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Abstract

This report examines the extent of gender gaps, their economic impact, and proposes policies to improve gender equality in Guinea. Although the government of Guinea has taken actions to boost gender equality, significant challenges persist. Child marriage is widespread among girls, reducing girls’ education and resulting in among the highest rates of early childbearing worldwide. Moreover, female genital mutilation is almost universal with high societal costs on women’s health. Girls reaching adulthood have lower education levels than men, lower wages, and lower agricultural productivity. Reducing gender inequality in Guinea could potentially accelerate per capita GDP growth by up to 0.6 percentage points per year or 10.2 percent overall by 2035, according to the results of estimations from a Computable General Equilibrium Model. This is a rate of return to investment of 8.2 percent per year. Policy recommendations to tackle the gender divide focus on legislative changes and programs intended to boost the productivity of adult women, reduce the prevalence of child marriage, early child bearing, and female genital mutilation/excision.

Gender equality matters in its own right and is a key ingredient for economic development. The 2012 World Development Report presents four main arguments for this. First, millions of women continue to experience discrimination around the world. Second, gender inequalities can have large impacts on productivity due to potential labor misallocation and underinvestment in human capital. This is because gender differentiated access to education, economic opportunities, and productive assets mean that women cannot contribute their full potential to society. Third, a gender-inclusive society would secure the future prosperity of the next generation through their influence on children’s development outcomes. Fourth, when women and men face an even playing field (i.e., equal opportunities to be socially and politically active or equal control over...
household decisions and assets), the institutions and policy choices that develop are more likely to be more representative of the broader society, leading to better development outcomes for all.

This study aims to (i) document patterns of gender inequality; (ii) assess the economic impacts of those patterns; and (iii) suggest policy options for the government to achieve gender equality. The study is timely given the World Bank’s renewed emphasis on gender issues and investments in human capital, and the importance of this theme in the Country Partnership Framework for Guinea. To analyze the patterns of gender inequality, the study follows a life cycle approach, looking first at gender inequality for adolescent girls, and then at adult women. We consider gender inequalities in (i) educational attainment, (ii) child marriage, early childbearing, and female genital mutilation/excision, (iii) agricultural productivity, (iv) entrepreneurship, and (v) wages in formal employment. Finally, the study among is the first of its kind to use a computable general equilibrium model to estimate the economic benefits of gender equality.

Patterns of gender inequality start to be severe in adolescence as girls drop out of school to marry and have children at a young age.

Guinean girls attain much less education than boys. As Table ES1 illustrates, Guinea’s overall education levels are much lower than the Sub Saharan African average and gender gaps are wider as well. Our analysis reveals that only half of primary school age children attend primary school. In addition, there is a statistically significant gap between boys and girls in net primary and secondary school attendance. Moreover, fewer girls than boys make the transition to higher levels of education as illustrated by the female-to-male school enrollment ratio in Table ES1. Gender gaps in education are more severe in Guinea’s rural areas. The Human Capital Index estimates a girl that starts school at the age of 4 is expected to complete 6.2 years of school while a boy would complete 7.7 years.

Child marriage, early childbearing, and female genital mutilation/excision (FGM/E) are widespread in Guinea. About 51 percent of women aged 20 to 24 years were first married before age 18, and 19 percent were married before age 15. Among West African countries, only Niger and Mali have a higher incidence of child marriage (62 percent and 72 percent, respectively). Child marriage is associated with a higher rate of early childbearing and school dropout. About 56 percent of Guinean women have had a child before age 18. Moreover, Guinea also has the second highest rate of (FGM/E) in the world at 97 percent.1 There is a strong association between child marriage, early childbearing, and low educational attainment. FGM/E is culturally linked to marriageability as it serves as a rite of passage from childhood to adulthood, making it difficult to separate from the practice of child marriage. Additionally, FGM/E is associated with higher maternal mortality.

Gender inequality leads to women being less productive when they work.

Women constitute 49 percent of Guinea’s working population yet remain less economically productive and earn less than men. Contrary to other countries with similar GDP per capita, Guinea has achieved parity in its female-to-male ratio of labor force participation. Women are however less likely to join the formal labor force and to work for pay; they also do not have access to the same work opportunities that men do. Even when they do, they are more likely to work part-time or in the informal sector. Time use constraints for women, including the burden of domestic chores where women spend an average of 22 hours per week compared with 4 hours per week spent by men, also play a role in constraining their ability to work2. All this leads to substantial gender gaps in earnings and productivity, which in turn decrease women’s bargaining power and voice, and their ability to negotiate their productive work. Three areas are discussed in this study: productivity in agriculture, entrepreneurship and productivity in formal employment.

a. Female-headed agricultural households are 8 percent less productive than male-headed agricultural households.
Part of the gender gap in agricultural productivity is associated with the fact that on average women have less education, are in polygamous unions and work smaller plots of land. The analysis similarly shows that having suffered a health shock is associated with a higher gender gap.

b. **Female owned firms have 5 percent lower sales than male owned firms.** Our analysis reveals a difference in the returns to the number of workers and the years of experience the top manager has in the industry the firm operates in for male and female owned business. The fact that male and female owned businesses with the same resources achieve different levels of returns is suggestive of underlying gender inequality.

c. **Women in formal employment earn 38 percent less than their male counterparts.** We see that the gender gap is larger for women in the industrial, construction and mining sectors, as well as in administration, education and health sectors. Employed women who are married, whether in monogamous or polygamous households, face a substantial earnings disadvantage. This might reflect legal restrictions which establish that a woman cannot get a job or pursue a trade or profession if her husband objects based on the interests of the family.

Reducing gender gaps will lead substantial economic benefits to Guinea

Assessing the economic benefits of gender policies becomes critical for Guinean policymakers. These benefits are estimated using a computable general equilibrium (CGE) model. This analysis is unique because it is the first of its kind in the Guinean context. CGE models are used to estimate a broad range of economic benefits of gender equality in several policy areas such as education, fertility, and agricultural productivity. This CGE model uses the 2012 social accounting matrix and data from the 2012 household survey (the most recent data available) and has been calibrated to represent actual outcomes in 2013-2018. The main benefit of this approach is that it allows for the assessment of the impact of policies on the poorest and richest households as well as in urban and rural areas. One caveat is that the contribution of women to GDP growth is underestimated because GDP does not capture activities such as household work or time fetching wood and water, where women traditionally play a predominant role. In Guinea, for example, women spend an average of 22 hours on those tasks compared to 4 hours spent by men.\(^3\) When considering both paid and unpaid work, data show that women work longer hours than men: 49 hours a week compared to 38.8 hours work by men.

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### Table 1: Benchmarking Guinea’s Levels of Education with SSA and Rwanda (Africa’s Best Reformer)

<table>
<thead>
<tr>
<th></th>
<th>Guinea</th>
<th>Sub-Saharan Africa</th>
<th>Rwanda</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>School Enrollment ratio</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary (gross)</td>
<td>0.85</td>
<td>0.95</td>
<td>0.99</td>
</tr>
<tr>
<td>Secondary (gross)</td>
<td>0.66</td>
<td>0.86</td>
<td>1.12</td>
</tr>
<tr>
<td>Tertiary (gross)</td>
<td>0.45</td>
<td>0.72</td>
<td>0.89</td>
</tr>
<tr>
<td><strong>Mean years of schooling</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>1.5</td>
<td>4.7</td>
<td>3.7</td>
</tr>
<tr>
<td>Male</td>
<td>3.9</td>
<td>6.5</td>
<td>4.7</td>
</tr>
</tbody>
</table>

Source: World Development Indicators.
The CGE model estimates the impact on growth of four policies through which gender equality affects the economy relative to a business-as-usual scenario. The first scenario considers higher education spending to close the education gap by equalizing education completion rates of girls and boys, which translate into a higher number of skilled female workers entering the labor force by 2035. Closing gender gaps in education will have a positive influence in delaying early childbearing with the potential positive impact of lowering fertility. The second scenario incorporates lower fertility in the model as a reduction in the child dependency ratio and its associated higher savings rate. At the aggregate level, the direct effect of higher saving is an increase in capital accumulation, which thereby promotes higher growth rates. The impacts of lower fertility are modeled separately rather than as part of the education scenario. The third scenario investigates the impact of increasing agricultural productivity of female farmers, which translates into higher agricultural growth rate. Finally, the fourth scenario combines the costs and policy interventions of the previous ones, and thus represents an upper bound of potential gains of gender equality. These pathways were selected based on the degree of gender gaps and data availability.

The results of the CGE model present robust new evidence that advancing gender equality will have positive impacts on economic growth. GDP per capita growth will increase by 0.6 percentage points per year and could increase by 10.2 percent by 2035 relative to the baseline scenario, reaching US$940 (in constant 2012 dollars). These economic gains result in a rate of return to investment of about 8.2 percent per year that could be generated by closing the gender skill gap, reducing the fertility rate and the child dependency ratio which would increase the household saving rate, and closing the gender productivity gap in agriculture. Investing in education to close the gender skill gap will increase the number of skilled women participating in the economy, thereby boosting GDP growth. Educating more women will delay the marriage age (e.g., ending child marriage), thus reducing total fertility. Similarly, policies to close the gender gap in agricultural productivity will also accelerate growth, benefiting households in rural areas. The largest gains of gender equality are from the demographic dividend associated with lower fertility (scenario 2 in table below). Due to limitations in the data, these estimated gains are conservative estimates of potential benefits, and thus provide a lower bound of the impact of gender policies.

Although cross-country estimates of the economic benefits of gender equality are difficult to compare, the results of the Guinean case are within the range of estimates from comparable countries. A recent study using a CGE model in Niger, finds that the combined impact of various gender policies (education, fertility, labor force participation, agricultural productivity, and urban productivity) will raise GDP by 22 percent (in contrast to 6.8 percent that this study finds in Guinea). This difference should not be interpreted as gender policies having lower

---

4 In the case of Guinea, for example, Wodon et al. (2018) estimate that ending child marriage could reduce total fertility by 13 percent nationally in Guinea, reducing population growth.
benefits in Guinea. In fact, when comparing the impact of closing specific gaps such as education and agricultural productivity, the estimated impacts are much higher in Guinea than in Niger. For example, in Niger, reducing the education gap (including cost) increases GDP by 0.8 percent relative to the baseline, which is almost 2.8 times lower than the results in Guinea. Moreover, closing the agricultural productivity gap increases GDP by 0.8 percent in Niger versus 1.1 in Guinea. A 2015 cross-country study by the McKinsey Global Institute on the benefits of gender parity found that Guinea could increase its GDP between 9 percent to 25 percent, depending on whether women’s participation in labor markets (i.e., labor force participation, sector of employment, and productivity) matches the best in region or is equal to that of men, respectively. In the case of Niger, the benefits of gender parity are 10 percent and 66 percent, suggesting greater weakness in the legal environment for gender and larger gender differences in labor market outcomes.

**Table 3: Economic Benefits of Gender Equality on GDP per Capita**

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Percentage points above baseline for annualized GDP per capita growth</td>
<td>0.13</td>
<td>0.46</td>
<td>0.06</td>
<td>0.58</td>
</tr>
<tr>
<td>% above baseline GDP per capita in 2035</td>
<td>2.27</td>
<td>7.97</td>
<td>1.03</td>
<td>10.16</td>
</tr>
</tbody>
</table>

Source: Authors’ calculations based on CGE estimates.

Closing gender gaps requires legal changes, and also programs to influence social and cultural norms focused on adolescent girls and adult women

Guinea has already made commendable steps towards adopting gender-based policies. At the international level, Guinea has ratified many international conventions on human rights in general and those that promote equal opportunities for men and women in particular. Guinea’s constitution also recognizes the same rights for men and women to access services and resources. With the support of development partners, including the World Bank, the Guinean government has adopted various initiatives to improve girls’ access to education such as the Accelerated Girls Education Initiative and later on, the African Girls Education Initiative (AGEI). The government has also implemented the National Support Fund for Women’s Economic Activities (FONAEF) and the National Fund for the Promotion of Gender (FNPG). Moreover, a program was implemented with the support of United Nations Industrial Development Organization (ONUDI) to promote employment of women and youth, particularly in the mining and agriculture sectors. More however needs to be done.

**Addressing gender inequalities affecting adolescent girls should focus on keeping girls in school and preventing teen pregnancies**

Empowering adolescent girls will require policies and programs to end child marriage, prevent early childbearing, and educate girls. The most effective interventions to delay the age at first marriage and prevent early childbearing usually change incentives for girls to remain in school or go back to school if they dropped out due to marriage. Guinea needs to boost its spending in education from the current low level of 2.4 percent of GDP. Early education should be free and compulsory. More schools need to be constructed and equipped with basic

---

5 For example, in Southern and Eastern Africa, the likelihood of a married girl attending school are more than 20 times less than the likelihood of her unmarried peer (Omoeva, Hatch, & Sylla, 2014) (Malé & Wodon, 2016).
infrastructure including water and sanitation, textbooks, and learning resources. More trained teachers (particularly female ones) need to be recruited. When schools are located far from villages in rural areas, better transportation services could help retain girls in school. Cash transfer programs with conditionality linked to delaying marriage for girls is also a promising policy alternative.

For girls who have dropped out of school, skills development can offer an alternative to early family formation while increasing their productivity. Community-based life skill training programs are particularly promising. They involve groups of girls led by female mentors who meet regularly over several weeks or months. These groups serve two critical functions: first, they offer "safe spaces" in which girls are organized and can be reached with a variety of interventions and educational topics. Second, they build social assets, including friendships, trusting relationships, and self-esteem, which can have a positive influence on girls’ livelihoods and health. Community-based life skills interventions tend to target girls as young as 10–11 years old, reaching them before the onset of sexual activity and marriage. There are promising results of these programs in Uganda, Ethiopia, and Zambia in increasing girls’ preferred age at marriage and childbirth.

Programs to keep girls in school or enabling them to return if they dropped out or directly delaying marriage are also necessary. A promising policy alternative is conditional cash transfer programs (CCT). These are programs that provide money to poor families’ conditional on investments in human capital, such as sending children to school or bringing them to health centers on a regular basis. CCTs to incentivize girls’ education, and promote health, which also support families during shocks have been proven effective in improving school outcomes among girls in many developing countries. These programs have shown successful results in reducing fertility in Nicaragua and Brazil. CCTs appear to be more effective for girls than unconditional cash transfers (UCTs). CCTs could similarly be used to reduce child marriage.

Enforcing existing laws that prohibit FGM/E and early marriage and community-led approaches to change gender norms will be key towards ensuring that their prevalence falls. The persistence of FGM/E and child marriage is in large part due to an absence of vigorous action by judicial authorities to ensure their prevention and eradication. Thousands of young girls are excised across the country every year, with the full knowledge of judicial personnel. Ensuring the proper application of the law, with independent and impartial investigation of every suspected case of FGM/E and early marriage, leading to prosecution for perpetrators and their accomplices will be key towards eradicating these harmful practices. These efforts need to be accompanied with regular dialogue with communities to change gender norms. Many of the programs that achieve gender norm transformation in low- and middle-income countries (LMICs) are conducted at the community level. These programs help people address existing relations of gender and power in their family and broader social networks.

Addressing gender inequality affecting adult women requires improving their economic opportunities through improving their skills and providing better access to markets, productive assets, and inputs.

To enable women to better deal with shocks, the social protection system needs to be strengthened by building social safety nets that are gender sensitive. Men and women may have different capabilities to manage risk and cope with shocks. Women may be less able than men to cope with and overcome crises because they have less access to and control over resources. In addition, women experience gender-based vulnerabilities, including extensive

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6 Chakravarty et al. (2015).
7 Mexico’s initial CCT program (PROGRESA) which provided financial support to poor mothers if their children obtained basic medical care and attended school regularly increased girls’ transition rate from elementary to junior secondary school by 14.8 percentage points and boys’ by 6.5 percentage points (Baird, Ferreira, Ogler, & Woolcock, 2013). After the success of PROGRESA, many countries have instituted similar programs several of which have been subject to randomized evaluations, yielding similar results (Fiszbein & Schady, 2009). CCT programs have led to decreases in fertility in Nicaragua (Barham, Macours, & Maluccio, 2018) and Brazil (Olson, Clark, & Reynolds, 2019). A meta-analysis shows that CCTs are more effective for girls than unconditional cash transfers (UCTs) (Baird et al., 2013).
time burdens, threats or acts of violence, and limited legal benefits and protections, decision-making authority, and control of financial resources. Social safety nets can be a tool for confronting gender inequality by improving the bargaining power of women. However, a growing body of evidence indicates that the impact of these programs is not always gender neutral. To improve gender sensitivity of social safety net projects, their design can aid female participation by allowing complementary services such as child care in workfare sites.

To close gender gaps in agriculture, entrepreneurship, and wage earnings, women’s asset ownership should be strengthened, and their skills need to be improved. Women can be granted greater tenure security by land tenure regularization programs that register married women as co-owners by default. Women should further be encouraged to adopt higher value cash crops. Agricultural extension can be provided to help female farmers boost their productivity. Business training, including an increased focus on socio-emotional skills may be a promising policy intervention to reduce the gender gap in entrepreneurship. In order for women to be able to take advantage of higher paying jobs, efforts need to go into improving the human capital accumulation of women. Employment segregation, the unequal distribution of men and women across positions and firm-types, is often at the heart of gender disparities in labor market outcomes.

To remove impediments to women’s employment and entrepreneurship, as well as access to various institutions, legislation must be amended. Recent legislative changes, such as the introduction of a provision on nondiscrimination based on gender in employment, a law prohibiting sexual harassment, and the prohibition of discrimination by creditors based on sex or gender will benefit women’s opportunities in labor markets. However, the adoption of those reforms will take time because of deeply rooted gender-based social norms. Women have limited household decision-making power, and their success in entrepreneurial activities depends on the goodwill of their husbands. Moreover, social expectations of household responsibilities limit the time that women have for pursuing business opportunities. Addressing those societal constraints will require reforming the civil code and interventions to promote behavioral changes on gender roles.

To generate change, gender policies need to be ambitious and address barriers that could hinder the implementation of those reforms. Gender policies that influence women’s time allocation to domestic chores and time fetching wood and water will contribute towards improved gender outcomes. For example, better access to infrastructure services, such as water, electricity, and transport, may enable more girls to remain in schools and more women to devote more time to market activities.

Table 4: Matrix of Policy Recommendations

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>Gap Addressed and Desired Impact (Factors)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Removing legal barriers to women’s access to work by</td>
<td>Absence of legal protection for women in workplace</td>
</tr>
<tr>
<td>(i) revising the Civil Code and the Labor Code to remove the various</td>
<td>The cost of hiring women of childbearing age is higher for employers in economies in which laws mandate that employers pay for leave benefits and could act as a disincentive against hiring women.</td>
</tr>
<tr>
<td>prohibitions for women undermining their decision-making ability and access to various types of work⁸</td>
<td></td>
</tr>
<tr>
<td>(ii) Reforming maternity leave laws to remove employer disincentives to hire women⁹</td>
<td></td>
</tr>
</tbody>
</table>

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⁸ Quisumbing et al. (2008).
⁹ Handa et al. (2013) and Seidenfeld et al. (2013).
¹⁰ Gentilini, Honorati, & Yemtsov (2014).
¹¹ Campos et al. (2017).
### Table 4: Continues

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>Gap Addressed and Desired Impact (Factors)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Enhance women’s productivity by</strong></td>
<td></td>
</tr>
<tr>
<td>(i) encouraging female land titling, especially having married women as co-owners</td>
<td>Lower skills and access to assets (financial services, information, land)</td>
</tr>
<tr>
<td>(ii) providing training for women to adopt cash crops</td>
<td></td>
</tr>
<tr>
<td>(iii) providing training and information to address multifaceted vulnerabilities of women entrepreneurs in numeracy skills, psychosocial skills, productive sectors and business management</td>
<td></td>
</tr>
<tr>
<td><strong>Reduce women’s vulnerability to shocks by strengthening the Social Protection System and designing programs that are gender sensitive</strong></td>
<td>Higher female vulnerability to shocks</td>
</tr>
<tr>
<td>(i) Instituting social protection programs that are gender sensitive and provide rapid response to households to help with large covariate shocks such as health epidemics or weather catastrophes.</td>
<td></td>
</tr>
</tbody>
</table>

| **Enhance Education for Adolescents** | |
| **Promote universal education by** | Human development gaps in education (school enrollment and completion) |
| (i) ensuring that primary and secondary schooling are affordable (including opportunity costs) | |
| (ii) providing school infrastructure including new schools and access to water, latrines and hygienic facilities or transportation facilities when needed | |
| (iii) improving learning through better curricula and incentives for teachers to provide better instruction | |
| **Establish Safe Spaces to provide** | Human development gaps in education (school enrollment and completion), and maternal mortality. Early marriage and early childbearing and other forms of systemic gender-based violence against girls. Awareness about the need to change social norms (early childbearing, early marriage, girls’ education |
| a) life skills and sexual and reproductive health knowledge in order to promote nutrition, reproductive health behavior; training and outreach on soft skills and the elimination of all forms of GBV - including early marriage. | |
| b) economic opportunities for girls not in school aimed at building skills for income-generation, livelihood interventions and financial literacy/access to financial services | |
| c) incentives to stay or return to school for girls who’ve dropped out such as Conditional Cash Transfers promoting school enrolment and completion | |
| **Use media campaign to promote girls’ empowerment and education aimed at both genders.** | |
| **Protect adolescent girls through legal frameworks by** | Weak enforcement of legal protection for girls for early child marriage and against violence Little public support for ending child marriage or FGM/E |
| (i) Enforcing existing laws to regulate child marriage and FGM/E | |
| (ii) Strengthening awareness campaigns and dialogue with communities, customary chiefs, religious leaders and traditional communicators to eliminate child marriage and FGM/E | |
| (iii) Creating cash transfer programs with a condition linked to reducing child marriage | |

**Notes:**  
a. Listed in Articles 136(1) and 136(2) of the Labor Code and Articles 1 and 3-6 of Arrêté No. 1392/MASE/DNTLS/90 du 15 Mai 1990, and Article 328 of the Civil Code which establishes that a woman cannot get a job or pursue a trade or profession if her husband objects based on the interests of the family.  
b. Article 153.3 of the Labor Code and Article 105 of the Social Security Code to establish that 100% of the maternity leave benefits is paid by the government. Currently the wages for women on maternity leave are paid 50% by the employer and 50% by the government.
Gender equality matters in its own right. Gender equality is commonly defined as the equal rights, opportunities, and political participation of women and men, boys and girls. Gender equality matters intrinsically because of the role that it plays in mediating the opportunities that determine material human well-being. The World Development Report (2012) on gender articulates this with reference to Amartya Sen’s view of development as a process of expanding freedoms equally for all people. Following this definition of development, gender equality is a core objective in and of itself (World Bank, 2012). This view is further evident in the Sustainable Development Goals (SDGs) that recognize that gender inequalities are deep-rooted in every society. As a result, SDG 5 is “achieve gender equality and empower all women and girls”. Moreover, the United Nations High Commissioner for Human Rights has pledged to advance gender equality around the world because millions of women around the world continue to experience discrimination.

Moreover, gender equality matters for economic development. Promoting gender equality brings economic benefits for all. Ensuring a gender inclusive society where access to education and health services, economic opportunities, and agency doesn’t depend on one’s gender can enhance growth and make institutions more representative (World Bank, 2012). Limitations to the economic contribution of women have a negative impact on economic output. Output losses due to gender inequalities result from misallocation and underinvestment of labor. Gender equality is instrumental for development by enhancing economic efficiency (World Bank, 2012). Although economic development alone can play a major role in boosting equality between men and women, it would not be enough by itself to reduce gender inequality (Duflo, 2012). As illustrated in Figure 1 from the World Development report on Gender Equality (World Bank 2012), household decision making, markets, formal institutions, and informal institutions combine and interact to determine gender-related outcomes.

Guinea is a low-income country with gender gaps in many dimensions. GDP per capita amounted to only US$823 in 2017, compared to an average of US$1,574 for the Sub-Saharan Africa region. Poverty is pervasive,
affecting more than half of the population in 2012. Gender inequalities are prevalent in primary and secondary school enrollment. About 51 percent of women aged 18-22 were married as children, well above the average for West Africa countries (39 percent). Child marriage and early childbearing are correlated with gender gaps in education (Lopez Calix, Lemiere, & Moller, 2018). Women have lower agricultural productivity. Using the HCI as a measure of future productivity gaps, a girl born today is expected to earn only 35.2 percent of her potential, compared to a boy who could earn 37.7 percent. Moreover, women do not have the same decision-making powers as men at all levels of society, which hampers their ability to shape the country’s socioeconomic development.

The country is undergoing economic and demographic changes, raising the urgency of tackling gender inequality. Growth rebounded after the most recent Ebola epidemic of 2014, reaching an exceptionally high level of above 9 percent in 2016, driven by mining sector growth and FDI flows. Agriculture employs about 80 percent of the population, most of the poor, and generates about 17 percent of GDP. The country is at the early stage of a demographic transition with a young population that is growing rapidly (2.6 percent per year). Labor force participation is 66 percent of adult population (15 years or more) with a high female to male labor participation rate of 98 percent.

This report examines gender differences in the Guinean economy over the course of the life-cycle and their macroeconomic impacts. Using the conceptual framework used in Wodon & De La Briere, (2018), to measure the cost of gender inequality (shown in Figure 2), this report focuses on two main domains of impact for gender inequality: (i) educational attainment, child marriage, early childbearing, and female genital mutilation/excision for girls and adolescents; and (ii) labor, earning, and productivity for

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12 This is the most recent statistic available.
adult women. Moreover, the macroeconomic impacts of gender inequality are examined using a computable general equilibrium model. The analysis of the report relies on primary data from various surveys, including the 2012 Limited Poverty Assessment Survey (ELEP, Enquête Légère pour l’Évaluation de la Pauvreté), the 2012 Demographic and Health Survey (DHS) and the 2016 World Bank Enterprise Survey. Some of the limitations of these surveys are lack of: (i) information about informal businesses and (ii) gender-disaggregated data on agricultural plots. We also used the World Bank Development Indicators and gender indicators from OECD and UNICEF as secondary sources of data.

The rest of the report is organized as follows. Chapter 2 examines gender gaps in education, rates of child marriage, early childbearing, and FGM/E. Chapter 3 focuses on labor markets in adulthood and looks at gender gaps in labor market participation, wage earnings, agricultural productivity, and entrepreneurship. Chapter 4 presents the macroeconomic benefits of closing gender gaps in education and productivity using a computable general equilibrium (CGE) model calibrated for the Guinean economy. Finally, Chapter 5 describes the actions that Guinea has taken thus far to achieve gender equality and presents evidence on what programs could be useful to close gender gaps.

Figure 2: Conceptual Framework for Measuring Cost of Gender Inequalities

Low educational attainment and child marriage are correlated with gender inequality, affecting girls’ life trajectories with macroeconomic consequences, while FGM/E remains widely practiced. These phenomena are highly correlated. Child marriage is negatively correlated with girls’ education as it affects the attendance of adolescent girls, especially in secondary school. Countries where child marriage rates are high also tend to have low educational attainment for girls, which in turn leads to reduced lifetime earnings and lower GDP growth (Lopez Calix et al., 2018). Child marriage also contributes to higher fertility as women marrying earlier tend to both have children earlier and bear more children over their lifetime. Meanwhile, early childbearing increases the likelihood of dropping out of school and decreases the probability of completing secondary or primary school.

Gender inequality in Guinea becomes severe in adolescence as girls are more likely to drop out of school than boys, marry as children, and have their first child before the age of 18. Gender inequality affects young girls since in gender unequal societies, they often receive less nutrition, fewer opportunities to play, and access less learning than young boys13. Gender inequality however becomes especially visible and consequential during adolescence. Thus, girls in Guinea continue to fare poorly in terms of educational attainment in comparison to boys, including in the completion of primary school. They are 5 percent less likely to be enrolled in primary school and less likely to transit into higher levels of education. Multiple factors contribute to girls dropping out of school prematurely and to the perpetuation of child marriage and early childbearing, and there has been little progress over time. Low educational attainment, high child marriage and early childbearing are phenomena that are closely linked, and lead to low skill accumulation. We examine this further in this chapter.

Gender Gaps in Education

After years of poor performance, Guinea’s primary and secondary school completion rates improved, attaining the average of Sub-Saharan Africa, which is still very

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13 (Plan International, 2017)
low. Figure 3 shows that until the early 2000s, Guinea’s primary and lower secondary school completion rates ranked among the bottom 20th percentile of Sub-Saharan African countries. A renewed focus on expanding access to education following the 2000 Global Summit for Education in Dakar accelerated improvements in attendance rates for both primary and secondary school and Guinea reached closer to the regional average, which is itself quite low.

Gender parity in school enrollment rates has improved, but still there are more male than female students at every education level in Guinea. Figure 4 displays the evolution of the transition between different levels of education in Guinea using World Development Indicators data. The net school enrolment rate is higher for males than females at every level of education, and further while the situation has improved since 1994, more males than

**Figure 3: Evolution of Primary and Lower Secondary Completion Rates**

<table>
<thead>
<tr>
<th>Year</th>
<th>SSA Primary completion rate</th>
<th>Guinea primary completion rate</th>
<th>SSA Lower secondary completion rate</th>
<th>Guinea lower secondary completion rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1971</td>
<td>20</td>
<td>20</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2013</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Calculations using World Development Indicators, the World Bank. Simple average across countries for which data are available. In an average year, observations available for 20 (lower secondary) to 27 (primary) countries and show the completion rates as a percent of the relevant age group.

**Figure 4: School Enrolment by Education Level and Gender, 1994 and 2014**

<table>
<thead>
<tr>
<th>Year</th>
<th>Preprimary</th>
<th>Primary</th>
<th>Secondary</th>
<th>Tertiary</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td>100</td>
<td>100</td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td>2014</td>
<td>100</td>
<td>100</td>
<td>75</td>
<td>75</td>
</tr>
</tbody>
</table>


**Figure 5: Gender Parity Index, School Enrolment Primary and Secondary (Gross) for Guinea and Comparator Countries**

<table>
<thead>
<tr>
<th>Country</th>
<th>Circa 2005</th>
<th>Circa 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rwanda</td>
<td>1.0</td>
<td>1.1</td>
</tr>
<tr>
<td>Liberia</td>
<td>0.9</td>
<td>0.9</td>
</tr>
<tr>
<td>Sierra Leone</td>
<td>0.8</td>
<td>0.8</td>
</tr>
<tr>
<td>Nepal</td>
<td>0.7</td>
<td>0.7</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td>Lao PDR</td>
<td>0.9</td>
<td>0.9</td>
</tr>
<tr>
<td>Mozambique</td>
<td>0.8</td>
<td>0.8</td>
</tr>
<tr>
<td>Burkina Faso</td>
<td>0.7</td>
<td>0.7</td>
</tr>
<tr>
<td>Guinea</td>
<td>0.6</td>
<td>0.6</td>
</tr>
</tbody>
</table>

Source: World Development Indicators, The World Bank. Note: Comparator countries are countries that had a similar GDP per capita, school enrolment gender gap index, and maternal mortality in 2005, but were able to improve those indicators faster than Guinea.
females continue to transition between levels of education (Figure 4). Compared to countries with a similar structure to Guinea’s in 2005/06, Guinea’s progress in improving gender parity in school enrolment has been low (Figure 5). From the Human Capital Index, the expected years of school for females is 6.17 and those for men is 7.7.

Gender gaps in net school enrolment rates are also evident using the 2012 ELEP survey. About half of primary school age children are enrolled in primary school. There is a statistically significant gap between boys and girls in net primary and secondary school attendance. The net attendance rate in primary school for girls is 5 percent lower than that of boys, 2.4 percent lower in middle school, and 2.3 percent lower in secondary school. To understand gender disparities in net school enrolment and completion, we use an Oaxaca-Blinder decomposition which is described in the box.

For children between 7 and 12, the gender gap in predicted net primary school attendance rate is 4.7 percent in favor of boys. Of this, the explained portion due to differences in endowments is -1.7 percentage points and is marginally significant, and the unexplained portion due to differences in returns is 6.4 percentage points and strongly statistically significant. Gender disparities in net attendance rate in primary school in Guinea are thus mostly driven by a difference in returns to boys than girls as opposed to differences in endowments. In those aged 13-16, the gender gap in predicted net middle school attendance is 2.1 percent and for those aged 17-19 the gender gap in predicted net secondary school attendance is 2.5 percent.

The gender gap in education is larger in rural areas. A large share of the Guinean population lives in rural areas where fertility rates are higher, leading to a faster-growing school population. Location and accessibility of school play a significant role in children’s, particularly girls’, ability to go to school. Parents may be reluctant to let girls walk long distances to school due to safety concerns, for example. Moreover, schools in rural areas in Guinea have fewer teachers relative to the number of students as well as lower access to water and sanitation services, which are particularly detrimental for girls. For example, a recent study

The Oaxaca-Blinder decomposition method allows for the breakdown of the gender gap into two main components: the endowment effect and the structural effect.

The endowment effect refers to the portion of the gender gap that is a result of differences between males and females in terms of factors of production such as age, family characteristics, rural or urban and so on. Simply put, it refers to the differences in the quantities or levels of factors influencing education for males compared with females. Most significantly for policy, the portion of the gender gap attributable to the quantity or levels of resources can be reduced by ensuring that females receive the resources that they lack relative to males.

The structural effect captures the returns to resources. This portion of the gender gap results from differences in what is obtained from a given amount of a factor of production - i.e. the difference in school attendance rates for males and females in big families or in rural areas. Even when males and females have access to the same quantities of resources, they may not achieve the same results. A noticeable difference in returns to resources points towards differences in the treatment of males as compared with females within formal and informal societal institutions. As a result, providing females with more resources will not necessarily reduce this structural effect portion of the gender gap. Instead, policies need to address broader issues of disadvantage (such as gender-based discrimination) faced by females.
The role of sanitation infrastructure and educational attainment in India finds that the lack of gender-specific latrines contributes to gender disparities, particularly among pubescent-age girls (Adukia, 2017). Moreover, a larger gender gap in rural areas may also reflect the fact that traditional attitudes among parents and communities against girls’ education are more prevalent in rural areas and the opportunity costs of sending adolescent girls to school are higher for rural than urban families. Our analysis also reveals that the greater the size of the household, the larger the gender gap.

The gender gap in education grows with age, reflecting the fact that fewer girls than boys progress to higher levels of education. This is also linked to the fact that girls are more likely than boys to be married early since child marriage and early childbearing often mark the end of a girl’s education. Table II.1 illustrates that although the pass rate for the 7th grade exam has been growing, it has been lower for girls.

### Table 5: Evolution of Pass Rate for 7th grade

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>32.5</td>
<td>40.3</td>
<td>59.3</td>
<td>43.5</td>
<td>54.7</td>
<td>69.0</td>
</tr>
<tr>
<td>Girls</td>
<td>26.0</td>
<td>35.0</td>
<td>56.0</td>
<td>37.0</td>
<td>60.0</td>
<td>66.0</td>
</tr>
</tbody>
</table>


Child marriage is pervasive among women in Guinea, although its prevalence has declined over the past 25 years. DHS 2012 indicates that 51 percent of women were married before the age of 18. The rates of child marriage vary between urban and rural areas with the rates at least 12 percentage points higher for the latter. There are also regional disparities, with Conakry, the capital, having the lowest child marriage rate in the country. Malé and Wodon (2016) further report that while the shares of women who were married early have been declining over time, the decline has been only modest and has occurred recently. The rate of child marriage in contrast for boys is low. UNFPA has found that in 82 countries that they analyzed (including Guinea) child marriage rates for boys are very low even in countries where child marriage among girls is relatively high.14

At the same time, the rate of early childbearing, defined as mothers having their first child before age 18, remains high. According to 2012 DHS data, the incidence of early childbearing is 40 percent for women aged 20-24 (Figure 7), with 11 percent of them having their first child by age 15. The rates of early childbearing are higher in rural areas compared to urban ones. Like the child marriage rate, the rate of early childbearing is lowest in Conakry. The prevalence of early childbearing increased by 3.3 percentage points in 25 years, which is the average time separating the cohorts of women aged 18-22 from those aged 41-49 (Wodon, Male, & Onagoruwa, 2017). In Guinea, child marriage is likely the cause of 75.3 percent of girls having children before the age of 18, suggesting that child marriage and early childbearing are closely related (Wodon, Male, & Onagoruwa, 2018).

There is a strong association between child marriage, early childbearing, and low educational attainment. Field & Ambrus (2008) using data from Bangladesh show that each additional year that marriage is delayed is associated with 0.22 additional years of schooling and 5.6 percent higher literacy. They also demonstrate that delayed marriage is associated with an increase in the use of preventive health services. Using DHS data from 36 countries from Sub-Saharan Africa and South West Asia, Delprato, Akyeampong, Sabates, & Hernandez-Fernandez (2015) find that delaying early marriage by one year is associated with an increase of half a year of education in

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Sub-Saharan Africa. Results from Agüero & Marks (2011) suggest that childbearing negatively affects the likelihood of working for cash for young women and those living in very low-income countries.

Child marriage and early childbearing can be both the cause and consequence of poor educational attainment. The decision to discontinue a girl’s education often takes place right before a girl is about to marry, or shortly afterwards when her domestic burden has significantly increased, and she is no longer able or allowed to continue her education. Child marriage is not always the reason for school dropout—school fees, safety concerns, and poor quality of teaching also have a significant impact on whether girls remain in school—but once a girl has left school, it is more likely she will marry and start to have children before she is physically and emotionally ready (King & Winthrop, 2015). Culturally, FGM/E has been frequently linked to marriageability as it serves as a rite of passage from childhood and adulthood (Population Council, 2018).

Female Genital Mutilation / Excision (FGM/E)

Guinea has the second highest incidence of FGM/E in the world, affecting 96.8 percent of girls and women aged 15 to 49 years old in 2016. Female genital mutilation/ excision refers to “all procedures involving partial or total removal of the female external genitalia for non-medical reasons.” (WHO, 2008). Among West African countries, Guinea stands out for the widespread prevalence of FGM/E, and only The Gambia, Burkina Faso, Mali, and Sierra Leone have a prevalence rate of more than 75 percent (Figure 8). Unlike the child marriage and early childbearing rates, the practice of FGM/E within Guinea shows little variation across regions, levels of education, and income level, but is lower among Christians (88.7 percent). All the regions had rates that were close to 99 percent.

Conakry was only slightly lower, at 96.1 percent. The lowest rate was in Nzérékoré at a still high level of 91.6 percent. There is only 3.3 percentage points difference in the prevalence of FGM/E between girls and women aged 15 to 49 without education (97.8 percent) and those with at least secondary education (94.5 percent). There is similarly little variation across income quantiles (98.2 percent among the poorest versus 96 percent among the richest (Institut National de la Statistique, 2017).

The prevalence of FGM/E in Guinea has remained stable with little progress in the past 25 years but less severe forms of FGM/E are being used more frequently. When comparing the incidence of FGM/E by age cohorts, 98.7 percent of women aged 45-49 years underwent FGM/E compared to 94.5 percent of women aged 15-49. About 10.5 percent of girls and women aged 15-49 who underwent FGM/E suffered from the worst type (sewn closed) in 2016, a similar rate as in 2005. Between 2005 and 2016, FGM/E in the form of “cut, flesh removed” decreased from more than 85 percent to 64 percent, respectively, among girls and women ages 15-49 (UNICEF, 2017). However, girls ages 0 – 14, who have an incidence of FGM/E of 45 percent as reported by their mothers, the prevalence of “sewn closed” almost double between 2012 and 2016, reaching 12.2 percent among those with FGM/E.

In Guinea, FGM/E is an initiation rite, not only in the transition from childhood to adolescence and adulthood, but also to prepare the young girl for active life within specific communities (Plan International, 2006). An Office of the High Commissioner for Human Rights (OHCHR) report on the practice of female genital mutilation and excision in Guinea reports that groups of girls from multiple families are usually excised together, either at home or in camps established for the purpose, with or without ceremonies and festivities. FGM/E usually takes place during school holidays or at harvest time. There is an increasing trend towards fewer celebrations and an increase in individual excisions, because of limited financial resources and a desire for greater discretion, due to the potential for legal sanctions. The excision of infants or very young girls is easier to hide from the authorities than the ceremonial excision of large groups. Paradoxically, this more clandestine development of FGM/E may be the result of awareness campaigns in recent years, and the increase in legal sanctions (OHCHR, 2016).

Support for FGM/E is high in Guinea from both women and men, although there is some variation by income
level – it is greatest among girls and women from poor households (80 percent) compared to more well-off households (55 percent) (Institut National de la Statistique, 2017). This is in stark contrast to most other countries where FGM/E is practiced where women and girls have little support for the continuation of the practice (Figure 8). The 2016 OHCHR reports that “broadly speaking, non-excision of girls is considered dishonorable in Guinean society.” This is indicated by the use of the term ‘washing’: non-excised girls are considered ‘dirty’, and in every Guinean community, to say that a woman is not excised is a grave insult. Social pressure is such that “girls may request excision for fear of being excluded or forced to remain unmarried if they do not suffer the practice” (OHCHR, 2016).

Child marriage and FGM/E have similar underlying causes and consequences. The Population Council (2018) summarizes six qualitative peer-reviewed studies examining the link between child marriage and FGM/E in six Sub Saharan African countries. They find that all the studies reported an indirect association between the two practices since they both have similar causes and underlying intentions. FGM/E and early/child marriage are both thought to protect girls from social and economic risks; they are driven by poverty and lack of economic opportunity for girls in the areas where they are practiced. Parents believe that marriage provides a financially stable future for girls and that circumcised girls are more desirable candidates for marriage. The qualitative research also provides evidence that both practices share a similar social context. Both practices occur in many of the same places and among the same subgroups. Social and cultural norms and beliefs sustain both practices, which tend to be related to controlling women and girls’ sexuality and maintaining traditions and family honor. In addition, FGM/E, child marriage, and early childbearing often result in similar negative consequences, including the potential for maternal and newborn deaths, birth complications, stigmatization or social isolation, and domestic or intimate partner abuse.

The persistence of FGM/E is due in large part to a culture of impunity. The Guinean Government has had legislation prohibiting FGM since 1965. More recently, the 2016 criminal code (Articles 258-261) prohibits all types of FGM whether performed by traditional or modern methods. The 2008 Children’s Code classifies FGM as violence against children (Articles 405-410) and requires public and private health facilities to report cases of FGM to relevant public authorities. Moreover, the General Secretariat of Religious Affairs also issued a fatwa (religious ruling) prohibiting the practice of FGM in Guinea in 2007. Nonetheless, thousands of young girls are excised across the country every year. Excision practitioners are only rarely subjected to legal

**Figure 6: Child Marriage by Age Group, Latest DHS**

![Figure 6: Child Marriage by Age Group, Latest DHS](image)


**Figure 7: Early Childbearing for Women Aged 20-24 in West Africa (%)**

![Figure 7: Early Childbearing for Women Aged 20-24 in West Africa (%)](image)

Source (Fenn, Stevanovic, Edmeades, Lantons, & Onovo., 2015) based on latest DHS available.
Figure 8: FGM/E Prevalence among Girls and Women in West Africa (% of girls and women ages 15-49), latest year

Source: UNICEF database on FGM/E.

proceedings. No administrative or legal sanction has to date been taken against any medical professional for participation in FGM/E, although according to the 2012 DHS and a recent study by the Ministry for Social Action, the Advancement of Women and Children’s Issues, a growing number of excisions take place in health centers, in violation of the law (OHCHR, 2016). The current legislation does not punish failure to report FGM to the relevant authorities nor does it protect uncut girls and women from abusive language or exclusion from society.15

Conclusion

Gender inequality in adolescence in Guinea pervasive. This is clear with the closely related issues of child marriage, early childbearing, FGM/E, and low educational attainment for girls. Child marriage, and early childbearing can be both the cause and consequence of poor educational attainment. FGM/E, by serving as a rite of initiation, is linked to child marriage. These mutual relationships are the reason why incentives for girls to remain in school or go back to school if they dropped out, coupled with effective application of the laws against FGM/E and child marriage as well as awareness campaigns and dialogue with communities, appear to be among the most effective interventions to delay the age at first marriage and prevent early childbearing. These policy options will be further explored in Chapter 5.

15 28too many (2018).
Women constitute 49 percent of Guinea’s working population yet remain economically disadvantaged compared to men. In this section, we examine gender gaps in agriculture, entrepreneurship, and earnings using national household survey data from the 2012 Limited Poverty Assessment Survey, (Enquête Légère pour l’Evaluation de la Pauvreté, ELEP) collected by the National Statistics Institute of Guinea (INS), Enterprise Survey 2016 collected by the World Bank’s Enterprise Analysis Unit and the Demographic & Health Survey 2012 (DHS). For each area, we first compute simple differences in outcomes between men and women. We then consider a broad range of explanatory variables, and report how the gender gaps change when comparing men and women that are similar along these dimensions. We then conduct additional analysis to pinpoint the most important constraints contributing to the gender gap. We also include analysis on the maternal mortality rate.

Labor Market Characteristics

The female labor force participation rate (LFP) in Guinea is one of the highest in Sub-Saharan Africa at 66 percent in comparison to the Sub-Saharan Africa average of 62 percent. Moreover, Guinea’s female labor participation rate has been steadily higher than the Sub-Saharan Africa average since 1990 when the earliest data are available (Figure 9 below). Guinea has the highest ratio of female to male labor participation rate (nearly 100 percent) among Sub-Saharan Africa countries (Figure 10).

About two-thirds of employed men and women are self-employed. This is illustrated in Figure 11. Another notable feature is that 27 percent of women work in the home versus 15 percent of men. While the self-employment rate is very high, this is driven by agriculture rather than entrepreneurship. Among the self-employed, 74 percent of men and 66 percent of women are in agriculture and 10 percent of men and 28 percent of women are in retail trade.

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16 Labor force participation rate (LFP) is defined as the percentage of the female population ages 15-64 that is working or actively looking for employment.
Agriculture is the main source of employment for all Guineans, however, women are more involved in retail sales than men. Men are mainly concentrated in agriculture (65 percent), services (9 percent) and retail sales (8 percent) whereas women are mainly concentrated in agriculture (70 percent) and retail sales (20 percent). This is illustrated in Figure 12.

The unemployment rate for women (2.3 percent) is slightly lower than that of men (3.3 percent) according to the 2012 ELEP survey.\textsuperscript{17} Unemployment is a more urban than rural phenomenon with 4.6 percent of urban women unemployed, and 1 percent of rural women unemployed, as shown in Figure 13. The lack of inclusion of urban youth, especially in the labor market, is one of the drivers of

\textbf{Figure 9: Female Labor Force Participation, (% of female population ages 15-64) in 2017}

\textbf{Figure 10: Ratio of Female-Male Labor Force Participation Rate in 2017, ages 15-64}

\textbf{Figure 11: Employment Category, by Gender for ages 15+}

\textbf{Figure 12: Employment Types, and by Gender, Age 15+}

\textsuperscript{17} Unemployment is defined as the percentage of people not working but actively looking for work relatively to the labor force.
fragility in the country. Our analysis of the data reveals that unemployment appears to be evenly distributed across age groups.

The analysis in the rest of the chapter focuses on gender inequalities in agriculture, formal business performance, and wage employment due to their importance as sources of revenue for the Guinean women.

Gender Gaps in Agricultural Productivity

Agriculture is a key sector of the Guinean economy, accounting for 18 percent of GDP and generating 67 percent of total employment. Yet, the sector is characterized by very low levels of farm input use, low value added per agricultural worker and low yields. The analysis in the 2018 Systematic Country Diagnostic for Guinea identifies several factors linked to low agricultural productivity. Limited use of improved technologies, poor functioning of input markets, and land tenure shortcomings are negatively associated with agricultural productivity. Moreover, constraints in rural transport limit farmers’ option to sell their crops outside their local markets and lead to post-harvest losses.

Like other countries in Sub-Saharan Africa, women mostly work in agriculture (70 percent of women according to ELEP 2012). As reported by Slavchevska, Kaaria, & Taivalmaa (2016) a study produced by USAID on gendered farming practices found fewer men than women farmers across various agroecological zones, which is linked to male migration from rural areas to urban centers and work in the mining industry. The same study finds that women are more likely to be the decision makers for sales and processing while men mostly control the income from those sales.

Gender gaps in agricultural production are substantial. To analyze gender gaps in agriculture, we use the 2012 ELEP survey despite some data limitations on farming activities.\(^\text{18}\) Table III.1 compares the characteristics of female and male headed households in agriculture. Of the households practicing agriculture, 8 percent are female-headed and 92 percent are male-headed. There are a number of notable differences: male-headed households generally farm larger plots, use more farming inputs such as fertilizer, and improved seeds and are more likely to use irrigation. Finally, we see that yields of both legumes and cereals are much higher for male headed households than female-headed households.

After accounting for regional differences, socio-demographic and agricultural variables, female-headed agricultural households produce 8 percent less than male-headed agricultural households. To assess the contribution of different factors to the gender gap in productivity, we decompose the gender gap in agriculture using the Oaxaca-Blinder decomposition technique. Our analysis reveals that part of the gender gap in

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\(^{18}\) The 2012 ELEP data on agriculture did not provide sufficiently detailed information at the plot and crop level. For instance, the details of inputs and output, i.e., the quantities of fertilizers or pesticides used per plot, the agricultural implements used etc., and the amount produced per individual crop, were not reported. Thus, we relied on quantities of categories of crops i.e., tubers, cereals, industrial crops etc. Prices were accordingly estimated (in categories of crops rather than as individual crops) from price statements provided. The gender and socio-economic characteristics of plot-owners was inferred from the heads of households that responded yes to practicing agriculture. This is a second-best alternative since often plots within a household are managed by different members of the household and research shows that often the plots managed by females in the household receive less resources than those managed by men. In additional female household heads are likely different from the median Guinean woman on a variety of dimensions.
productivity is associated with the fact that on average women have less education, are in polygamous unions and work smaller plots of land. The analysis similarly shows that having suffered a health incident is associated with a higher gender gap. While the Ebola outbreak of 2014 happened after this survey, these results provide suggestive evidence for why agriculture was particularly strongly hit. This may have increased the gender gap. More information is provided in Box 1.

The agricultural gender productivity gap may also be linked to gender gaps in asset ownership. Gaddis, Lahoti, & Li (2018) studying 28 countries in Sub-Saharan Africa including Guinea find that men are about three times as likely as women to claim sole ownership over assets, such as land. Gender gaps are smaller if joint ownership is taken into consideration, but still, materially disadvantage women. Men are significantly more likely to own property than women even after controlling for a host of other factors.

**Gender Gaps in Formal Business Performance**

Female inclusion in formal business activity (female participation in firm ownership, top management, and employment) in Guinea is much lower than in other Sub-Saharan Africa countries. We examine female entrepreneurship with the 2016 World Bank Enterprise Survey for Guinea, which allows for comparisons with the regional and low-income countries average.19 Enterprise survey data exclude microenterprises and informal firms where women tend to be concentrated. Evidence from other contexts in SSA suggests that the average business profit gap is larger when these firms are included. Female

### Table 6: Characteristics of Households working in Agriculture, by Gender of Household Head

<table>
<thead>
<tr>
<th>Variable</th>
<th>Female Headed Household Mean/SE</th>
<th>Male Headed Household Mean/SE</th>
<th>Difference (1)-(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land size (ha)</td>
<td>2.064</td>
<td>3.988</td>
<td>-2***</td>
</tr>
<tr>
<td>Hired farm labor (people/HA)</td>
<td>9.881</td>
<td>14.494</td>
<td>-4.612**</td>
</tr>
<tr>
<td>No education (%)</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Literacy (can read and write in any language)</td>
<td>13</td>
<td>32</td>
<td>-18***</td>
</tr>
<tr>
<td><strong>Input Use</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plots that Use organic fertilizer (% of Total)</td>
<td>33</td>
<td>19</td>
<td>14</td>
</tr>
<tr>
<td>Plots that Use inorganic fertilizer (% of Total)</td>
<td>15</td>
<td>23</td>
<td>-7.8**</td>
</tr>
<tr>
<td>Plots that Use Pesticide/Herbicide/Fungicide (% of Total)</td>
<td>6</td>
<td>13</td>
<td>-6.9</td>
</tr>
<tr>
<td>Plots that Use improved seeds (% of Total)</td>
<td>40</td>
<td>40</td>
<td>0*</td>
</tr>
<tr>
<td>Plots that Use Irrigation (% of Total)</td>
<td>2.1</td>
<td>4.3</td>
<td>-2.3*</td>
</tr>
<tr>
<td><strong>Yields</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total cereals produced (in kgs)</td>
<td>2,521</td>
<td>16,430</td>
<td>-13,900*</td>
</tr>
<tr>
<td>Total legumes produced (in kgs)</td>
<td>717</td>
<td>4,363</td>
<td>-3,645*</td>
</tr>
<tr>
<td>Value of production per ha (’000 GNF/ha)</td>
<td>14,200</td>
<td>15,300</td>
<td>1070</td>
</tr>
</tbody>
</table>

Source: The value displayed for t-tests are the differences in the means across the groups. Notes: ***, **, and * indicate significance at the 1, 5, and 10 percent critical level.

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19 The World Bank Enterprise Surveys cover formal firms in manufacturing and services with 5 or more employees. The 2012 ELEP survey was not used in the analysis due to data limitations.
participation in the formal private sector is low. Only 9 percent of Guinean firms had a woman amongst their owners, which is about three times lower than the Sub-Saharan Africa (29 percent) and low-income (25 percent) countries averages. Guinea also does not compare well in the percentage of female participation in the workforce of formal private firms, with 15 percent of female workers, about half the regional average. About a quarter of the firms did not have any female employees.

The Oaxaca decomposition of the Enterprise Survey shows a difference of 4.7 percentage points to the detriment of women in annual sales figures. Among the factors correlated with the gender gap, our analysis reveals that operating in the hospitality industry was associated with a smaller gender gap suggesting that this is an industry that has greater gender equality. Our analysis further reveals a difference in the returns to the number of workers and the years of experience the top manager has in the industry the firm operates in for male and female-owned business. This is suggestive of underlying gender inequality since male and female-owned businesses with the same resources achieve different levels of returns.

Overall another factor underlying low returns to female entrepreneurs may be that women have less access to financial services. To elaborate more on the uneven levels of financial inclusion, we analyzed data from the 2017 Global Findex database (Demirgüç-Kunt et al., 2018). There is a gender gap of 7.6 percentage points in account ownership in Guinea, with 27.3 percent of men having one compared to 19.7 percent of women. However, the gap shrinks to 2.3 percentage points when considering accounts held at financial institutions only, with 15.8 percent of men having...

Box 1: Gender Impacts of the Ebola Impacts

The 2014 outbreak of Ebola Virus Disease (EVD), which originated in a rural village in Guinea, had severe economic and social impacts, including a devastating human toll. The loss of GDP was estimated to reach almost $600 million or 6.1 percent of GDP due to effects on labor markets, agricultural production, and transport disruptions, among others. Urban employment deteriorated with Ebola outbreak, resulting in rising unemployment. In parallel, rural incomes declined, with a disproportionate impact on women (World Bank, 2016).

Female-headed households proved to be more vulnerable to Ebola infection. AfDB (2016) reports that women were central figures in the Ebola epidemic. The AfDB study further explains that in Muslim burial practices across the sub-region, women typically prepare corpses for funerals and are also disproportionately the caregivers in homes. They represent the largest share of marketers, cross-border traders, and small-scale farmers. Similarly, women dominate the healthcare sector, primarily as nurses, midwives, and traditional birth attendants. The quarantine of markets and residential areas, and restrictions of movement, as measures to stop the spread of EVD, have also devastated income generation—especially in the informal sector, where female household heads and other women predominate.

Girls and young women were particularly vulnerable to the Ebola crisis. Close to 7 percent of households withdrew their children from school, with the large majority citing Ebola as the main factor (World Bank, 2016). The school drop-out rate was higher for female-headed households. Evidence from Sierra Leone that was similarly badly hit by EVD shows that the mandated closure of all schools in order to contain the epidemic effectively resulted in the loss of one academic year for all youth. Without the protection afforded by time spent in school, girls especially became more exposed to sexual abuse (Bandiera et al., 2018).
one compared to 13.5 percent of women. There is also a significant gender gap in mobile money account ownership; men are nearly twice as likely to have mobile money accounts at 17.6 percent compared to just 9.9 percent for women. Despite this, women fare slightly better than men when it comes to both saving and borrowing. 37.8 percent of men reported borrowing in the past year compared to 41.5 percent of women. This gap was similar to that of savings, where women saved 40 percent in the previous year compared to men’s rate of 38.2 percent.

**Gender Earnings Gap**

The raw gender earnings gap is 50 percent. However, controlling for job sector and socio-economic characteristics reduces this gender gap to 38 percent to the detriment of women. As shown in Figure 14, this raw gender wage gap differs across sectors, with the largest wage gap in transport, communication, and public administration. One driver of the gender wage gap is a gender gap in the sector of employment because female employees are mainly concentrated in agriculture and retail trade. In contrast, male employees have more diversification in the sector of employment.

**Figure 14: Raw Gender Difference in Monthly Earnings by Sector**

![Figure 14: Raw Gender Difference in Monthly Earnings by Sector](image)

Source: Author’s calculations from ELEP 2012.

The majority of the gender wage gap is due to differences in returns to various socio-economic variables between men and women. The Oaxaca Blinder analysis reveals that employed women who are married, whether in monogamous or polygamous households, face a substantial earnings disadvantage. This might reflect legal restrictions which establish that a woman cannot get a job or pursue a trade or profession if her husband objects based on the interests of the family. When women cannot freely decide where to go, travel or live, they may encounter difficulties when getting to work or conducting business transactions.

**Maternal Mortality, Contraceptive Use and Gender-Based Violence**

Guinea has among the highest maternal mortality rates in Sub-Saharan Africa. The maternal mortality rate is defined as the number of maternal deaths due to birth or pregnancy-related causes per 100,000 live births. In 2015, Guinea’s maternal mortality rate was 679. Approximately 28 percent of all female deaths in Guinea are maternal deaths, with the rate highest at 35.3 percent in the 20-24 age group. Rural maternal deaths are 84 percent of all

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20 These include both formal and informal sources of borrowing including banks, formal financial lenders, but also family and friends.
maternal deaths. As shown in Figure 15, Guinea has among the highest maternal mortality rates among all West African countries, with little change between 2010 and 2015. The main determinants of high mortality rates are poor obstetric health services, high fertility rate, high rate of FGM/E and early childbearing. Research from the WHO suggests that women with FGM are significantly more likely than those without FGM to have adverse maternal outcomes with greater risks with more extensive FGM (Banks et al., 2006).

The current use of contraception remains low in Guinea. According to the 2018 health survey, only 10.9 percent of women aged 15-49 that were in marital union used any contraception method, mainly a modern method. Although the use of contraceptives has increased from 5 percent in 2012 to 8.7 percent in 2016, Guinea still has the fourth lowest rate of contraceptive use among Sub-Saharan African countries.

Guinean women face significant rates of Gender Based Violence (GBV). A survey on GBV carried out by the Ministry of Social Action, Promotion of Women and Children found that 63 percent of women surveyed had faced conjugal GBV with a higher prevalence in urban than rural areas. Physical violence, threat or attack, and humiliation by their spouse are the most serious forms of conjugal GBV.21 Violence against women is perceived as acceptable in Guinea. According to the 2016 DHS, 71 percent of women agreed that it is permissible to be beaten for at least one of the following reasons: refusing to have sex with their spouses (48 percent), going out without telling husband (54 percent), neglecting children (55 percent), arguing with husband (48 percent), or burning food (20 percent). Currently, there is no specific law or provision addressing domestic violence in Guinea, defined as gender-specific violence commonly directed against women, occurring in the private sphere, within the family or members of the same household, and within interpersonal relationships.

Conclusion

Gender gaps in productivity in Guinea are significant. When considering individual sources of income, we observe stark gender gaps across agricultural productivity, entrepreneurship revenues, and wage earnings. The computed gender gaps are smaller when compared to other sub-Saharan African countries. For agricultural productivity, O’Sullivan, Rao, Banerjee, Gulati, & Vinez...
(2014) show that national gender gaps in Ethiopia, Malawi, Nigeria, Tanzania, and Uganda are higher than in Guinea and range from 23 to 33 percent. Lower gaps in our analysis may also be due to poorer quality data since the data on plot ownership and management were not gender disaggregated and we had to rely on the gender head of the household to infer the gender of all the plots worked by the household. In a meta-analysis of gender gaps in entrepreneurship profits from Sub-Saharan Africa, Campos & Gassier (2017) find that gender gaps range from 1 percent in Benin to 73 percent in the manufacturing census from Ghana, with an average gap of 24 percent. To the best of our knowledge, no such systematic work has been conducted recently for wage earnings in sub-Saharan Africa. However, Appleton, Hoddinott, & Krishnan (1999) find wage gaps of 3 percent in Cote d’Ivoire, 25 percent in Ethiopia and 33 percent in Uganda.

The maternal mortality rate in Guinea is among the highest in the world at 679 in 2015. The maternal mortality ratio in developing countries was estimated at 239 per 100,000 live births in 2015, compared to 12 per 100,000 in developed countries.22 Sustainable Development Goal 3 aims to reduce the global maternal mortality ratio to below 70 per 100,000 live births by 2030 and that no country should have a maternal mortality ratio greater than twice the world average of 140 deaths per 100,000 live births. This high rate is certainly linked to broader health system failures in Guinea that need to be addressed. Women further face significant rates of gender-based violence.

Despite lower earnings and productivity, women are not worse farmers, entrepreneurs, or workers than men. Rather, gender differences in labor productivity and earnings are primarily the result of differences in the choices of economic activities between men and women, different endowments and different returns from these endowments due to underlying social and economic constraints as noted in the 2012 World Development Report. Factors holding back women include inadequate access to labor and other productive inputs such as fertilizer and land, occupational segregation, and lower levels of education.

In Chapter 5, programs and policy options that could improve opportunities are discussed with a focus on increasing women’s investment in their human capital and encouraging occupational crossover for women in self or wage employment.

22 (World Health Organization, 2015).
Gender equality is viewed as a key ingredient for growth, requiring targeted policies. Under this view, the complex relationship between formal and informal institutions and gender equality of endowments, opportunities, and agency will not be resolved with economic development alone. Thus, gender policies are critical not only to accelerate growth but also to improve the lives and contribution of women to society. Gender inequality in Guinea starts early and has economic impacts that go beyond individuals and households, and that manifests itself at the economy level. Gender equality in education, for example, can have large impacts on growth due to potential improvements in labor allocation and productivity. Limiting female autonomy through early marriage helps explain the high adolescent fertility rate and the pervasiveness of gender inequalities in education and labor market outcomes. Other pathways through which gender equality can influence the economy include more equal sharing of domestic work, empowerment of women on decision making at the household, business or political levels, and costs of gender gaps on health and gender-based violence.

Assessing the economic benefits of gender policies becomes critical for Guinean policymakers. This chapter estimates those benefits using a computable general equilibrium (CGE) model. This analysis is unique because it is the first of its kind in the Guinean context. CGE models are used to estimate a broad range of economic benefits of gender equality in several policy areas such as education, fertility, and agricultural productivity. The CGE model uses the 2012 social accounting matrix and data from the 2012 household survey (the most recent data available) and has been calibrated to represent actual outcomes in 2013-2018. The main benefit of this approach is that it allows for the assessment of the impact of policies on the poorest and richest households as well as in urban and rural areas. One caveat is that the contribution of women to GDP growth is underestimated because GDP does not capture activities such as household work or time fetching wood or water, where women traditionally play a predominant role. In Guinea, for example, women spend an average of 22 hours on those tasks compared to 4 hours spent by men. When considering both paid and unpaid work, data show that women work longer hours than men: 49 hours a week compared to 38.8 hours of work by men.

The CGE model estimates the impact on growth of four policies through which gender equality affects the economy relative to a business-as-usual scenario. The first scenario considers higher education spending to close the education gap by equalizing education completion rates of girls and boys, which translate into a higher number of skilled female workers entering the labor market by 2035. The closing of gender gaps in education will have a positive influence in delaying early childbearing with the potential positive impact of lower fertility. The second scenario incorporates lower fertility in the model as a reduction in the child dependency ratio and its associated higher savings rates. At the aggregate level, the direct effect of higher saving is an increase in capital accumulation, which therefore promotes higher growth rates. The impacts of lower fertility are modeled separately rather than as part of the education scenario. The third scenario investigates the impact of increasing agricultural productivity of female farmers, which translates into a higher agricultural growth rate. Finally, the fourth scenario combines the costs and policy interventions of the previous ones, and thus represents an upper bound of potential gains of gender equality. Obviously, a policy maker will face some trade-off when selecting among the policies in these scenarios.

These pathways were selected based on the magnitude of gender gaps and data availability. A scenario that computes the benefits of reducing FGM/E was not possible due to lack of data regarding higher health spending or loss in labor productivity associated with FGM/E. A study of six African countries estimated that higher obstetrical costs attributed to FGM/E will be between 0.3 to 1 percent of public health spending. Another scenario not considered was changes in the time allocation of women due to the limited availability of infrastructure services.

The results of the CGE model present robust new evidence that advancing gender equality will have positive impacts on economic growth. GDP per capita growth will increase by 0.6 percentage points per year and could increase by 10.2 percent by 2035 relative to the baseline scenario, reaching US$940 (constant 2012 S). These economic gains result in a rate of return to investment of about 8.2 percent per year that could be generated by closing the gender skill gap, reducing fertility rate and child dependency which would increase the household saving, and closing the gender productivity gap in agriculture. Investing in education to close the gender skill gap will increase the number of skilled women participating in the economy, boosting GDP growth. Educating more women will delay marriage age (e.g., ending child marriage), thus reducing total fertility. Similarly, policies to close the gender gap in agricultural productivity will also accelerate growth, benefiting households in rural areas. The largest gains of gender equality come from the demographic dividend associated with lower fertility (scenario 2 in table below). Due to limitations in the data, these estimated gains are conservative estimates of potential benefits and thus provide a potential lower bound of the impact of gender policies.

Although cross-country estimates of the economic benefits of gender equality are difficult to compare, the results of the Guinean case fall within the range of estimates from comparable countries. Using a CGE model in Niger, a recent study finds that the combined impact of various gender policies (education, fertility, labor force participation, agricultural productivity, and urban productivity) would be 22 percent higher GDP compared to a baseline scenario. Compared to Guinea, simulated gender policies have a combined impact of increasing GDP by 6.8 percent. This difference should not be interpreted as gender policies having lower benefits in Guinea because when comparing the impact of closing gaps in education and agricultural productivity, which are comparable scenarios between countries, the estimated impacts are much higher in Guinea than in Niger. For example, the impact of reducing the education gap (including cost) will increase GDP by 0.8 percent relative to baseline, which is almost 2.8 times lower than the results in Guinea. Moreover, closing the agricultural productivity gap will increase GDP by 0.8 percent in Niger versus 1.1 in Guinea. A 2015 cross-country study by the McKinsey Global Institute on the benefits of gender parity found that Guinea could increase its GDP between 9 percent to 25 percent, depending on whether women’s participation

24 In the case of Guinea, for example, Wodon et al. (2018) estimate that ending child marriage could reduce total fertility by 13 percent nationally in Guinea, reducing population growth.
in labor markets (i.e., labor force participation, sector of employment, and productivity) matches the best in region or is equal to that of men, respectively. In the case of Niger, these numbers are 10 percent and 66 percent, suggesting greater weakness in the legal environment for women and larger gender differences in labor market outcomes.

The rest of the chapter is organized as follows. Section A describes the calibration of the CGE model to forecast economic performance in the absence of improvements in gender equality. It explains how the calibration of the CGE model allows the analysis of gender gaps. Given the context of gender inequalities described in the previous chapters, section B to E present modeling details for each of the selected policy scenarios discussed above as well as simulation results until 2035. Potential model extensions and conclusions are presented in the last section.

### Computable General Equilibrium Model: Description and Baseline Calibration

This report uses a recursive dynamic computable general equilibrium model to assess the impact of gender gaps on economic output in Guinea. A CGE model can be useful to capture the effects on economic activities of gender equality because it traces how changes in the supply and demand for factors of production (i.e., capital and labor) and for products, affect output and prices in different sectors of the economy. The CGE model allows us to understand the importance of gender equality for growth and thus, presents an argument for why a growth strategy should include a gender focus to close gender gaps.

Although CGE models are very useful to assess the impact of economic policies, it is important to understand their limitations when interpreting results. First, as a simplified model of the structure of the economy, the model does not recreate all the complexity of economic reality, but rather it incorporates critical elements to generate gender-differentiated impacts. Second, the model is calibrated using data from the 2012 social accounting matrix and the 2012 household survey (ELEP), which although seven years old are still the best available data. Third, the results of the scenarios are linked to the parameters associated with the shocks imposed on the model, while relying on the literature to select some shocks. In summary, the results of the various scenarios should be interpreted more as a way of understanding the forces that each shock unleashes rather than ‘true’ numbers or predictions in relation to a given policy. Lastly, although the causality between reduced gender inequality and growth can run both ways, due to the design of the simulations and the structure of the CGE model, we only model how closing the gender gaps might impact the growth.

### Table 7: Economic Benefits of Gender Equality – Computable General Equilibrium Results

<table>
<thead>
<tr>
<th>Scenario</th>
<th>% above baseline in 2035 for: GDP growth</th>
<th>% above baseline in 2035 for: GDP per capita growth</th>
<th>% above baseline in 2035 for: GDP per capita growth</th>
<th>% above baseline in 2035 for: GDP per capita growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Closing Education Gap</td>
<td>0.14</td>
<td>0.13</td>
<td>2.27</td>
<td>2.27</td>
</tr>
<tr>
<td>2. Reducing Fertility</td>
<td>0.28</td>
<td>0.46</td>
<td>4.67</td>
<td>7.97</td>
</tr>
<tr>
<td>3. Reducing Agricultural Productivity Gap</td>
<td>0.06</td>
<td>0.06</td>
<td>1.03</td>
<td>1.03</td>
</tr>
<tr>
<td>4. Combined Scenario (1, 2, and 3)</td>
<td>0.40</td>
<td>0.58</td>
<td>6.80</td>
<td>10.16</td>
</tr>
</tbody>
</table>

Source: Authors’ calculation.
presents a more detailed description of the structure of the model. In the model, households are classified into rural and urban areas as well as income decile. Labor, capital, and land are the three factors of productions in the model. Labor is divided into four types: female skilled and unskilled labor, and male skilled and unskilled labor. The main sources of household income are factor income (labor, capital, and land), government transfers, and other sources of income. The model differentiates between agricultural and non-agricultural investments and links agricultural investment to land. As a result, an increase in agricultural investment will boost the demand for land as well as land productivity.

Public spending on education results in the transformation of unskilled labor to skilled labor in the model. This linkage is modeled through equations for skilled and unskilled labor, ensuring that the total number of labor supplied in each period does not change (i.e. the number of unskilled labor decreases by the same amount of the increase in the number of skilled labor):

\[ L_{s,t} = (1 + \gamma_s) * L_{s,t-1} \]
\[ L_{u,t} = L_{u,t} + L_{s,t} - L_{s,t-1} \]

where \( L_{u,i} \) is the number of labor type \( i \) (e.g. skilled and unskilled) supplied in period \( t \) and \( \gamma_i \) is the transformation coefficient for the labor type \( i \). \( \gamma_i \) is managed by the initial stock of labor \( (L_s + L_u) \). government spending on education of the labor type \( i \) \( (QGD_i) \) and scaling parameters:

\[ \gamma_i = \theta_0 + \theta_i \frac{(L_s + L_u)}{QGD_i} \]

The scaling factor, \( \theta_0 \) is an exogenous component of the transformation coefficient while \( \theta_i \) is the scaling factor for per capita education spending on labor type \( i \). The values for the scaling factors are calibrated to create a realistic increase in the number of skilled female workers in the baseline. We assume that newly trained skilled labor is distributed among household types according to their share in total skilled labor in the base year. Thus, households with lower level of skilled labor increase their share in skilled labor more.

The baseline scenario of the CGE model was calibrated with the 2012 social accounting matrix (SAM) for Guinea. The data from the SAM was complemented with the 2012 ELEP to disaggregate household types and factors of production. Appendix A presents the shares used to disaggregate the Guinean SAM. Using data from World Bank (2019) and EPCD (2019), government spending was disaggregated by type of services and gender. For example, 60 percent of education spending is for primary education and the rest is for secondary and tertiary education, while of the education spending for women 45 percent and 38 percent goes to primary education and other education, respectively (see appendix for the details of the calculation). We assume that both education services are produced by the same activity (i.e. education) with the same cost structure and technology. The SAM is re-balanced after the disaggregation by using the cross-entropy algorithm developed by Robinson et al. (2001). Lastly, total factor productivity would adjust the baseline scenario to GDP growth projections until 2018 and to 4 percent growth for 2019-2035, which is a conservative growth rate (one percentage point below the most recent macroeconomic projections for 2024). Finally, we assume that population growth per year remains constant at 2.6 percent in the baseline. Figure 17 presents GDP, population, and GDP per capita for the baseline scenario.

Scenario 1: Closing Gender Education Gap

As explained in Chapter 2, gender inequalities in education are significant and become larger as students move through the education system. For example, the share of female students drops from 45 percent in primary school to 38 percent in post-primary education. The gender gap in educational attainment results in a lower share of skilled labor in the total female labor force relative to that of males. Projections under the baseline scenario show a decline in the ratio of female-to-male skilled labor from 0.6 in 2012 to 0.2 in 2035. Thus, without policy interventions, the gender gap in educational attainment will grow over time. Although the macroeconomic benefits of increasing female schooling are substantial, this scenario does not capture the potential impact of increasing female schooling on fertility rates as well as on women’s own agency and bargaining power within the household.
As a result, the first policy scenario estimates the economic benefits of closing the gender gap in educational attainment. The impact of achieving gender parity is modeled by equalizing: (i) the number of skilled male and female labor; and (ii) graduation rates of men and women by 2035. Thus, policy interventions make the education system more effective in retaining girls in school so that more women will enter the labor market as skilled labor. To close the gender gap in education, the model assumes that an increase in public education spending of 25 percent, which will increase total government spending on education spending from 17 percent to 22 percent. Higher mobilization of direct taxes imposed on firms and households will finance higher levels of public education spending. Only the skill composition of the labor supply is changed in this scenario. The female-to-male ratio of skilled labor increases from 0.2 to 0.95 as targeted, bringing the total share of skilled labor above 30 percent of the total labor force. We assume that the change in skilled labor supply would be gradual as the impact of better education for women and men is likely to affect the labor market over time. Finally, this scenario simulates closing the gender gap almost completely, the results should be considered as the upper bound for the potential benefits of closing the gender gap in education.

Closing the gender gap in education will accelerate per capita GDP growth by 0.13 percentage points above the baseline scenario, resulting in GDP per capita being 2.3 percent higher than the baseline projection by 2035. Higher education spending that retains more girls in school will increase the supply of skilled female labor. As a result, aggregate labor productivity will increase because the productivity of skilled female labor is higher than that of unskilled female labor. Economic sectors that employ relatively more women, such as services, will benefit more. The service sector will have an immediate increase relative to the baseline scenario (see Figure 18). However, production in agriculture, extractive industries, manufacturing, will decline until 2025 due to the costs of training more skilled women. Nevertheless, with the number of female skilled workers increasing, other sectors will also start to benefit. The increase in production of extractive industries will be slightly higher than that of services by 2035. More skilled female workers will increase household incomes, resulting in higher capital accumulation in the economy.

Rural households will capture proportionally more of the benefits than urban households because the gender education gap is higher in rural areas. Household income among rural households will increase between 8 to 12 percent by 2035 while urban households will see their incomes increase between 0.2 to 4 percent. The main driver behind the differentiated impact between rural and urban households is the size of the education gap. For example,
the gender education gap among the richer households in urban areas is smaller than in other household types, and therefore the potential benefits of closing the gender education gap are smaller.

Scenario 2: Reducing Fertility Rate

Higher educational attainment of women will likely decrease the overall fertility rate. As explained in Chapter 2, female education could impact fertility by reducing child marriage and delaying the age of the first child, which leads to a lower number of live births. Other channels through which education could reduce fertility are improved bargaining power of women within the household, better access to and understanding of family planning methods, and higher labor force participation (Pradhan, 2016). Overall, women’s education is correlated with decreases in overall fertility rates (UNICEF, 2015).

In this scenario, the reduction in fertility is modeled to take advantage of the difference in fertility among skilled and unskilled women. In the case of Guinea, the fertility rate of the women with at least secondary education (skilled labor) is around 3 live births, while that of women with no education is around 5.5. The shares of skilled labor in total female labor can then be used to calculate the average fertility rate that would be expected as the gap in education closes according to the following formula:

\[ F_A = F_s \sigma + F_u (1 - \sigma) \]

where \( F_A \) is average fertility rate, \( F_s \) and \( F_u \) are fertility rate for skilled and unskilled women, \( \sigma \) is the share of skilled women in the total female labor force. Relative to the baseline scenario, the average fertility rate will decline from 5.81 live births in 2019 to 4.88 in 2035. The gradual transition of female workers from unskilled labor to skilled labor is also reflected in the decline in fertility rate which results in lower population growth.

Lowering the fertility rate will translate into a decline in the child dependency ratio and higher savings rate in the model. The reduction in fertility is modeled based on the number of children in each age group using data from the 2017 United Nations World Population Prospects. With the average fertility rate for each year, we can obtain the number of children in each age group over the time horizon of the simulations. The child dependency ratio is calculated based on the estimated population increase. To estimate the impact on the savings rate, we use the findings of (Cruz & Ahmed, 2016) who report that a one percentage point decrease in dependency ratio would increase the saving rate by 0.28 percentage points. Based on these modeling assumptions, the child dependency ratio falls to 70.2 in
2035 from 75.2 in 2019 due to decreasing fertility rates. This means an average increase of 3.8 percentage points to 6.8 percent points in saving rates over the years 2019-2035. In this scenario, we increase the saving rates for each household type and include the decline in fertility rates. A simplification of this scenario is that we are only considering the change in saving rates due to the decreasing child dependency ratio, ignoring any other factors that might affect the saving behavior of households.

Reducing the fertility rate will accelerate per capita GDP growth by 0.46 percentage points and will benefit capital intensive sectors to grow faster. By 2035, GDP per capita is estimated to be 8 percent higher than the baseline scenario. With a lower dependency ratio, households will increase their savings, resulting in higher investment levels in the economy. This would eventually speed up capital accumulation and allow capital intensive sectors to grow faster. For example, production in the extractive industries and manufacturing will be 4 percent higher relative to the baseline scenario by 2035 compared to 2.5 percent in agriculture and 2 percent in services (Figure 20).

Moreover, a decline in fertility rate will benefit all households through lower dependency ratios and higher capital accumulation. Higher growth in capital intensive sectors is reflected in household income as equal increases because all household types will experience a decline in their dependency ratio. With higher saving rates, households can increase their capital ownership, which implies equal distribution of benefits of higher capital accumulation. Richer households in urban areas benefit slightly more compared to others, thanks to their already higher share in capital income in the baseline scenario.

Scenario 3: Closing the Gender Productivity Gap in Agriculture

The next simulation considers closing the gender productivity gap in agriculture, given the large share of the population employed in the sector. Women represent 43 percent of all agricultural employment and are head of 8 percent of farm households. As presented in Chapter 3, female-headed farm households are 9 percent less productive (measured as the value of harvest per hectare) than male-headed ones. The gender gap in agricultural productivity is much likely higher than 9 percent. In the case of Niger, for example, women owning plots have 38 percent less productive yields than men. This scenario closes the gender productivity gap, measured as the value of production per worker through higher public spending in agriculture. We assume an increase of 30 percent in agricultural spending (or 0.3 percentage points of GDP)
and that gender gaps in education remain unchanged from the baseline implying that the gender skill gap is increasing over-time. Naturally, if this scenario is combined with education intervention that targets rural areas, the impact would be much higher. Thus, agriculture scenario presents the lower bounds of the benefits of closing the gender gap in agricultural productivity.

An important caveat for the agricultural scenario is that, the change in the productivity of factors of production in agriculture depends on various factors other than agricultural investment. In our simulation, we ignore the possible effects of those factors (e.g. climate change, extension services, quality inputs, etc.) and assume that the 9 percent productivity gap would be closed only by efforts of the government to design agricultural investments by considering the gender inequality.

Overall, closing the gender gap in agricultural productivity will accelerate per capita GDP growth by 0.06 percentage points above the baseline scenario, resulting in a GDP per capita 1.3 percent higher in 2035. The main driver of growth is increasing agricultural production which reaches as high as 8.5 percent by 2035. However, the manufacturing sector also manages to increase output by 3 percent throughout the simulation period, mostly thanks to cheaper agricultural inputs.

Under this scenario, rural households will see a higher increase in their incomes than urban ones. The increase in household income is higher for middle income and rich household groups suggesting the benefits are distributed mostly through the ownership of land rather than labor. Thus, access to land is as important as closing the gender gap in productivity. In urban areas, poorest households benefit more from increasing productivity. This is driven by the fact that poor households work more in the agricultural sector and thus benefit more from the productivity increase. Note that the main impact of higher agricultural productivity is lowering the food prices which benefits all household types.

Scenario 4: Combined Scenario

The last scenario considers the combined effect of the previous scenarios. Overall, GDP per capita growth will accelerate by 0.6 percentage points per year. The cumulative impact results in a GDP per capita that is 10 percent higher than the baseline scenario in 2035. Under this scenario, public policies are directed towards closing the education gap, reducing fertility rate, and increasing agricultural productivity. The combined effect of policies is slightly lower than the sum of the estimated impact on GDP and GDP per capita growth. The driver of this

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**Figure 22: Sectoral GDP Gains of Increasing Agricultural Productivity (% change from baseline)**

<table>
<thead>
<tr>
<th>Year</th>
<th>Agriculture</th>
<th>Extractive Industry</th>
<th>Manufacturing</th>
<th>Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>1.0%</td>
<td>0.5%</td>
<td>0.2%</td>
<td>0.1%</td>
</tr>
<tr>
<td>2021</td>
<td>2.0%</td>
<td>1.0%</td>
<td>0.4%</td>
<td>0.2%</td>
</tr>
<tr>
<td>2023</td>
<td>3.5%</td>
<td>2.0%</td>
<td>0.7%</td>
<td>0.3%</td>
</tr>
<tr>
<td>2025</td>
<td>5.0%</td>
<td>3.0%</td>
<td>1.0%</td>
<td>0.4%</td>
</tr>
<tr>
<td>2027</td>
<td>6.5%</td>
<td>4.0%</td>
<td>1.3%</td>
<td>0.5%</td>
</tr>
<tr>
<td>2029</td>
<td>8.0%</td>
<td>5.0%</td>
<td>1.6%</td>
<td>0.6%</td>
</tr>
<tr>
<td>2031</td>
<td>9.5%</td>
<td>6.0%</td>
<td>1.9%</td>
<td>0.7%</td>
</tr>
<tr>
<td>2033</td>
<td>11.0%</td>
<td>7.0%</td>
<td>2.2%</td>
<td>0.8%</td>
</tr>
<tr>
<td>2035</td>
<td>12.5%</td>
<td>8.0%</td>
<td>2.5%</td>
<td>0.9%</td>
</tr>
</tbody>
</table>

Source: Authors’ calculations.

**Figure 23: Estimated Gains in Household Income of Increasing Agricultural Productivity (% change from baseline in 2035)**

<table>
<thead>
<tr>
<th>Household Type</th>
<th>Poor</th>
<th>Middle</th>
<th>Rich</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural</td>
<td>0.1%</td>
<td>0.3%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Urban</td>
<td>0.2%</td>
<td>0.4%</td>
<td>0.6%</td>
</tr>
</tbody>
</table>

Source: Authors’ calculations.
The difference is the synergy created in agriculture, extraction and manufacturing sectors.

Due to complementarities between policies, the impact on sectoral production is higher, especially in agriculture. For example, agricultural production will grow 1.8 percent more under the combined scenario than the sum of the three scenarios separately by 2035. Moreover, the expected results of closing the gender skill gap (i.e. more skilled women in the labor market and lower fertility) are also complementary in their effect on the production of manufacturing and extractive sectors.

The results show that the implementation of policies under the combined scenario will benefit all households, especially those in rural areas. The poorest rural households will see their income increase by 14 percent (Figure 25), which is almost two times higher than that of the poorest urban households. Most of the gains in household income come from closing the gender skill gap, which is higher among the poorest households.

Conclusions

The economic benefits of gender equality are substantial in Guinea. Relative to a baseline scenario calibrated to be consistent with actual outcomes through 2018, the simulations of four policy scenarios yield plausible results about GDP, sectoral GDP, and household gains until 2035. The combined effect of closing gender gaps in education and agricultural productivity as well as reducing fertility will accelerate per capita GDP growth by up to 0.6 percentage points per year, resulting in a rate of return to investment of 8.2 percent per year. The overall impact of the policies is progressive, benefitting rural households more than urban ones.
Gender inequality affects girls and women in multiple social and economic domains. This chapter has two objectives: (i) suggesting policy options for tackling the issue of gender inequality for girls and women; and (ii) providing illustrations of programs that are making a difference in Sub-Saharan Africa and elsewhere. Relying on a review of the literature and various sources of data, the chapter considers policies that could help achieve gender inequality. The first section provides an assessment of Guinea’s efforts in promoting gender equality. Next, the chapter considers programs and policies that could reduce gender gaps for girls and then for women.

Guinea’s Efforts in Promoting Gender Equality

Legal and Regulatory Advances

At the international level, Guinea has ratified many international conventions on human rights and those that promote equal opportunities for all. For example, in 1982 Guinea ratified the convention on the elimination of all forms of discrimination against women (CEDAW). Guinea’s government also committed under the Sustainable Development Goals to promote gender equality (goal 5). At a regional and sub-regional level, important commitments have been made by Guinea. These include but are not limited to, (i) the African Charter on Human and Peoples’ Rights on the Rights of Women in Africa stating that it is the State’s responsibility to ‘ensure the elimination of all discrimination against women and ensure the protection of women’s rights as stated in international declarations and conventions’; (ii) the Draft Supplementary Act on Equality of Rights between Women and Men for Sustainable Development within the ECOWAS Region, the Draft ECOWAS Plan of Action on Gender and Trade, and the Draft ECOWAS Gender and Migration Framework and Plan of Action; and (iii) the Common Gender Policy of the West African Economic and Monetary Union (WAEMU) adopted in March 2016. This regional and sub-regional context offers Guinea real opportunities for achieving gender equity.
The Constitution of Guinea was revised in 2001 to introduce principles of non-discrimination and gender equality. Article 8 of the constitution upholds equality between men and women as a fundamental right. In addition to the constitution, there are other laws and regulations granting equal rights to men and women. Since 2007, Guinea’s Civil Code has been under revision to remove a significant number of discriminatory measures regarding parental authority, divorce, child custody, and the choice of a place of residence. In addition, a law on gender equality has been drafted and is in the process of being adopted.

**Institutional Reforms**

At the institutional level, the Guinean Government has also taken several steps. The Ministry of Social Affairs and Gender Promotion (MASPFE, Ministère des Affaires Sociales, de la Promotion Féminine et de l’Enfance), was created in 1996, to focus on gender. Further still, a national policy on gender was adopted in 2011 followed by the creation of gender units in ministerial departments. A multi-sectoral partnership approach has also been put in place between the public and private sectors, civil society, non-governmental organizations, and religious communities to reduce gender inequality while promoting women’s empowerment. In addition, the government has initiated important programs, such as the implementation of a program for maternal and child health (The Foundation for Maternal and Child Social Promotion, PROSMI), the creation of a fund to support income-generating activities for women and young people and the national schooling policy for girls.

**Programs to Address Gender Inequalities**

With the support of development partners, the Guinean government has adopted various initiatives to improve girls’ access to education. In 2005 UNICEF ran the Accelerated Girls Education Initiative in Guinea and later on, the African Girls Education Initiative (AGEI). Through these initiatives, UNICEF worked hand-in-hand with the Guinean government to increase the school enrollment and retention rate for girls. In 2003, the Education for All (EFA) was able to make significant increases in the country’s general education rate for girls, raising it from 41 percent to 58 percent between 2003 and 2005. The AGEI also sought to increase the quality of education given to girls. The USAID also ran projects such as Fundamental Quality and Equity Levels from 1997 to 2005. The goals of these projects were to improve planning and instruction in the Guinean school system. As a result of these initiatives, an improvement in teachers’ equitable treatment of boys and girls in the classroom was observed (USAID, 2016). Through the EFA and AGEI programs, the availability and quality of education for girls increased although more efforts are still needed.

To promote women’s economic participation, the Government has implemented reforms and policies to reduce gender discrimination and promote women’s access to financial services and land. The country removed restrictions on women working in jobs deemed hazardous, arduous or morally inappropriate in 2010. Moreover, in the same year, Guinea prohibited discrimination based on gender and marital status when accessing goods and services, including financial services. In 2011, a microfinance policy to provide subsidised loans to women to finance entrepreneurship projects aimed at empowering them was launched across the country. As a result, the Financial Mutual of African Women (MUFFA) was created in 2015. Since then, more than 65,000 Guinea women have access to MUFFA credits across the country to finance their activities. Lastly, in 2011, the government revised the land code to include a provision to promote women’s access to land.

The Government has also implemented projects to support women’s empowerment. With the support of African Development Bank, the MASPFE has initiated a project to build women’s capacity to manage micro-projects and offering microfinance to women in the urban, peri-urban and rural areas of Conakry and Upper Guinea. The government has also implemented the National Support Fund for Women’s Economic Activities (FONAENF) and the National Fund for the Promotion of Gender (FNPG). Moreover, a program was implemented with the support of the United Nations Industrial Development Organization (ONUDI) to promote the employment of women and youth, particularly in the mining and agriculture sectors. World Bank projects in the areas
of entrepreneurship, agriculture, and conditional cash transfers are increasingly including a gender focus in their design and implementation.

The Government has also taken several policy measures and actions against Gender-Based Violence (GBV). On the policy front, the Government adopted a national plan on UN Security Council Resolution 1325 and a national strategy on GBV in 2010. Regional committees to combat GBV were also created including the implementation of community information centers (CIP) for women. Furthermore, the Government has adopted the strategic plan for the eradication of FGM/E for (2012-2016), together with a decree prohibiting FGM/E in public and private health facilities. Moreover, more than 230 judges were trained on gender concepts, GBV, and the legal instruments to fight against violence. In 2011, the Government set up the national observatory for fighting GBV and revised the criminal code to consider sexual assault as a crime (Articles 267-270). Nevertheless, despite efforts made in the legal and institutional framework, the effective implementation of these measures and reforms remains weak due to a lack of institutional mechanisms, functional operational tools, and the coexistence of the legal system alongside discriminatory traditional and religious customs and practices.

The Government is also supporting various programs to end GBV. The government initiated a capacity-building program for medical care and counseling for healthcare staff and set up hotlines for survivors of rape and sexual violence (MSAAWC, 2014). The government has also undertaken awareness-raising campaigns to combat all forms of violence against women. The Maternal and Child Survival Program (MCSP) of USAID established a network of 7 health facilities comprising 42 healthcare providers, 125 community educators, 10 paralegals and university committees to support GBV survivors. In addition, 180 educational sessions on GBV have reached 13,000 people, including security forces and local government officials. Similar programs include the Business Coalition for Women, which is a group of businesses that work to improve gender equality and fight violence against women.

Recommendations – Adolescents

Given the association between child marriage, early childbearing, FGM/E, and low schooling attainment identified in Chapter 2, we focus our recommendations on how best to increase educational attainment and reduce child marriage, early childbearing, and FGM/E.

1. Expanding access to education for all with emphasis on encouraging female participation.
2. Encouraging programs providing life skills and reproductive health knowledge
3. Enforcing existing laws and encouraging community-led interventions to reduce the prevalence of child marriage and FGM/E.

Expanding access to education for all with emphasis on encouraging female participation.

The Guinean Government needs to scale up education expenditure, decentralize decision making and spending decisions, and build institutional capacity. The education sector is characterized by inadequate financial resources, highly centralized ministerial bodies, and poor institutional capacity. Education expenditure in Guinea is only 2.4 percent of GDP and 13 percent of public expenditures; the latter is the lowest in the region, which averages 17 percent. Several different ministries oversee various areas and levels of education and the central government influence extends to the regional, prefectural and sub-prefectural levels. There is also a chronic lack of recurrent resources at schools, which leaves them unable to make even the most basic expenditures such as the procurement of essential teaching-learning materials or building maintenance. Furthermore, there is a lack of accountability at each level and limited orientation around learning outcomes and results in education. The fragmented system and poor operational and resource management, contribute to disconnects between funding decisions and policy goals, policies and needs, and policies and implementation.

To expand access to education for all with emphasis on encouraging female participation, more schools need to be built and equipped with the necessary infrastructure.
The network of basic schools is expanding but remains inadequate. About 61 percent of primary schools in Guinea do not offer all six grades; most of these are public schools and schools in rural areas. School construction can reduce transport costs in areas with extremely low schooling density, with particularly positive impacts for girls, as recent evidence from Afghanistan (Burde & Linden, 2013) and Burkina Faso (Kazianga, Levy, Linden, & Sloan, 2013) (Sawada et al., 2016) attests. Poor learning conditions and limited physical spaces (especially in rural areas) contribute to inadequate access to education and poor learning outcomes. Statistics on the availability of textbooks indicate a significant deficit of reading and math textbooks especially in the first and last years of primary school, with the regions of Boké, Conakry, and Kindia being those where the needs of textbooks were the most important during the 2015 - 16 school year. The presence of functioning latrines promotes girls’ attendance to school, however approximately a fourth of public primary schools do not have latrines, with large regional disparities. Furthermore, approximately 23 percent of all schools do not have access to water, of which rural zones (23 percent total rural schools without water) are at a greater disadvantage than urban areas (2 percent total urban schools without water). Box 2 describes an innovative program in India that improved girls’ access to secondary education in India.

Guinea needs to employ more teachers, with particular emphasis on increasing the number of female teachers. The student to teacher ratio in public schools was 66:1.
in rural areas and 57:1 in urban areas in 2016-2017. The ratios have been deteriorating since 2010, indicating that the Government is having difficulty keeping up with demographic growth and increased participation rates. Further, these ratios conceal variations between grades, with the early primary grades suffering the most from overcrowding. The teaching corps is largely male; at both the pre-primary and primary levels, only 31 percent of teachers are female.\(^{25}\) There’s evidence that female teachers improve achievement for female students (Dee, 2007). An insufficient number of teachers is likely correlated with low educational outcomes. At the basic education level, almost 90 percent of children in second and third grades cannot read a simple text, which perpetuates the country’s high illiteracy rate of 30 percent. The best improvements to learning come through improving the quality of teaching (Arias, Santos, & Evans, 2018).

Conditional Cash Transfers (CCTs) which promote education by reducing the opportunity and out-of-pocket cost of schooling, are among the most likely to help delay the age at marriage and childbearing. In a wide array of countries around the world, cash transfers to extremely poor households – sometimes but not always conditioned on school enrollment and attendance – have significantly raised educational enrollment or completion. Across more than 20 impact evaluations of cash transfers programs around Africa (from Burkina Faso to Zimbabwe), all but one showed significantly improved outcomes in education (Evans & Popova, 2017). These positive impacts are observed for both unconditional and conditional programs, although evidence from Burkina Faso suggests that the children most vulnerable to dropout – girls overall, and boys who are doing less well in school – may benefit from conditions.

A recent report from the World Bank demonstrates that a number of African countries have been successful at increasing enrollment in recent years and may present lessons for Guinea (Arias et al., 2018). These are illustrated in Figure 26. All the countries with low initial enrollment and subsequent high gains were in post-conflict recovery, so some of the gains may be a simple reversion to peacetime normalcy. All six of the gainers boast free education, five of six (all but Burundi) had economic growth above the regional average, and four of six saw increases in the proportion of the budget for education (all but Burundi and Sierra Leone). Three – Ethiopia, Lesotho, and Malawi – used cash transfer programs as part of the strategy to increase enrollment.

**Figure 26: Which countries have made largest gains in enrollment in the last 20 years?**

<table>
<thead>
<tr>
<th>Among countries with high enrollment rates 20 years ago</th>
<th>Among countries with low enrollment rates 20 years ago</th>
</tr>
</thead>
</table>

Source: (Arias et al., 2018), based on Filmer (2010).
Notes: High and low baseline enrollment rates are determined by countries being above or below the median of all countries in the sample.

\(^{25}\) The percentage at the pre-primary level refers only to staff at the Centres d’Encadrement Communautaires (CECs).
Encouraging programs providing life skills and reproductive health knowledge

Ending child marriage, preventing early childbearing, and educating girls require specific interventions. Beyond laws, life skills and sexual reproductive health knowledge, economic opportunities, and incentives for schooling are all needed. Interventions providing life skills to adolescent girls can delay marriage/childbearing and increase educational attainment in different ways. They have different "theories of change" (see Box 3).

One category of programs emphasizes the empowerment of girls by providing life skills and reproductive health knowledge. The typical intervention is that of a "safe space club" for adolescent girls. These clubs are delivery platforms for convening girls with a trusted adult mentor at a specific time and place. The approach was pioneered by BRAC in South Asia and the Population Council in Africa and Latin America. The clubs have proven effective when implemented well. By combining socializing, fun, and access to mentors, the clubs are attractive for girls to attend. From there, other services are delivered. Clubs can be held in a variety of settings, including schools or community centers. Girls meet regularly and are able with the help of the mentors to discuss a range of issues, including those related to sexual and reproductive health (SRH). They learn "life skills" in those meetings, including "soft" or socio-emotional skills such as critical thinking and problem solving, communication and negotiation (for example within one's household). One of the objectives is often to boost the girls' self-awareness and self-esteem so that they can explore and fulfill their own aspirations. In many cases, safe space clubs are also used to impart "hard" skills, such as basic literacy and numeracy, or basic business skills.

These programs have helped improve SRH knowledge and behaviors. This includes an increase in girls undergoing HIV testing or counseling; an increase in the use of modern contraception or other methods of family planning; a reduction in the desire for practicing female genital mutilation for daughters in countries where the practice is prevalent; a reduction in the risk of intimate partner violence when the program also reaches out to men; an increase in self-esteem; and gains in specific skills taught during safe space sessions, for example in the areas of financial literacy or basic literacy and numeracy.

At the same time, without additional interventions related to schooling or employment and livelihoods, it is not clear that safe spaces are enough to delay marriage and childbearing (though that may not have been a primary goal of these projects). Therefore, it is important to consider programs whereby safe spaces have been combined with livelihood opportunities and incentives to remain in school, usually with larger impacts on the age of marriage and childbearing.

The second category of programs combines an emphasis on empowering girls, often through safe spaces, with additional focus on providing livelihood opportunities. These programs are appropriate for girls who are not in school. For these girls, building skills for income-generation may provide an alternative to early marriage and childbearing. Two groups of interventions are distinguished: livelihood interventions and financial literacy/access to financial services. Impacts on the age at marriage and early childbearing tend to be larger than with life skills/SRH knowledge alone, but not in all cases. Given their focus on economic opportunities, the programs often have some success in increasing earnings, employment, and/or savings. Several of the programs also succeed in increasing the use of modern contraceptives and SRH knowledge, which may help delay childbearing. In some cases, the programs also succeed in delaying the age at marriage and reducing teen pregnancies. For example, the BRAC Uganda Empowerment and Livelihoods for Adolescent Girls (1) increased the likelihood of engaging in income-generating activities by 32 percent; (2) increased self-reported routine condom use by those sexually active by 50 percent; (3) reduced fertility rates by 26 percent; and (4) reduced reporting of unwanted sex by 76 percent. There were also reductions in teenage pregnancies and child marriage, as well as a shift in gender dynamics in the community (Bandiera et al., 2012) and (Buehren, Goldstein, Leonard, Montalvao, & Vasilaky, 2016)). In summary, adding a livelihood dimension to life skills and SRH knowledge programs may help delay marriage and childbearing, but not in all cases. The focus on economic opportunities may also help in ensuring regular participation by girls in the programs.
Enforcing existing laws and encouraging community-led interventions to reduce the prevalence of child marriage and FGM/E.

Existing laws around FGM/E and child marriage need to be properly applied with an independent and impartial investigation of suspected cases, leading to the prosecution of perpetrators. Guinea has set the minimum age of marriage at 18 years old for both boys and girls in line with international and regional standards. The Penal Code prohibits, and provides for life imprisonment for, any mutilation of the genital organs of men (castration) or women (excision). This prohibition is reaffirmed in Guinea’s 2008 Children’s Code. These laws clarify the government’s position on the damaging effects of FGM/E and child

Box 3: Theories of Change for Interventions Targeting Adolescent Girls

Life skills and sexual and reproductive health (SRH) knowledge: By increasing knowledge and awareness, life skills can increase young women’s perceived risk of becoming pregnant at an early age and the desire to avoid early pregnancies (through family planning). Through these channels, life skills may lead to better health outcomes for the girls and their children. By increasing girls’ confidence and self-esteem, life skills may also increase girls’ aspirations. With increased aspirations, girls may have a greater desire to delay marriage and childbearing. Finally, life skills can increase young women’s communication and decision-making skills, leading to increased abilities to negotiate their preferences for delayed marriage and childbearing. At the same time, while life skills and SRH knowledge may empower girls, they may not be enough to delay marriage and childbearing if social norms curtailing agency for girls is not also addressed at the same time.

Life skills together with economic opportunities: Programs increasing earnings potential for young women may increase their ability to plan marriage and childbearing decisions in three ways. First, the ability to make an economic contribution expands the role of women beyond that of sex and reproduction. This can increase their desire to limit or space childbearing. The transformation of girls from economic liabilities into assets in the eyes of their societies and families can also alleviate external pressures on girls to marry or have children early. Second, the loss in earnings associated with childrearing is an opportunity cost which may increase women’s desire to limit or space births and exercise reproductive control. Third, a young woman’s increased earnings may improve her bargaining power within the household and allow her to effectively exercise reproductive control by negotiating delays in sexual debut or marriage and negotiating the terms of sex including the use of contraceptives. Creating income-generating opportunities for women can therefore contribute to female empowerment beyond the economic realm by widening personal choice and control over SRH outcomes.

Incentives for schooling or delayed marriage: In many communities, the economic, cultural, and social environment does not provide viable alternatives to marriage for adolescent girls. Once girls drop out of school, possibly because of poor quality or high cost, it may be difficult for parents not to get their daughter married. In those communities, improving the provision of quality and affordable primary and secondary education may be one of the best ways to delay marriage and childbearing as parents often see schooling as a viable alternative to marriage for their daughters. Incentives and programs to keep girls in school may also lead to “tipping points” in communities whereby more and more girls remain in school and are able to delay marriage. A few interventions have also aimed to delay marriage through financial incentives conditional on not marrying early, with additional schooling often as an additional benefit.

Source: Adapted from (Chakravarty, Haddock, & Botea, 2015).
marriage and create an enabling environment for advocacy work (Svanemy, Scolaro, Blondeel, Chandra-Mouli, & Temmerman, 2013). Enforcing the laws however, will be critical to ensuring that the prevalence of these destructive practices falls.

The most successful programs leading to gender norms transformation in low- and middle-income countries are conducted within communities. These programs help people address existing relations of gender and power in their family and broader social networks. There are several programmatic strategies for community-level interventions that transform gender relations. Community-based awareness campaigns such as the Community Empowerment Program described in Box 4 are a promising policy alternative. These should be informed by regular dialogue with customary chiefs, religious leaders and other traditional structures as well as with parents, media, women’s organizations and young people, to better involve them in the fight against FGM/E.

Recommendations: Adults

Gender gaps in productivity in Guinea are significant. We observe stark gender gaps across agricultural productivity, entrepreneurship revenues, and earnings. Among the factors revealed by the analysis as holding back women’s economic empowerment in Guinea include vulnerability to shocks, lower levels of education, and a discriminatory legal environment. Our recommendations center around the following three points:

1. Improving women’s ability to deal with shocks
2. Increasing women’s investment in their human capital
3. Improving the legal environment

Improving women’s ability to deal with shocks

Women appear to be hit particularly hard by shocks with the most recent being the Ebola crisis in 2014.

Box 4: Tostan’s Approach to Change Gender Norms around FGM/E and Child Marriage

In Senegal, efforts to end female genital mutilation/cutting (FGM/C) had long been slowed by the view that it was essential to a girl’s marriageability and in the transition from girlhood to adolescence and adulthood.

The Community Empowerment Program (CEP), is a non-formal education program based on the promotion of human rights implemented by the NGO Tostan and UNICEF. The CEP process teaches communities about democracy, human rights, accountability, problem-solving, health and hygiene, and conflict management. The program stimulates collective discussion and decision-making about various issues affecting communities, including through meetings organized between villages and between generations, and through radio programs aired in local dialects. As part of this process, communities learn about the harmful effects of FGM/E.

The CEP process, along with national legal and policy efforts on FGM/E, led to the public declaration by a large group of villages that they had agreed to abandon FGM/E. The public declaration was a strategy to enable the people themselves to renounce a traditional practice without fear of social stigma.

Qualitative and mixed methods research provides suggestive evidence that CEP changed the gender norms that had sustained child marriage and FGM/E in Senegal (Cislaghi, Gillespie, & Mackie, 2016) (UNICEF, 2008).
Women in Guinea, like in many other countries in Africa, are primary caregivers in the home and make up a majority of health workers. Further still, quarantines and restrictions of movement of goods negatively affected women in agriculture and small retail trade, the two areas that our analysis reveals their predominance. Recent World Bank research estimates that 94 percent of the population does not have access to formal social protection coverage. The remaining 6 percent benefit from formal social security services which suffer from several limitations. People in the informal sector usually rely on traditional mechanisms for social protection, including community/family solidarity and tontines (Toure, 2017).

The Government of Guinea has made significant steps to lay the foundation for a safety net system. More is however needed. As Figure 27 from Beegle, Coudouel, & Monsalve Montiel (2018) shows, poverty rates are higher than coverage rates in most African countries. In the case of Guinea, the safety net coverage reaches only 3.16 percent of the population when 55 percent of the population lives in poverty.

There is evidence that social safety nets improve equity, build resilience, and increase economic opportunities through social safety nets (Beegle et al., 2018). Social safety nets have been shown to boost consumption and thereby lower poverty. Social protection systems can protect households from hunger through consumption smoothing, prevent households from depleting their assets during a crisis, and finally by promoting households’ productivity. Social safety nets can further be a tool for confronting gender inequality. Evidence also shows that social safety nets can help build household resilience to shocks. If poor households are able to rely on regular support from safety nets, they can avoid resorting to costly and often irreversible coping strategies, such as selling their most productive assets at deflated prices or taking children out of school (Beegle et al., 2018).

A well-designed social protection system can further boost gender equality. Social safety nets have been shown to empower women, including by reducing the physical abuse of women by men, increasing women’s decision-making power, and curbing risky sexual behavior (Hopkins, Bastagli, & Hagen-Zanker, 2016). There is evidence that social safety nets can improve the bargaining power of women ((Honda et al., 2013); (Seidenfeld, Handa, & Tembo, 2013). Paying cash transfers directly to women has been shown in some contexts to lead to greater household spending on children’s needs, a reflection of greater empowerment and differential preferences in spending among men and women. This will not be the case everywhere.

Figure 27: Social Safety Net Coverage Is Not Proportionate to the Extent of Poverty

Source: (Beegle et al., 2018).
Social safety net programs can be more effective at achieving gender-relevant impacts if they are thoughtfully designed to be so. Common gender-sensitive provisions in public works programs include more flexible working hours, as in the Tanzania Social Action Fund, quotas on women’s participation, less strenuous works for women, and the availability of childcare facilities (Tebaldi, 2016). Other gender-sensitive design features include accommodating lower levels of literacy; allowing more flexibility in the requirements for official documents, such as birth and marriage certificates; and locating services near women’s homes (Beegle et al., 2018).

**Increasing women’s investment in their human capital**

Disparities in educational attainment and the skills learned through education are closely linked with the gender gaps we observe, in agriculture, entrepreneurship, and wage earnings. In this section, we examine programs that could help increase women’s skills in these three areas.

**Agricultural extension services can be provided to help female farmers boost their productivity.** Promising extension models tailored to women’s needs include farmer field schools with childcare facilities and flexible schedules and mobile phone applications. Further still, to learn about and adopt productivity-enhancing agricultural inputs, agricultural extension services should be tailored to women’s needs, and financing offered to encourage the purchase of inputs. Cash vouchers or in-kind transfers may ease the financial constraints women face and help them purchase and use more agricultural inputs. Delivering improved inputs in quantities appropriate to women’s often smaller plots and with payment schedules accessible to women could also lead to a significant increase in use (Duflo, Kremer, & Robinson, 2011). However, care needs to be taken in designing these programs to understand the constraints Guinean women face in accessing inputs. Evidence from Mali suggests that even if fertilizer is provided for free to women farmers, it may not necessarily improve farm profit since it increases spending on other complementary inputs as well (Beaman et al. 2013). Similarly, low uptake of inputs may not necessarily be related to credit constraints but reflect low levels of knowledge on how best to use the technologies (Carter, Laajaj, & Yang, 2013).

Gains in agricultural productivity could also be achieved by encouraging female land certification, and for women to grow cash crops. While the data used in the analysis of this report don’t allow differential analysis of plot ownership or crop choice by gender, examples from across SSA suggest that women are less likely to manage plots (Gaddis et al., 2018) and tend to grow crops with less complicated production techniques and are less likely to grow the main area cash crop (De Brauw, 2015). Quasi-experimental evidence on the impact of Rwanda’s pilot land tenure regularization program, in which married female spouses were registered as co-owners of land by default, shows that the program boosted rural land investment among male-headed households by 10 percentage points and the impact for female-headed households – at 19 percentage points – was nearly twice as large (Ali, Deininger, & Goldstein, 2014). Evidence from Ghana and Uganda also suggests that involving women in female farmer groups may allow women to scale in marketing (Hill & Vigneri, 2014).

**Business training, including an increased focus on psychosocial skills, business development, and management within specific business training programs for women may be a promising policy intervention to reduce the gender gap in entrepreneurship.** These programs, however, need to be customized to fit the needs of Guinea’s women. The evidence of the efficacy of business training programs targeting small and medium enterprises has been mixed – in particular when training is provided in the absence of startup capital. (D. McKenzie & Woodruff, 2013) review several impact evaluations of business training programs (mostly targeting small firms) and find relatively modest impacts of training on survivorship of existing firms, although they find some evidence that training programs help prospective owners launch new businesses more quickly. They also find that existing firm owners tend to implement some of the practices taught in training, but the magnitudes of these improvements are often modest.

There is growing evidence of the importance of psychosocial skills for women entrepreneurs in Africa.
An entrepreneurship program for women in South Africa found a positive impact on profits and sales six months after training, as well as improved motivation and confidence (Botha, Nieman, & Van Vuuren, 2006). A program in Togo comparing personal initiative training—seeking to foster self-starting, future-oriented and persistent behavior — with managerial training found positive and significant effects on sales and profits of men and women-led micro enterprises (Campos et al., 2017). D. J. McKenzie and Puerto (2017), studying the impact of the ILO’s Gender and Enterprise Together training program for low-income female business owners, find that after three years trained women are earning 15 percent higher profits and experience improvements in the mental health and subjective well-being.

Providing comprehensive support that addresses women’s multifaceted vulnerabilities also helps improve impacts. Liberia’s Economic Empowerment of Adolescent Girls and Young Women (EPAG) skills training program was designed to alleviate the barriers to entering the labor market faced by young women. The program provided six-months training in either job skills targeted to sectors with high demand, or business development skills; six-months support for job placement or links to micro-credit, depending on the training received; and other training and support, such as life skills training, small group learning, a business plan competition, mentorship, savings accounts, child care, and transportation. The project proved to be a cost-effective intervention for women entering the business skills track (where, based on increased earnings, the cost of the intervention could be recovered within three years), but less so for women entering the jobs skills training (Adoho, Chakravarty, Korkoyah Jr., Lundberg, & Tasneem, 2014).

More fundamentally however, from childhood, girls should be encouraged to invest in their human capital. Early family formation limits women’s possibilities of acquiring education and that in turn limits their opportunities and aspirations; thus, programs to limit early marriage would encourage girls to invest in their education and train the next generation of entrepreneurs and workers.

**Improving the legal environment**

Guinean law contains several gender discriminatory practices. The Guinean civil code contains most of the gender discrimination in the family. A new draft Civil Code is undergoing review by the National Assembly and awaiting approval. Whether this new civil code will remove some of the current constraints is yet to be assessed. As reported in World Bank (2019), the civil code of Guinea: (i) restricts a woman’s capacity to choose where to live, giving to the husband the right to choose the marital home; (ii) does not allow women to get a job or pursue a trade or profession if their husband objects based on the interests of the family; (iii) doesn’t allow women to be the legal head of the household; (iv) allows women to petition for divorce in the case of adultery only if the husband committed adultery and maintained his mistress in the marital home; and (v) allows divorced women to remarry only after a period of 100 days from the pronouncement of the divorce whereas men can remarry immediately.

Restrictions on women’s work limit the range of jobs that they can hold and can lead to occupational segregation and confinement of women to low-paying sectors and activities. A combination of contextual factors (such as legal discrimination and social norms) and gender differences in endowments and preferences, influence female entrepreneurs and workers’ choices of industry and underlie the fact that women-owned businesses significantly underperform those owned by men, and on average women occupy lower ranks in lower-paying sectors than men (Campos & Gassier, 2017). This has implications for their earning potential. WBL reports that the wage gap is likely to be smaller where there are no job restrictions on women’s work. Further, research shows that by eliminating barriers to women’s work, women’s labor force participation would grow and in some economies, labor productivity could increase by as much as 25 percent. Restrictions on the types of work that women pursue can, in fact, hurt the overall competitiveness of an economy because the pool of qualified candidates for open positions is artificially halved, reducing the likelihood of getting the most talented people. Specific changes to the legal code are suggested in the matrix of recommendations.
This study approaches gender inequality from the life cycle angle. Gender inequalities become inequality traps when disadvantages transfer across generations. Inequalities that emerge in adolescence and early adulthood, a particularly critical time when choices are made, determine outcomes regarding skills, health, and economic opportunities, that have long-lasting effects on women’s lives and societies. This illustrates not only the importance of intervening early but also the ways in which the realms of endowments, economic opportunities, and agency are interrelated.

Education and health are among the most important endowments to achieve human development: individuals start accumulating them at a young age. Health starts with accessing nutrition, already in the womb, and remains crucial - for normal anthropometric and brain development - in the under-five age set. Education starts at an early age and can help lift barriers and obstacles affecting adolescent girls’ path in life such as childbearing and early marriage, the main factors accounting for dropouts. Education at an early age is critical for increasing women’s voice and participation in societal institutions later in the life cycle, or in accessing assets and opportunities, or finally in allowing the expression of women’s voice within households or within society more broadly.

Other factors are also critical to address gender inequality at a later stage of women’s life cycle. Asset ownership is one of them. Pervasive and persistent gender differences remain in productivity and earnings across different sectors and jobs all over the world. Many women around the world appear to be caught in a productivity trap. They are not worse farmers, entrepreneurs, or workers than men, rather, gender differences in labor productivity and earnings are primarily the result of differences in the economic activities of men and women, different endowments and uneven access to assets (World Bank, 2012). The different patterns of economic activity for women and men also emerge from the ways markets and formal and informal institutions work and how households respond. Illustrative examples include uneven access
to financial services, uneven access to land and public services, and segregation and legal barriers in accessing opportunities in high-earning sectors.

**Agency and decision-making are important aspects of women’s and girls’ empowerment.** Agency and autonomous decision-making are limited for women in Guinea due to women’s lower status and barriers in the legal systems constituting a limiting factor in achieving an autonomous and productive life.

The economic gains from reducing or closing Guinea’s gender gaps are significant. The CGE model results show that per capita GDP growth could be 0.6 percentage points higher per year.

What could be done to achieve gender equality and is there a right sequencing of reforms? The study points to the main areas that generate the most substantial gains if gender parity were to be achieved: universal education, increase in female skilled labor, and a demographic transition brought about by a later start to child marriage and childbearing as a result of greater female education. The recommendations discussed in this study mainly focus on these. Many options complement each other as they span various sectors ranging from programs to enhance women’ entrepreneurial skills, amendment of laws to protect women and girls against discrimination and violence, promoting universal education and keeping girls in schools.

The proposed recommendations are not comprehensive but rather point to a menu of options and potential avenues for Guinea in these areas. In addition, they require a complex process to be implemented. Success stories are reported to provide ideas and material for dialogue among relevant stakeholders, but a successful policy in one country may not necessarily transfer to another. The context determines the extent to which case studies from other countries are relevant or replicable in Guinea. Therefore, successful interventions and lessons from other countries must be adapted and attuned to country-specific social circumstances.

In particular, policy design and implementation must be negotiated with key stakeholders taking into account the policy environment. Progress toward gender equality is a shift toward a new equilibrium where women have access to more endowments, economic opportunities, and ways to exercise their agency. Such changes need to be shaped by interactions between households, markets, formal and informal institutions. Each of these interactions affects markets, formal institutions, and informal institutions in a continuous feedback loop. Policies require trade-offs in allocating resources to competing priorities within given budget constraints and financial and political costs. For instance, improving maternal care and delivery in remote areas may conflict with expanding hospital services for the broader population.

Stakeholders’ interests and spheres of influence determine the power dynamics that shape policy reform in relation to the trade-offs and costs in the short and long term. Societal actors have a direct hand in shaping the policy and institutional environment—by advocating policies, designing interventions, and implementing programs. Individuals can influence government policy through voting and public opinion. Opposition to any given reform may come from societal actors who do not want (or cannot afford) to bear the related costs or prefer a competing agenda. Given multiple and diverging societal actors, coalitions are indispensable for building support and countering resistance from influential interest groups. Reforms usually create winners and losers, so understanding the political realities and tradeoffs that shape the incentives for key stakeholders in a program or policy is vital to building coalitions and securing consensus.

Hence, policy change needs to capture the collective aspirations and political will of social actors, opening new opportunities. When policy formulation and implementation follow cues from ongoing shifts in markets and social norms, convergence and alignment can fuel sustainable change. But such “incremental” reforms may not be enough to overcome the path dependence and institutional rigidities that result in persistent gender inequality. Bold government action with “transformative” reforms can alter social dynamics and move countries and societies to a more equitable equilibrium. In these circumstances, policy implementation and enforcement must follow through to produce sustainable behavioral changes.
Given potential opposition and the existence of winners and losers, transparent communication to provide clear information and change perceptions is needed. Transparency and strategic communication reduce information asymmetries, promote a more effective public debate, and enable the exploration of public policy issues from multiple perspectives. Media exposure can engage stakeholders directly and influence their private beliefs. Popular culture and information campaigns can contribute to changes in social norms, values, or preferences.

Continued effort and enforcement will require champions to sustain the government’s investments and ensure strong enforcement mechanisms required for behavioral change. The introduction of transformative change without enabling conditions, such as new legislation and law enforcement, can decouple policy intentions and outcomes, calling into question the sustainability of reform. The risk of reversal—especially if enforcement is relaxed—threatens this new equilibrium. Social norms will take a long-term vision to change and will require perseverance and sustained efforts and attention. Having a champion in the government and among the societal actors is critical.
References


UNICEF. (2015). The investment case for education and equity. UNICEF.


### Table 9: Shares used to disaggregate the social accounting matrix: HH income shares

<table>
<thead>
<tr>
<th>Decile</th>
<th>Female</th>
<th>Male</th>
<th>Transfers from</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Skilled</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>Male</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skilled</td>
<td>Unskilled</td>
<td>Skilled</td>
</tr>
<tr>
<td></td>
<td>Urban</td>
<td>Rural</td>
<td></td>
</tr>
<tr>
<td>Decile 1 (Poorest)</td>
<td>0.5</td>
<td>4.3</td>
<td>4.2</td>
</tr>
<tr>
<td>Decile 2</td>
<td>1.3</td>
<td>6.3</td>
<td>5.3</td>
</tr>
<tr>
<td>Decile 3</td>
<td>0.9</td>
<td>4.6</td>
<td>6.1</td>
</tr>
<tr>
<td>Decile 4</td>
<td>1.4</td>
<td>4.9</td>
<td>5.3</td>
</tr>
<tr>
<td>Decile 5</td>
<td>1.3</td>
<td>4.3</td>
<td>4.9</td>
</tr>
<tr>
<td>Decile 6</td>
<td>1.3</td>
<td>5.0</td>
<td>5.5</td>
</tr>
<tr>
<td>Decile 7</td>
<td>2.3</td>
<td>4.0</td>
<td>5.2</td>
</tr>
<tr>
<td>Decile 8</td>
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<td>3.3</td>
<td>4.7</td>
</tr>
<tr>
<td>Decile 9</td>
<td>1.8</td>
<td>3.0</td>
<td>6.5</td>
</tr>
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<td>Decile 10</td>
<td>2.7</td>
<td>1.1</td>
<td>6.1</td>
</tr>
</tbody>
</table>

Source: Authors’ calculation from World Bank (2016).
Table 10. Household Spending Shares

<table>
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<tr>
<th></th>
<th>Urban</th>
<th>Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>D1</td>
<td>D2</td>
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<tr>
<td>Food Agr.</td>
<td>22.9</td>
<td>29.7</td>
</tr>
<tr>
<td>Export Agr.</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>Other Agr.</td>
<td>1.1</td>
<td>1.1</td>
</tr>
<tr>
<td>Livestock</td>
<td>0.7</td>
<td>1.2</td>
</tr>
<tr>
<td>Forestry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fishing</td>
<td>5.4</td>
<td>8.1</td>
</tr>
<tr>
<td>Quarrying</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gold</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diamond</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food Manuf.</td>
<td>21.3</td>
<td>28.9</td>
</tr>
<tr>
<td>Other Manuf.</td>
<td>2.6</td>
<td>3.5</td>
</tr>
<tr>
<td>Elec. Gas Water</td>
<td>1.6</td>
<td>2.0</td>
</tr>
<tr>
<td>Construction</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>Trade and Repair</td>
<td>24.3</td>
<td>11.1</td>
</tr>
<tr>
<td>Hotels and</td>
<td>13.2</td>
<td>7.1</td>
</tr>
<tr>
<td>Restaurants</td>
<td>3.0</td>
<td>4.4</td>
</tr>
<tr>
<td>Trans. &amp; Comm.</td>
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<td>0.4</td>
</tr>
<tr>
<td>Finance</td>
<td>10.4</td>
<td>13.2</td>
</tr>
<tr>
<td>Real Estate &amp;</td>
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<td>2.6</td>
</tr>
<tr>
<td>Bus. Ser.</td>
<td>1.0</td>
<td>1.5</td>
</tr>
<tr>
<td>Pub. Adm.</td>
<td>6.5</td>
<td>8.0</td>
</tr>
<tr>
<td>Educ. Female</td>
<td>-16.5</td>
<td>-13.8</td>
</tr>
<tr>
<td>Educ. Male</td>
<td>0.2</td>
<td>1.1</td>
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</table>

Source: Authors’ calculation from World Bank (2016).
### Table 11: Shares of Factors in Employment

<table>
<thead>
<tr>
<th>Sector</th>
<th>Female</th>
<th>Male</th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Skilled</td>
<td>Unskilled</td>
<td>Skilled</td>
<td>Unskilled</td>
</tr>
<tr>
<td>Food Agr.</td>
<td>0.55</td>
<td>49.74</td>
<td>1.49</td>
<td>48.21</td>
</tr>
<tr>
<td>Export Agr.</td>
<td>0.82</td>
<td>50.08</td>
<td>1.47</td>
<td>47.63</td>
</tr>
<tr>
<td>Other Agr.</td>
<td>0.56</td>
<td>49.58</td>
<td>1.50</td>
<td>48.36</td>
</tr>
<tr>
<td>Livestock</td>
<td>0.92</td>
<td>49.47</td>
<td>1.49</td>
<td>48.11</td>
</tr>
<tr>
<td>Forestry</td>
<td>0.83</td>
<td>49.42</td>
<td>1.50</td>
<td>48.25</td>
</tr>
<tr>
<td>Fishing</td>
<td>0.74</td>
<td>49.57</td>
<td>1.50</td>
<td>48.20</td>
</tr>
<tr>
<td>Quarrying</td>
<td>6.26</td>
<td>40.61</td>
<td>4.30</td>
<td>48.83</td>
</tr>
<tr>
<td>Gold</td>
<td>4.10</td>
<td>28.70</td>
<td>2.81</td>
<td>64.39</td>
</tr>
<tr>
<td>Diamond</td>
<td>4.25</td>
<td>28.32</td>
<td>2.92</td>
<td>64.50</td>
</tr>
<tr>
<td>Oth. Extrac.</td>
<td>4.25</td>
<td>28.33</td>
<td>2.92</td>
<td>64.50</td>
</tr>
<tr>
<td>Food Manuf.</td>
<td>1.14</td>
<td>69.65</td>
<td>7.79</td>
<td>21.42</td>
</tr>
<tr>
<td>Other Manuf.</td>
<td>0.49</td>
<td>87.72</td>
<td>2.44</td>
<td>9.35</td>
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<tr>
<td>Elec. Gas Water</td>
<td>1.67</td>
<td>3.46</td>
<td>13.33</td>
<td>81.54</td>
</tr>
<tr>
<td>Construction</td>
<td>0.68</td>
<td>1.92</td>
<td>1.94</td>
<td>95.46</td>
</tr>
<tr>
<td>Trade and Repair</td>
<td>0.45</td>
<td>74.90</td>
<td>0.66</td>
<td>23.99</td>
</tr>
<tr>
<td>Hotels and Restaurants</td>
<td>1.50</td>
<td>57.53</td>
<td>2.75</td>
<td>38.22</td>
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<tr>
<td>Trans. &amp; Comm.</td>
<td>1.11</td>
<td>84.08</td>
<td>0.50</td>
<td>14.32</td>
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<tr>
<td>Finance</td>
<td>38.04</td>
<td>8.07</td>
<td>33.70</td>
<td>20.19</td>
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<td>Real Estate &amp; Bus. Ser.</td>
<td>5.46</td>
<td>33.62</td>
<td>9.69</td>
<td>51.24</td>
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<tr>
<td>Pub. Adm.</td>
<td>29.11</td>
<td>30.47</td>
<td>17.55</td>
<td>22.88</td>
</tr>
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<td>Education</td>
<td>38.63</td>
<td>16.31</td>
<td>28.77</td>
<td>16.30</td>
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<tr>
<td>Health</td>
<td>47.37</td>
<td>13.82</td>
<td>25.18</td>
<td>13.64</td>
</tr>
<tr>
<td>Other Services</td>
<td>3.65</td>
<td>36.24</td>
<td>6.65</td>
<td>53.45</td>
</tr>
</tbody>
</table>

### Table 12: Calculations for Gender Shares in Education Spending

<table>
<thead>
<tr>
<th>Category</th>
<th>Primary</th>
<th>Secondary</th>
<th>Tertiary</th>
<th>Post-Primary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spending per pupil (% of GDP per capita)</td>
<td>5.6</td>
<td>7.2</td>
<td>68.1</td>
<td></td>
</tr>
<tr>
<td>GDP per capita (2012 -GNF)</td>
<td>4,729,710</td>
<td>4,729,710</td>
<td>4,729,710</td>
<td></td>
</tr>
<tr>
<td>Spending per pupil (GNF)</td>
<td>264,864</td>
<td>340,539</td>
<td>3,220,933</td>
<td></td>
</tr>
<tr>
<td>Number of pupils (million)</td>
<td>1.6</td>
<td>0.65</td>
<td>0.02</td>
<td>0.67</td>
</tr>
<tr>
<td>% of female pupils</td>
<td>45</td>
<td>38</td>
<td>38</td>
<td>38</td>
</tr>
<tr>
<td>Spending on female education (Million GNF)</td>
<td>190,702</td>
<td>84,113</td>
<td>24,479</td>
<td>108,592</td>
</tr>
<tr>
<td>Spending on male education (Million GNF)</td>
<td>233,080</td>
<td>137,237</td>
<td>39,940</td>
<td>177,177</td>
</tr>
<tr>
<td>Share of female (%)</td>
<td>26.9</td>
<td>11.9</td>
<td>3.4</td>
<td>15.3</td>
</tr>
<tr>
<td>Share of male (%)</td>
<td>32.8</td>
<td>19.3</td>
<td>5.6</td>
<td>25.0</td>
</tr>
</tbody>
</table>

Source: Authors’ calculation from World Bank (2019) and EPCD (2019).
Appendix B: Description of the CGE model and key parameters

The model used in this study is a recursive dynamic single-country (CGE) model developed by Boulanger et al. (2018). In this section we present the model in a nutshell based on Boulanger et al. (2018) and new additions to the model for this project. The model consists of production activities, households, firms, government and rest of the world as main economic agents and attempts to model the behaviors of these agents and their interactions in an algebraic framework.

Every sector in the economy is represented with one activity that employs labor, capital, land (only in agriculture), together with intermediate inputs supplied from the other sectors to produce multiple commodities. The production function has a nested structure. We use different production trees for agriculture and rest of the sectors thanks to the flexible constant elasticity of substitution (CES) nesting structure of the model. We assume that all nets in the production tree are CES with -0.75 substitution elasticity. The production trees used are as follows:

The output of the production activities is supplied to the domestic markets as intermediate input and for final consumption, as well as in the international markets as exports. Production activities pay taxes to and receive subsidies from the government. The value added created by capital is paid to firms as income. Firms receive also transfers from the government and the rest of the world. This income is used to pay capital earnings to the households, institutional taxes to government and profit transfers to the trading partners.

Households receive the value added created by labor and land as income directly, while capital income is received...
through the firms. Households also receive transfers from the government and the rest of the world. Household income is used for consumption, to pay income taxes and to accumulate savings. Consumption is modeled with a linear expenditure system. Households receive utility from the part of the consumption that is above a subsistence level of consumption. The share of subsistence consumption in total household expenditure is assumed to higher for poorer households and rural areas. Assumed values of Frisch parameter are given in Table 13.

The substitution parameters in the demand system are based on the literature and assumes that food commodities are less substitutable with non-food commodities. We assume an elasticity of 0.7 for food commodities and 2 for non-food commodities.

Saving behavior of the household is determined by the closure rule. We assume an investment driven saving behavior at the macro level while the adjustments in absorption is spread to the all components uniformly. Hence, the share of investment in absorption is fixed; saving rates of the agents are uniformly scaled to finance the investment.

There is no behavioral assumption about the government. Government collects taxes and receives transfers from the rest of the world. Government income is used for government consumption, savings, transfer payments to domestic institutions and to the rest of the world. The share of government outlays in total absorption is constant. We assume that government savings are fixed while the government consumption adjusts to keep budget balance unchanged as a percentage of GDP.

Rest of the world account consists of five trading partners who supply imports and demand exports, pay and receives transfers, and invest in Turkey. Imports follow Armington specification while exports are modeled with a CET approach. Accordingly, imported commodities are not perfect substitutes of domestic alternatives and the relationship between demand for domestic and imported commodities is managed by substitution elasticity. The share of export supply in domestic production is also managed by a constant elasticity of transformation function. We assume a uniform elasticity of 2 for the substitution of imports and domestic products. Domestic demand and export supply is aggregated with a CET function to obtain the total domestic demand with a uniform substitution elasticity of 2.

Foreign savings are by definition equal to the difference between value of imports and exports to balance the current account. The transfers to and from domestic institutions are constant shares of their incomes. We assume that foreign exchange rate adjusts to keep foreign savings constant.

The recursive dynamic nature of the model is based on physical capital accumulation due to investments, the evolution of birth and death rates and thus the demographic profile of the country (i.e. population and labor force) and human capital (i.e. labor productivity) due to spending on health and education services; transformation of land to agriculture use due to investments in agriculture; increase in factor and intermediate input productivity as a result of extension services; and decreasing trade margin costs due to investment in infrastructure and roads. We further enhanced the model dynamics by allowing transformation of unskilled labor to skilled labor through increasing government spending on education.

### Table 13: Frisch Parameters Used to Calibrate the Subsistence Consumption

<table>
<thead>
<tr>
<th>Decile</th>
<th>Urban</th>
<th>Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (poorest)</td>
<td>-1.5</td>
<td>-1.2</td>
</tr>
<tr>
<td>2</td>
<td>-1.6</td>
<td>-1.28</td>
</tr>
<tr>
<td>3</td>
<td>-1.7</td>
<td>-1.36</td>
</tr>
<tr>
<td>4</td>
<td>-1.8</td>
<td>-1.44</td>
</tr>
<tr>
<td>5</td>
<td>-1.9</td>
<td>-1.52</td>
</tr>
<tr>
<td>6</td>
<td>-2</td>
<td>-1.6</td>
</tr>
<tr>
<td>7</td>
<td>-2.1</td>
<td>-1.68</td>
</tr>
<tr>
<td>8</td>
<td>-2.2</td>
<td>-1.76</td>
</tr>
<tr>
<td>9</td>
<td>-2.3</td>
<td>-1.84</td>
</tr>
<tr>
<td>10</td>
<td>-2.4</td>
<td>-1.92</td>
</tr>
</tbody>
</table>
In the model the death rate decreases as per capita health spending increases according to following equation:

\[
DR_t = DR_{t-1} \left( \frac{QGD_{t-1, Health}}{popn_{t-1}} \right)^{\mu_{t, DR} DR} \cdot \left( \frac{QGD_{t, Health}}{popn_t} \right)^{\mu_{t, DR}} 
\]

where \( DR_t \) is the death rate at time \( t \), \( QGD_{t, Health} \) is government spending to health services in time \( t \) and \( \mu_{t, DR} \) is the elasticity of death rate to the changes in government spending on health. \( \mu_{t, DR} \) is the elasticity of death rate to the changes in government spending on health.

The birth rate decreases with increasing per capita spending on education according to following formula:

\[
BR_t = BR_{t-1} \left( \frac{QGD_{t-1, Education}}{popn_{t-1}} \right)^{\mu_{t, BR} BR} \cdot \left( \frac{QGD_{t, Education}}{popn_t} \right)^{\mu_{t, BR}} 
\]

where \( BR_t \) is the birth rate at time \( t \), \( QGD_{t, Education} \) is government spending to education services in time \( t \) and \( \mu_{t, BR} \) is the elasticity of birth rate to the changes in government spending on education.

The updated death and birth rates are then used to calculate the number of people to update the total population which is then used to calculate labor force. Once new labor force numbers are calculated, per capita health and education spending are once again used to update labor productivity data:

\[
ADFH_{L, t} = ADFH_{L, t-1} + \left( \left( \frac{QGD_t, Health}{QGD_{t-1, Health}} \right)^{\mu_{Health, t}} - 1 \right) + \left( \left( \frac{QGD_t, Education}{QGD_{t-1, Education}} \right)^{\mu_{Education, t}} - 1 \right)
\]

The model allows for linking different investment types with the accumulation of different factors of production. The version of the model used in this study distinguishes the investments for agriculture from the other investments. The higher the return for a capital investment, the more funds it receives from an investment type. The investment for agriculture is used to expand the agricultural land while other investments are added to capital stock in each period.