software poverty in a number of ways. Missing school because of material deprivation can lead students to miss potential

socialization or an important lesson on menstruation. Inadequate WASH facilities often lead to discomfort at school and missing out on important educational opportunities. So, is it better to first alleviate hardware or software period poverty? The answer is yes; action must be taken to alleviate any and all period poverty based on the urgency associated with the prevalence of its pressing issues and its status as an obstacle to anti-extreme poverty efforts.

From an examination of existing alleviation strategies, programs that educate boys are shown to bring the market for menstruation management provisions closer to the socially optimal level. In India, programs that sought to educate boys and men helped to break stigmas surrounding periods and to end misconception on the processes (Chen 2018). Boys themselves benefit from menstrual health education as it promotes healthy behavior habits through their membership in communities (global citizen etytk). Also, programs that work to instill and empower community level entrepreneurship have great success in alleviating the negative externalities associated with menstrual poverty. Such programs produce community networks that work towards the UN's Sustainable Development Goals (SDGs) 8—sustained, inclusive and sustainable economic growth—and 12—sustainable consumption and production patterns—which are both areas that the public may not realize are affected by period poverty (“MHM and the SDGs”). These SDGs are key to alleviated extreme poverty in general, a problem that period poverty largely plays into, so any program or alleviation strategy that brings society closer to reaching such goals should be funded and/or subsidized through overhauling efforts.

The mismanagement of menstrual health status among women and girls in low- and middle-income countries is putting society in a worse and worse place every day. Though alleviation may seem to come at a high cost, it will not be until these problems are acted upon on a large scale that economic productivity is being completely maximized. Therefore, to reach a

socially optimal level of menstrual health management provisions in the world, alleviation strategies must be implemented. The issues facing these women and girls is inhumane, and the pressing nature of them require dire attention. Action must be taken immediately to alleviate any and all facets of period poverty for the improved well-being of the people it directly effects as well as for the greater good of society.

VI. Appendix

Figure 1:

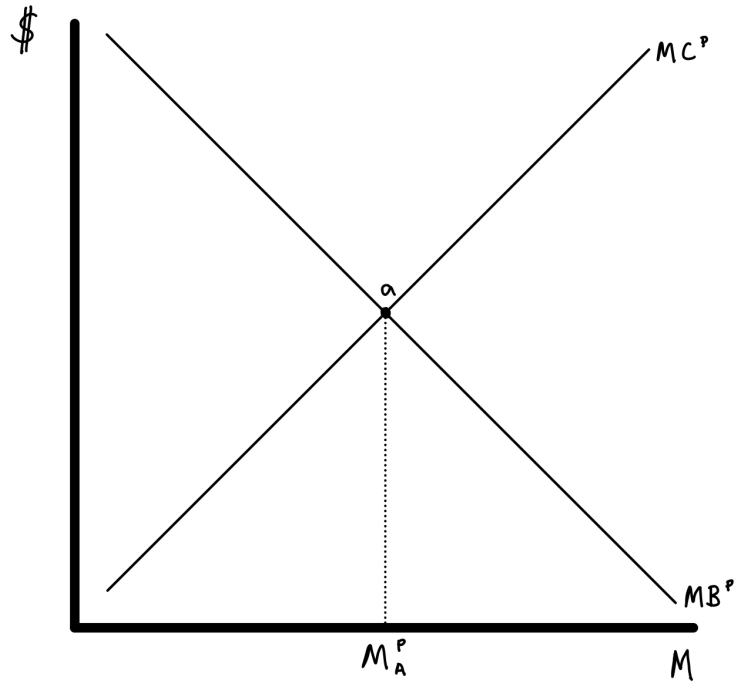


Figure 2:

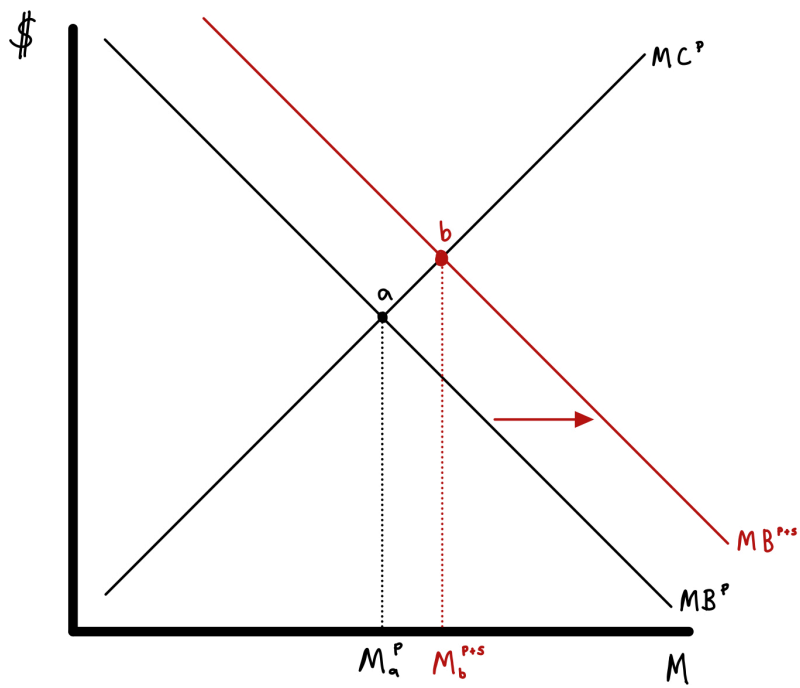


Figure 3:

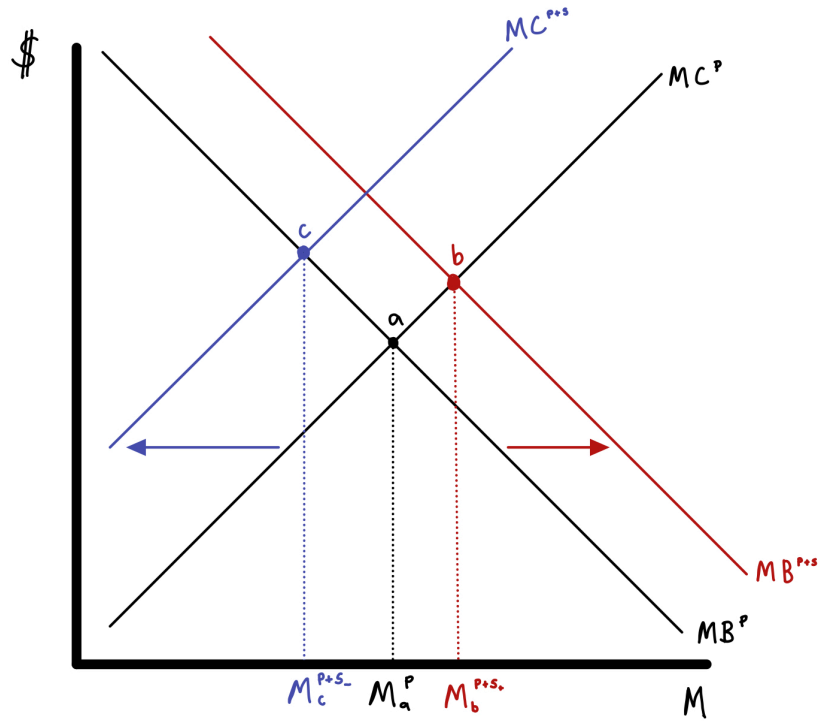
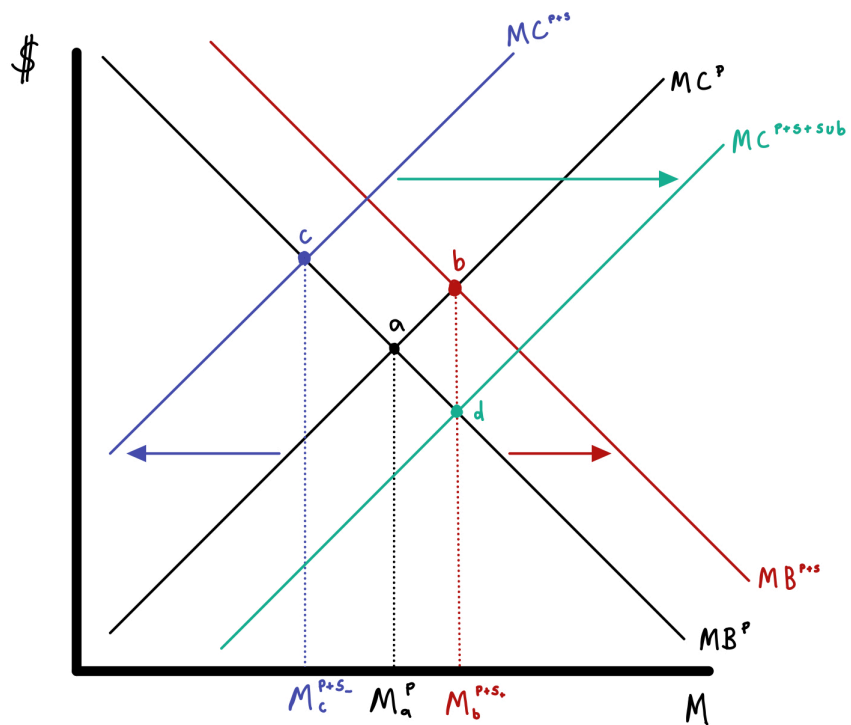


Figure 4:



VII. Bibliography (*need to reform citation)

“A Bloody Problem: Period Poverty, Why We Need to End It and How to Do It.” *Kulczyk Foundation*, Oct. 2020.

Adinma, Echendu Dolly, and J. I. B. Adinma. "Perceptions and practices on menstruation amongst Nigerian secondary school girls." *African journal of reproductive health* 12.1 (2008): 74-83.

Ali, Tazeen Saeed, and Syeda Naghma Rizvi. "Menstrual knowledge and practices of female adolescents in urban Karachi, Pakistan." *Journal of adolescence* 33.4 (2010): 531-541.

Broster, Alice. “Menstrual Hygiene Day Highlights The Links Between Period Poverty & Mental Health.” *Forbes*, Forbes Magazine, 28 May 2020, www.forbes.com/sites/alicebroster/2020/05/28/menstrual-hygiene-day-highlights-the-links-between-period-poverty--mental-health/?sh=6bb11e892c39.

Chandra-Mouli, Venkatraman, and Sheila Vipul Patel. “Mapping the Knowledge and Understanding of Menarche, Menstrual Hygiene and Menstrual Health Among Adolescent Girls in Low- and Middle-Income Countries.” *Reproductive Health*, vol. 14, no. 1, BioMed Central, 2017, pp. 30–30, doi:10.1186/s12978-017-0293-6.

Chen, Guangzhen, and Thorston Kiefer. “Menstrual Hygiene Management Enables Women and Girls to Reach Their Full Potential.” *World Bank*, World Bank, 25 May 2018, www.worldbank.org/en/news/feature/2018/05/25/menstrual-hygiene-management.

Crichton, Joanna, Latifat Ibisomi, and Stephen Obeng Gyimah. "Mother–daughter communication about sexual maturation, abstinence and unintended pregnancy:

- Experiences from an informal settlement in Nairobi, Kenya." *Journal of Adolescence* 35.1 (2012): 21-30.
- Days for Girls International*, 6 Apr. 2021, www.daysforgirls.org/.
- Deo C.H. & Ghattargi, D. S. "Perceptions and Practices Regarding Menstruation: A Comparative Study in Urban and Rural Adolescent Girls." *Indian journal of community medicine* 30.1 (2005): 33.
- El-Gilany, Abdel-Hady, Karima Badawi, and Sanaa El-Fedawy. "Menstrual hygiene among adolescent schoolgirls in Mansoura, Egypt." *Reproductive health matters* 13.26 (2005): 147-152.
- Girod, Candace, et al. "Physical, Social, and Political Inequities Constraining Girls' Menstrual Management at Schools in Informal Settlements of Nairobi, Kenya." *Journal of Urban Health*, vol. 94, no. 6, Springer US, 2017, pp. 835–46, doi:10.1007/s11524-017-0189-3.
- Hennegan, Julie, and Paul Montgomery. "Do Menstrual Hygiene Management Interventions Improve Education and Psychosocial Outcomes for Women and Girls in Low and Middle Income Countries? A Systematic Review." *PloS One*, vol. 11, no. 2, Public Library of Science (PLoS), 2016, pp. e0146985–e0146985, doi:10.1371/journal.pone.0146985.
- "MHM and the SDGs." *MHDay*, Menstrualhygieneday.org, 2020, menstrualhygieneday.org/project/infographic-mhm-and-sdgs/.
- Mwinemwesigwa, Caroline. "Period Poverty: Tackling the Menstruation Taboo." *Compassion UK*, Compassion UK Christian Child Development, 28 May 2019, www.compassionuk.org/blogs/period-poverty/.
- Oster, Emily, and Rebecca Thornton. "Menstruation, Sanitary Products, and School Attendance: Evidence from a Randomized Evaluation." *American Economic Journal. Applied*

Economics, vol. 3, no. 1, American Economic Association, 2011, pp. 91–100,
doi:10.1257/app.3.1.91.

Rodriguez, Leah. “4 Questions About Period Poverty: Answered.” *Global Citizen*, Global Citizen, 8 Jan. 2021, www.globalcitizen.org/en/content/period-poverty-mental-health-covid-19-solutions/.

Rolley, Laura. “Meet the DAD Fighting Period Poverty in Uganda.” *Keep The Faith*, Keep The Faith The UK's Black and Multi-Ethnic Christian Magazine, 6 Sept. 2019,
www.keepthefaithe.co.uk/2019/09/09/meet-the-dad-fighting-period-poverty-in-uganda/.

Sánchez, Erica, and Leah Rodriguez. “Period Poverty: Everything You Need to Know.” *Global Citizen*, Global Citizen, 5 Feb. 2019, www.globalcitizen.org/en/content/period-poverty-everything-you-need-to-know/.

Sommer, Marni. "Where the education system and women's bodies collide: The social and health impact of girls' experiences of menstruation and schooling in Tanzania." *Journal of adolescence* 33.4 (2009a): 521-529.

Sommer, Marni, et al. “Attention to Menstrual Hygiene Management in Schools: An Analysis of Education Policy Documents in Low- and Middle-Income Countries.” *International Journal of Educational Development*, vol. 57, Elsevier Ltd, 2017, pp. 73–82,
doi:10.1016/j.ijedudev.2017.09.008.

Sommer, Marni. "Ideologies of sexuality, menstruation and risk: girls' experiences of puberty and schooling in northern Tanzania." *Culture, health & sexuality* 11.4 (2009b): 383-398.

Wong, Li Ping, and Ee Ming Khoo. "Dysmenorrhea in a multiethnic population of adolescent Asian girls." *International Journal of Gynecology & Obstetrics* 108.2 (2010): 139-142.

Wotus, Matt. "Educating Girls About Menstruation in Low-Income Countries." *The Borgen Project*, Borgen Project https://Borgenproject.org/Wp-Content/Uploads/The_Borgen_Project_Logo_small.Jpg, 1 July 2020, borgenproject.org/educating-girls-menstruation/.

Yilmaz, Siobhan, et al. "A LIGHT IN THE DARK FOR NEPALESE TEEN GIRLS." *Pratiman-Neema Memorial Foundation*. Pratiman-Neema Memorial Foundation. 27 Jul. 2017.