Topical Issues in International Development and Economics

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Edited by

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CHAPTER ONE

INTRODUCTION

DÉSIRÉ AVOM[1] AND GILLES DUFRÉNOT[2]

Abstract

This chapter introduces the contributions of the book. They are written in a context where development economics as we have practiced it so far may seem to lead to some points of dissatisfaction. Despite the multitude of existing theoretical explanations, poverty continues to be widespread around the world, especially in Africa, Asia, and Latin America. This finding suggests that there are no unambiguous recipes and has led scholars to explore new avenues of research. On the empirical side, experimental methods have been popular, but they do not explain everything. On the theoretical level, the economics of experimental development is growing, as are transdisciplinary analyses, since economics cannot be isolated from sociological, historical and anthropological factors. The chapters provide an overview of the diversity of fields in which development economics analysis has been renewed in recent years.

Keywords: Development, Behavioural, Random experiment, Structural models

1.1 Being a development economist in the 21st century

The field of economics devoted to development issues has expanded considerably in almost 50 years. Theoretical models that are ever more sophisticated in order to better reflect reality have not made poverty disappear. On the contrary, the narrative of development sometimes seems to be caricatured. For example, Jeffrey Sachs claims that a threefold increase

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in public aid can make poverty – caused by climate, geography and diseases – disappear. William Easterly argues that development aid is useless. For him, only the market economy can get countries out of the poverty trap in a context of promoting democracy and freedom as developed by Hayek and Friedman. In this perspective, the challenges remain numerous. While at its birth, development economics was studied from an exclusively macroeconomic and institutional perspective, analytical tools based on microeconomics have played a crucial role in understanding the realities on the ground, thanks to the possibility of mobilizing empirical data from household and corporate surveys.

It seems to us that the most important developments of the last two decades have been in the following areas.

The first concerns the increasing use of experimental economic methods to evaluate the effects of anti-poverty policies. Randomized laboratory experiments have become popular, driven by economists who have convinced the profession of the importance of treatment effects, especially from the perspective of being able to learn from policies that have worked well and can make a big difference. Abhijit Banerjee and Esther Duflo were awarded the Nobel Prize in 2019 as their influence has been crucial in guiding some of the applied research on development (for a review of these methods in development economics, see Banerjee and Duflo, 2009). These methods have also been subject to criticism that should not be underestimated (see Barret and Caeter, 2010 and the book edited by Bédécarrats et al., 2020). Non-experimental approaches to assessing treatment effects using standard econometric techniques (instrumental variables, discontinuity regressions, linear and non-linear regressions) remain entirely valid, provided that the tools are refined to adapt them to the limited amount of statistical data (see Dehejia, 2015, Rodrik, 2008 for a discussion). It is essential a methodological pluralism be maintained when we try to detect hidden causal effects in developmental phenomena. This would prevent the considerable weight given to randomized analyses from leading to biases.

A second shift is related to a change in the mindset of economists living in poor countries about the problem of "exogeneity distortion".

Which issues should be addressed to improve the lives of people in poor countries? An economist would naturally say growth, productivity, education and health, international trade, microfinance, inclusive banking, inequality of opportunity, and so on. But let's ask the same question to those who live in poverty: what do you think prevents your living conditions and those of future generations from being better? The answers would certainly be wars between communities and armies, environmental disasters, the too

strong influence of rich countries in the international game of hegemonic rivalries, the limited capacities of societies to innovate by themselves, the weight of religions, traditional ancestral values, barriers to the movement of populations because of racism between communities, the fact that the models and strategies of development are thought elsewhere – in rich countries, etc. All these elements, economists do not deny them. But in their reasoning, they treat them as exogenous variables. Young researchers confronted with the reality of the field promote a holistic approach to the analysis of development problems. This involves first broadening the topics of what can be included in the field of analysis of development economics. For example, do religions play a role in the ecological transition – animist and non-animist beliefs? Are the cosmogonies of African or Asian countries compatible with the way of thinking about contracts in the global commercial and financial systems? Another example is that fertility choices, as described in microeconomic models, imperfectly reflect the influence of non-economic factors that govern people's decisions. The holistic approach consists above all in emphasizing that economic behaviours cannot be considered separately from the other factors that interact with it, anthropological factors, the sociology of societies, human-land and human-animal ecosystems, the influence of history on cognitive decisions, etc. Transdisciplinary modelling is in its infancy. It generates resistance among economists who are used to "isolating" phenomena by thinking that certain decisions are exclusively the domain of economics (which is obviously contradicted by reality).

In this vein, development economics has been enriched by a new discipline, i.e., behavioural development economics (part of the discipline has been influenced by empirical observations obtained from randomized experiments. For a synthesis, see among others, Kremer et al., 2019), cliometrics methods where history is use to explain the contemporaneous phenomena like diversification economic. The models rely on the assumption that the historical trajectories followed by countries' economies depend on how people adapt their – economic – decisions to non-economic factors (their exposure to culture, to the beliefs of their communities, to their geographical place of birth, to interactions with other cultures, to the history of societies, etc.). The preferences and decisions of economic agents change over time as their perceptions of reality change in response to their new experiences. This approach criticizes the universality of homo-economicus. Instead of being a nexus of rationalities, he is first bathed in a history and culture that determines his behaviour (see Nunn and Wantchekon, 2011, Nunn, 2020, Hoff et al., 2023). We can thus understand how some countries absorb more easily than others the technical norms that come from outside,

better understand the impact of political organization on development strategies, perceive the reasons why Confucian capitalism has been an engine of development in Asia, or why transposing European or Asian development models to Africa and Latin America does not give the results expected from theoretical models; or why parents refuse to vaccinate their children at an early age even though their health could improve.

The proposed models are of several types. Some of this new literature is normative. It is based on the hypothesis that policy decisions must aim to change the frameworks of action of individuals in order to lead them to change their perceptions and make rational decisions (see for example Thaler and Sunstein, 2008). Other models are more micro-based and rely on cultural mental models (e.g., Hoff and Stiglitz, 2016 and for a more general overview, see the excellent survey by Hoff et al., 2023).

A third change – compared to what we observed in the 1950s and 1960s – is that there are no new theories of development that override those that have been in place for several decades. Many of the contributions to investigate the causal identification of factors or obstacles to development are based on empirical analyses. A key aspect is that research is no longer exclusively produced – and recognized – in industrialized countries. New knowledge is increasingly coming from developing countries themselves.

This influences the issues examined, which are directly relevant to the reality on the ground. On this aspect, the interested reader can refer, for example, to the papers presented in 2022 at the annual conference of the North East Universities Development Consortium. A few years ago, most of the topics studied would have been considered uninteresting, as they did not deal with general fundamental theoretical issues. Gradually, the profession is accepting that there is no general recipe for a nation to develop. The mechanisms are contingent on the countries and societies to which they apply. Fewer and fewer economists in developing countries are interested in theoretical models dealing with universal general issues. Country case studies are more popular.

A fourth change that is related to the previous one is the following. If there is no encompassing development model, then this calls into question an idea that has long prevailed, namely that long-term growth requires the globalization of countries. Poor countries have long been sold the idea that if they wanted to develop growth sectors, they could do so by engaging in international trade. However, from a political economy perspective, it turns out that trade and geopolitics are linked, and that global trade has been coupled with a deepening of inequalities within countries. China's phenomenal development has highlighted a reversed causality. The country's rising standard of living was not only due to the fact that it has become more

internationalized over the past three decades. But it has also exported its goods and services to the world thanks to a domestic strategy of innovation-led growth supported by a strategic state and a banking and financial system fully dedicated to providing resources to innovative sectors. The paradigm of outward-looking, export-led growth is no longer a consensus among economists. Some works suggest a bias in empirical exercises that have tended to show a systematically positive link between international trade insertion and development (see for example, Giles and Williams, 2010).

1.2 Contributions in the book

This collective book is the result of research networking between authors from three continents (Africa, Asia and Europe) working on new approaches to development policies and strategies. It addresses recent hot topics on development strategies: the role of gender and women on economic development, new approaches to the link between human capital and economic growth, leapfrogging strategies for industrialization, new trade openness strategies in a context of globalization, micro and macro aspects of sustainable development, and budgetary, monetary and financial strategies. The authors use new databases to bring original contributions to the literature on development strategies. Some key findings are the following. The questions answered in the chapters are adapted to the challenges of the 21st century: Can poor countries develop, skipping the industrialization phase? Can empowering women politically and economically improve growth and accelerate development? Do terms-of-trade shocks penalize countries in their export diversification choices? Has China become a financial power in Asia? What remains of the Balassa-Samuelson effect? Which monetary regimes are most favorable to development? Does studying abroad and returning home promote entrepreneurship? Do foreign direct investments raise the productivity of developing countries? How does the social contract explain the degree of commitment of governments to their citizens? The book brings together researchers working in universities, and from international institutions, central banks and think tanks. While rigorous, the developments are aimed at a wide audience of academic economists interested in development strategies.

The book is written taking account of the crossed views of economists from across the world: Europe, Africa, Asia. This multiplies the reading grids and avoids having an exclusively European or industrialized country approach to development strategies.

The chapters are divided into three parts.

The first part focuses on topics related to the structural transformations necessary for an economy to take off. It focuses on four aspects: the role of women, educational inequalities, export-led industrialization, and the entrepreneurial behavior of returning migrants. These topics have a common thread in that they highlight different aspects of the role that human capital plays in a nation's development.

There has been a boom in the literature on the role of women and gender on long-term growth (for a survey, see Merouani and Perrin, 2022 and some recent contributions, Bertay et al., 2020, Kleven and Landais, 2017, Perrin, 2022). The issues at stake cover several aspects that go beyond economics and the optimal allocation of labor force. Effects related to norms, education, fertility behaviors, and productivity are accounted for. The works emphasizes the penalizing aspect on the development of all gender-related inequalities, whether one considers difficulties in accessing education for young girls, wage inequalities, or difficulties in accessing employment. The chapters in this book show how a better consideration of gender issues would help reduce the informal sector – which provides few jobs and is the source of precarious living standards. They also show that increasing the number of women in service sector jobs would help increase production. They study the influence of political regimes in improving or deteriorating inequalities in access to education.

The issue of export-led development has a long history in the literature. However, it is gaining renewed interest today because the context has changed. In particular, our world is entering a period of slowing globalization, more frequent crises that distort international value chains, and new hegemonic struggles that limit the diffusion of technological innovations from industrialized to developing countries. Moreover, the automatic link between exports and job creation is being questioned because of biased technical progress. Indeed, the current technological revolutions (e.g. artificial intelligence) provide jobs for the most qualified people, not to mention the fact that they increase the substitution between labor and capital. This is likely to call into question the strategy of development through the internationalization of economies. As early as 2013, an UNCTAD report concluded in this sense by inviting countries to seek growth through the development of domestic sectors of activity (UNCTAD, 2013).

Would a solution be for workers to seek technical progress abroad (by going for training) and then bring it back to their country (by contributing to the development of more qualified jobs)? The contributions in this book

answer negatively. It is not the skill level of returning migrants that stimulates private sector development, but the savings they have accumulated.

The second part focuses on the issues of trade, globalization and sustainable development.

The authors examine a long-standing thesis in the literature, but with new econometric tools, namely that a broadening of the export base facilitates positioning in international value chains. Export diversification is one of the conditions for the beneficial effects of an improvement in the terms of trade. But how do you diversify the goods and services you export? By enhancing the content of technology, human capital and know-how that they contain. The authors go beyond an overall export variable by looking at the degree of sophistication of exports.

The question of sustainable development is analysed from the perspective of a few emergencies of short-term interest to developing countries, and not from the usual standpoint of the links between growth and ecological transition (which is also important, but not studied in this book).

The ability of poor countries to promote development that benefits present and future generations, leaving available resources, depends above all on their ability to sustain their productive capacity in states that ensure high living standards for several decades. The resulting structural transformations can be measured in different ways: by the evolution in the degree of sophistication of the goods and services produced (which is captured by the concept of economic complexity), by the analysis of production frontiers, by the way in which technical progress spreads between sectors of activity as a country develops (the Balassa-Samuelson effect), or by the strategies implemented to attract financing. The authors focus on the conditions necessary to make these structural transformations possible: political, economic and financial stability, the conditions under which labour markets operate, and the criteria used to allocate capital in an optimal way over time. But stable and high trajectories over a long period are only possible if countries do not suffer violent shocks. Using China as an example, the authors show the contradictory role that financial markets can play. For example, if companies decide to implement policies that respect environmental and social sustainability criteria "too much", investors in financial markets may react in such a way that their behaviour destabilizes their functioning and increases the risks of financial crises.

The third part of the book focuses on the role of fiscal, monetary and financial policies.

The issue of fiscal potential is important because it influences the ability of governments to implement public policies. Inadequate tax collection in

poor countries is one of the policy constraints identified in a large literature (see for example Fuest and Riedel, 2009). In this book, the authors provide a comparative analysis of tax effort between developed and developing countries.

The book approaches the issue of fiscal policies from different angles: according to the degree of integration of countries into global finance, according to currency blocs and the pivotal role played by certain currencies, and according to the sharing of risks when economies are subject to asymmetric shocks. The interest of this work is to offer a comparative perspective, particularly between Asian and African countries.

In a nutshell, this book is the result of collaborative works between researchers from Asia, Africa and Europe that discusses hot topics on development strategies in the 21st century. Using new databases, the authors address sometimes taboo questions, such as whether giving more political and economic power to women improves a country's standard of living. Do countries have to adopt macroeconomic policies similar to developed countries to get rid of poverty? Is studying abroad a threat to local entrepreneurship? The book also takes a new look at structural transformation issues: is it necessary to go through an industrialization stage to develop? Is globalization responsible for productivity gaps between countries?

The book will be of interest to a wide audience of academic economists. PhD and master's students will also find new ways of reading development economics. The work presented here is the result of years of research conducted in various institutions. None of the institutions to which the authors belong are responsible for the ideas expressed here, which are the sole responsibility of the authors.

References

Abhijit, Banerjee, Duflo, Esther (2009). "The experimental approach to development economics", *Annual Review of Economics*, 1:141-178.

Barnett, Christopher, Carter, Michael (2010). "The power and pitfalls of experiments in development economics: some non-random reflections", *Applied Economic Perspectives and Policy*, 32(4):515-548.

Bédécarrats, Florent, Guérin, Isabelle, Roubaud, François (eds) (2020). *Randomnized control trials in the field of development: a critical perspective*, Oxford Academic.

Bertay, Ata can, Dordevic Ljubica, Sever Can (2020). "Gender inequality and economic growth: evidence from industry-level data", IMF Working Paper 20/119, Washington D.C.

Dehejia, Rajeev (2015). "Experimental and non-experimental methods in development economics: a porous dialectic", *Journal of Globalization and Development*, 6(1):47-69.

Fuest, Clemens, Riedel, Nadine (2009). "Tax evasion, tax avoidance and tax expenditures in developing countries: a review of the literature", Oxford University Centre for Business Taxation, Oxford, UK.

Giles, Judith, Williams, Cara (2010). "Export-led growth: a survey of the empirical literature and some non-causality results. Part 1", *The Journal of International Trade and Economic Development*, 9(3):261-337.

Hoff, Karla, Stiglitz, Joseph (2016). "Striving for balance in economics: towards a theory of the social determination of behaviour", *Journal of Economic Behavior and Organization*, 126(B):25-37.

Hoff, Karla, Demeritt, Allisson, Stiglitz, Joseph (2023). *The invisible hand of culture: how it affects economic and social progress and can make a society rigid*, Columbia University Press.

Kleven, Henrik, Landais, Camille (2017). "Gender inequality and economic development: fertility, education and norms", *Economica*, 84(334):180-209.

Kremer, Michael, Gautam, Rao, Frank, Schilbach (2019). "Behavioural development economics". In Bernheim, Douglas, Dellavigna, Stefano, Laibson, David (eds), *Handbook of behavioural economics*, Vol. 2, Chapter 5, 345-458.

Merouani, Youssouf, Perrin, Faustine (2022). "Gender and the long-run development process. A survey of the literature", *European Review of Economic History*, 26(4):612-641.

Nunn, Natham (2020). "The historical roots of economic development", *Science*, 367(6485), 1461.

Nunn, Natham, Wantchekon, Leonard (2011). "The slave trade and the origins of mistrust in Africa". American Economic Review, 101(7):3221-52.

Perrin, Faustine (2022). "Can historical gender gap index deepen our understanding of economic development?", *Journal of Demographic Economics*, 88:379-417.

Rodrik, Dani (2008). *The new development economics: we shall experiment, but how shall we learn?*, Harvard University Press.

Thaler, Richard, Sunstein, Cass (2008). *Nudge: improving decisions about health, wealth, and happiness*, Yale University.

UNCTAD (2013). "Adjusting the changing dynamics of the world economy", Trade and Development Report, United Nations.

PART I

GENDER ECONOMICS AND STRUCTURAL TRANSFORMATION STRATEGIES

CHAPTER TWO

GENDER GAP AND ECONOMIC GROWTH IN AFRICA

HENRI ATANGANA ONDOA
AND BERTHE NYEBE ANDELA

Abstract

The purpose of this article is to identify the dimensions of gender gaps that reduce economic growth in Africa. We use the two-stage least squares estimator (2SLS) and data from the World Bank (WDI, poverty and equity) for the period 2002–2018. The results show that GDP increases when there is no difference between men and women in the following aspects of gender bias: non-vulnerability of employment, entrepreneurship, education and wage. Growth decreases when there are gender gaps in life expectancy in favor of women. The study shows that feminization of industry has a negative effect on economic growth while reducing gender gap in service sector in terms of labor force participation increases economic growth. For these reasons, African countries should promote gender equality in the following aspects: education, entrepreneurship, quality of employment (wage and vulnerability) and promote men's health.

Keywords: Gender, Growth, Economics, Africa.

2.1 Introduction

The relationship between gender gaps and economic growth is investigated since the last century. Initially, an important focus was on the gender inequalities and economic performance (Barro, 1991; Hill & King, 1995). The studies examine the link of gender differences in health, in employment, wage, education, laws, and empowerment on economic growth (Minasyan et al., 2019). While Barro & Lee (1994); Barro & Sala-i-Martin (1995) reported that more female years of schooling is associated

with lower economic growth, other studies found the opposite (Dollar & Gatti, 1999; Knowles et al., 2002; Klasen, 2002). Several theoretical arguments explain the above puzzling findings of Barro & Lee (1994); Barro & Sala-i-Martin (1995). For instance, Becker (1981), in *A treatise on the Family* argues that there are efficiency gains to a sexual division of labor where each gender specializes on the tasks where they have a comparative advantage. Under this logic, which, women specialize in home production. According to Tertilt & Doepke (2014), higher female education could lead to more household consumption rather than savings, which could serve to lower economic growth. However, the paper of Dollar & Gatti (1999) suggests that gender gaps reduce the average level of human capital in an economy and thus harm economic growth because it restricts the pool of talents from which one can draw for education and thereby excluding skilled girls (Cuberes & Teignier, 2016). Furthermore, if the marginal returns to education decrease, restricting the education of girls to lower levels while taking the education of boys to higher levels means that the marginal return to educating girls is higher than that of boys, and reducing the gap would boost overall economic performance (Knowles et al., 2002). Similarly, education of women reduces fertility and child mortality. These positive structural changes have a positive effect on economic growth (King et al., 2009).

Since the year 2000, the trends towards lower gender disparities have stalled in both LDCs and rich countries. For instance, in the USA the rates of female labor force participation have levelled and remain below those of males. Indeed, increases in women's participation has led to female dominance in agricultural and services sectors. For this reason, the portion of the gender wage gap has been persistent, and contributed to a slowing in the closing of the overall gender wage gap in many countries (Blau & Kahn, 2017). In addition, women spend at least twice as much time on care work for children and elderly in developed economies (Klasen (2020). In LDCs, there is a more worrying development because certain groups terrorist organizations like Taliban, Islamic State, Boko Haram, fight the most basic global consensus on gender equality, all children have an equal right to basic health, employment and education. Hundreds of schools for girls have been attacked and destroyed by these terrorist organizations in Cameroon, Nigeria, Afghanistan and Pakistan (Khan & Seltzer, 2016). In Nigeria, girls have been abducted from classrooms by Boko Haram and married off (Jaff, 2018). Progress in reducing gender bias in mortality has been more nuanced because some reductions in gender disparity in mortality is due to higher male mortality, rather than falling female mortality (Liu et al., 2017).

Several authors have studied the relationship between gender gaps and economic growth. For instance, Knowles et al. (2002) studied the effect of human capital accumulation on long run growth of GDP using panel data. In their study, education was disaggregated by gender. They showed that the effect of female education on economic growth was positive, whereas the effect of male education was insignificant. Klasen and Lamanna (2009) examined the relationship between economic growth and gender gaps in education and found that economic growth in education and the growth in the ratio of female years of schooling to male years of schooling exerted positive impact on the growth rate of GDP. Hassan et al. (2017) used a production function framework to study the effects of male and female health capitals on economic growth using data from 83 countries for the period 1960–2009. Their model did not include education variables, and the analysis did not involve examining developed and developing countries separately. They found that in the short run, male and female health capitals have negative effect on economic growth, whereas in the long run, both gender disaggregated health capitals exert significant positive effect on economic growth. In paid labor markets, female educational attainment is positively related to economic growth. The positive impact of female education may fall below its potential, however, if women are sequestered in low skill jobs despite their qualifications for more skilled positions (Hill & King, 1995). The net effect of gender difference on economic growth is therefore a priori unclear (Seguino, 2000). We note here that it is relevant to disaggregate gender gap by category to evaluate the different types of gender gap on economic growth.

Though there are already many studies, this paper contributes to the literature on gender disparities and economic growth in several ways. First, while most studies so far have been limited to one country, we propose a cross-country exploration of gender differences in the following dimensions: wage, employment vulnerability, entrepreneurship, school enrolment in primary, primary completion rate and life expectancy at birth. In fact, the paper considers two dimensions of gender disparities, namely labor market and human capital accumulation. Second, the paper assesses the effects of new dimensions of gender disparities like entrepreneurship, time and cost to start a business, life expectancy and employment vulnerability on economic growth. To the best of our knowledge, this is the first study that considers several aspects of gender inequalities in Africa and even in the world. Methodologically, we propose a new index of gender disparities. The link between the gender gap and economic growth is analyzed on the basis of panel data of 51 African countries collected in 2002 and 2018. The choice is motivated by the availability of data. The rest of

this paper is organized as follows. Section 2.2 presents the literature review; Section 2.3 examines the data and econometric methods used. In Section 2.4, we comment on the results.

2.2 Literature review

Some authors show that gender disparity is good for growth, while others postulate the opposite. For instance, discrimination against females is sometimes viewed as being particularly growth-promoting in early stages of development. Indeed, gender discrimination (that is paying lower wages to women with equal productivity) can be seen as being a positive factor for economic growth in the economy. However, the gender gap is a casual factor in investment and economic growth for the semi-industrialized countries (Seguino, 2000). In addition, discriminated against women might hesitate to participate in the labor market because their reservation wage is not met. This discrimination could affect human capital investment negatively (Schober & Winter-Ebmer, 2011). According to Amsden (1989), gender discriminations that stimulate exports may not be sufficient to sustain economic growth, at least in the case of some late industrializing countries. In fact, in addition to export competitiveness, economic growth may also be dependent upon the existence of a qualified labor force that is able to competently adopt new technologies.

In East Asia, countries are competitive because they have more female-intensive export-oriented industries (Seguino, 2000). In order for such competitive export industries to emerge, women need to be educated and there must no barrier to their employment in such sectors. Lower relative wages in female-dominated manufacturing industries will make investment attractive because of high expected profitability; this will boost exports and economic growth. She backs the study with a macroeconomic growth model (Blecker & Seguino, 2002), where gender gap in wage relaxes the balance of payment constraint faced by LDCs that require technology imports to move up the industrial ladder. Several authors do not find evidence that gender wage inequality is a stimulus to growth (Schober & Winter-Ebmer, 2011; Weichselbaumer & Winter-Ebmer's, 2005). These authors suggest Seguino (2000) results to legitimate gender inequality as a means to stimulate economic growth. Seguino (2011) responds to this criticism by exploring possible measurement errors Schober & Winter-Ebmer (2011; Weichselbaumer & Winter-Ebmer's (2005) data introduce and note concerns with the meta-regression approach that limit the applicability of these data to the specific task of understanding the growth effect of gender inequality. Schober & Winter-Ebmer (2011) use comparable gender wage

discrimination data coming from a meta-regression on the international gender wage inequality and consider various definitions of the gender wage gap. Their results show any positive impact of gender wage discrimination on economic growth.

In Kaleckian approaches, investment is a function of profit and output. In general, a low share of wages implies a high profit share and is this profit stimulates physical investment. According these approaches, the gender gap in wages is associated with lower unit labor costs, stimulates physical investment (Erturk & Cagatay, 1995). Competitive pressures resulting from greater trade liberalization have induced employers to substitute female workers for male workers, resulting in a feminization of the labor force (Standing, 1989; 1999).

Qian et al. (2018) trace the asymmetric relationship between gender equality and economic growth to the persistent effects of existing social structures and norms, or to the discrimination against women workers. The weaker link between economic growth and gender equality is explained by the fact that improved socioeconomic conditions benefit male and female newborns do not eliminate the gender differential (Qian et al., 2018). Agénor & Canuto (2015) quantify the impact of gender-based policies on gender difference and economic growth in Brazil by offering a quantitative analysis of the long-run impact of policies aimed at fostering gender equality on economic growth, especially through their impact on women's time allocation and intra household bargaining power. They show that fostering gender equality, which may partly depend on the externalities that infrastructure creates in terms of women's time allocation and bargaining power, may have a substantial impact on long-run growth.

The comparative advantage explanation for gender difference leads to an increase in schooling investment overall, higher levels of schooling for workers with a comparative advantage in skill (women), and higher measured returns to schooling overall. In other words, if women are disproportionally represented in skill-intensive occupations, the average productivity of schooling for women will be higher than that of men, and increasingly so as the occupational division of labor by gender increases (Rosenzweig & Zhang, 2013). Similarly, female education reduces fertility, promotes the education of the next generation and reduces child mortality. These positive structural changes have a positive effect on economic growth (King et al., 2009). Fertility decisions of parents are also influenced by relative wages of women. Opportunity costs of children rise with wages, leading to lower population growth and increased level of capital per worker and, in turn, to higher growth (Galor & Weil, 1996).

The entry of women into cheap labor markets might support economic growth but does not assist gender equality and empowerment for women and girls. Without strategies for redistributing unpaid domestic labor within the household, an emphasis on paid decent work, although important, can only remain a limited approach to gender equality (Rai et al., 2019). When gender gaps in wage discourage women from entering the labor market or deteriorate women's income position, their bargaining power within the household could be negatively affected. In consequence, human capital of the next generation will not be optimal. Indeed, increased income for women is linked to a larger share of household budget used for household education and health, and results in better outcomes of child education and health (Thomas, 1997).

Concerning females' access to employment, Klasen &Lamanna (2009) investigate the growth implications of gender gaps in access to employment in a cross-country study. They point out the high costs of low female labor force participation in the Middle East and North Africa, which is found to be a major factor explaining growth differences with East Asia. Esteve Volart (2009) shows that gender gaps in access to employment and managerial positions and to employment distort the optimal allocation of qualified workers and reduce growth in India.

Gender disparities in the allocation of capital play important roles in the effect of per capita income growth (Day, 2012). Galor & Weil (1996) show that female revenue rises relative to male revenue with per capita GDP because men and women are endowed with different human capital. The rising opportunity cost of maternal time induces fertility decline since only time is used to rear children. In addition, a reduction of gender gap in economic opportunity increases economic growth by 1.3 percentage points and a corresponding reduction of gender gap in participatory equality improves growth by an average of about 1.2 percentage points in certain LDCs (Mitra et al., 2014). In addition, when the gender differences at home and in the labor market are completely removed, the female labor force participation rate increases, and the growth of GDP per capita rises from 3.6 to 4.1% on average over a generation (Kim et al., 2016). The engine of economic growth is human capital accumulation over generations and there are two sources of human capital accumulation. One is parents' altruism toward children, specified as the enjoyment of the existence of companionship and achievement of children. Another possible source of growth is old-age support from children to parents (Lucas, 1988; Becker et al., 1990; Zhang et al., 1999). A child's human capital formation is based on the total human capital of both parents, and parents act as teachers of children. Thus, in accumulating human capital in any generation, the cross-

gender effects of fathers and mothers on daughters tend to wash away any initial gender inequalities in human capital in a long-run growth equilibrium (Zhang et al., 1999). If women's access to education and economic opportunities is more likely to lead to greater investments in the human capital of their children (Kabeer & Natali, 2013).

According, to human capital theory, women are more likely to invest in their education when they can expect to reap the rewards from their resources in (Charles & Bradley, 2009). Indeed, gender discrimination in wage and promotion reduces the return to women market work and tends to depress female labor supply (Jaumotte, 2003). However, females' involvement in the labor market increases when their economic rights are protected. Furthermore, in environments where women's economic rights are protected women tend to accumulate human capital (Doepke et al., 2011) and that education is more likely to be in traditionally male-dominated fields of study such as engineering, math, and science (Estèvez-Abe, Iversen, & Soskice, 2003; Polachek, 1978). There is evidence that this renegotiation of bargaining power in favor of women leads to reduced fertility, greater household saving, a greater fraction of income being diverted to investment in health and education, and reduced exclusion of the girl child from familial investment. Each of these provides an impetus to growth (Mitra et al., 2014). In addition, women education has positive impacts on five very important variables, namely mortality rate, economic incentive, portfolio choice, cost, and social transformation over time. Summers further stated that in all the countries, female education reduces the child mortality rate by breaking the vicious circle of poverty by raising the income of their family. According to him, the main reason for slow economic growth in LDCs is the gender gap in education (Summers, 1994).

2.3 Methodology

In order to investigate the effects of gender gaps on economic growth, we use an extended Cobb-Douglas production function, which was used in a number of previous studies Le (2016), Shahbaz et al. (2018) Le and Nguyen, 2019). The model is the following:

$$Y_{it} = A_{it} K_{it}^{a} L_{it}^{b} e^{\varepsilon_{it}} \quad (1)$$

In Equation (1), i country: t is time; y is real GDP, K is capital, L is labour, A is technological factor, and ε is error assumed *N(i.i.d)*. a and b represent the elasticities of output to capital, labor, Nat is natural resources.

For the equation (1), the extended Cobb-Douglas production function with constant returns to scale is employed $a + b = 1$.

According to Shahbaz et al. (2013), the technology factor (A) in the above equation is allowed to be endogenously determined by gender gaps. For instance, female education plays a major role in the development process. The under-investment in female education yields economic efficiency, and hence no difference in the investment on either male or female education in terms of the returns thereon (Schultz, 1994). The investments in girls' education yield far higher returns as compared to the returns on investment in boys' education, specifically in LDCs (Fatima, 2013). Countries that protect women's economic rights exhibit higher labor force participation by women and higher economic growth rates (Doepke, Tertilt, & Voena, 2011).

Therefore, the effects of gender gaps are incorporated in the technological progress of the extended Cobb-Douglas function as follows:

$$A_{it} = e^{BX_{it}} \tag{2}$$

In Equation (2), B is a vector of parameters to be estimated, X is a vector of gender gaps indicators and other control variables like natural resources rents or institutional variables. Equation (2) is put into Equation (1) as follows:

$$Y_{it} = e^{BX_{it}} K_{it}^{a} L_{it}^{b} e^{\varepsilon_{it}} \tag{3}$$

Based on this extended theoretical framework, the linearized Cobb-Douglas production function from Equation (3) for panel data sample is expressed as follows:

$$log(Y_{it}) = U_0 + BX_{it} + aLog(K_{it}) + blog(L_{it}) + \varepsilon_{it}, \tag{4}$$

where U_0 is a constant term.

In this study, gender disparities are measured by the following equation:

$$GD_{ijt} = \sum_{j}^{N} \frac{\frac{f_{ijt}}{F_{ijt}}}{\frac{m_{ijt}}{M_{ijt}}} \tag{5}$$

In Equation (1), GD is an index of gender gap in time t and county i, j is a category of gender gap. And N is number of categories. $\frac{f_{ijt}}{F_{ijt}}$ is the

fraction of the female population in category i of level l, example school enrollment in primary for female, $\frac{m_{ijt}}{M_{ijt}}$ is the fraction of the male population in the same category, example school enrollment in primary for male. We consider the following six categories for male $\left(\frac{m_{ijt}}{M_{ijt}}\right)$: life expectancy at birth for male; primary completion rate (% of relevant age group); gross primary enrolment ratio; non-vulnerable employment (% of male employment); employers (% of male employment); Wage and salaried workers (% of male employment). For female $\left(\frac{f_{ijt}}{F_{ijt}}\right)$, the same six above variables. The choice of the six categories is justified by the availability of data. If $GD = 6$, there is no gender disparity, if $GD > 6$, this reflects gender disparity in favor of female and if $GD < 6$ this reflects gender disparty in favour of male. Control variables are: labor force participation, natural resources rent in percentage of GDP, rural population in percentage of total population, physical capital formation in percentage of GDP, primary education teacher's female % of total teachers, two variables of gender disparity in cost business, governance indicators (control of corruption[1], voice and accountability[2], and regulatory quality[3] as measured by Kaufmann et al. (2010).

The descriptive statistics presented in Table 2.1 show that the average level of GDP growth is 2.8% during the period 2002-2018 and the average level of natural resources rents in percentage of GDP is 13.177%. In some countries, this statistic exceeds 69, 9% and its standard deviation is 12.9. 45% of teachers employed in primary schools are female in Africa, in certain countries this statistic exceeds 88%. The value of domestic credit to private sector % of GDP is equal to 20.66% and the average level of GDP per capita is 2530.689 dollars, and GDP constant 2010 varies from US$8.52e+07 to US$5.69e+11. We also observe that time required by women to start a business in the number of calendar days is less than time required by men to start a business. However, the cost the men need to register a business exceeds the cost the women need to register a business.

[1] Control of corruption captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests.

[2] Voice and accountability captures perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media.

[3] Regulatory quality captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.

The average value of population density is 90.2. The gender inequalities noted in this study are by order: gender difference in entrepreneurship (.46); gender difference in wage (.59), gender difference in invulnerable of employment (.83), gender difference in primary completion (.931), gender difference in gross primary enrolment (.933) and gender difference in life expectancy (1.06).

Table 2.1: Descriptive statistics

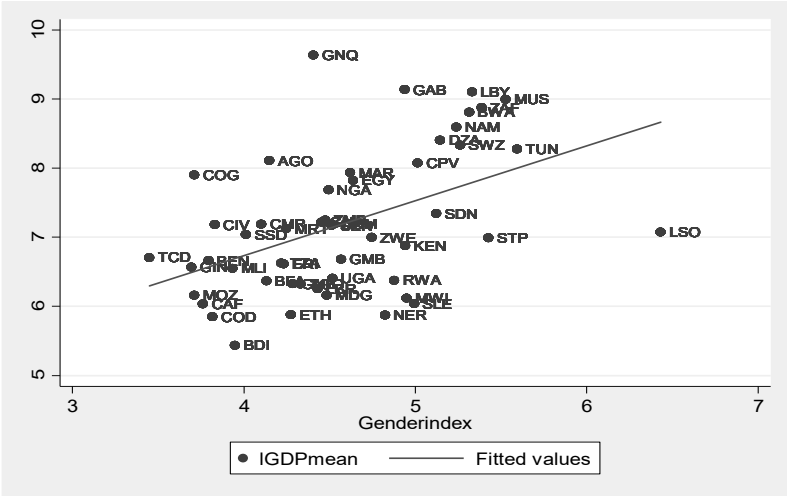
Variable	O	M	S	Mi	M
Domestic credit to private	8	2	1	.44	1
Domestic general	7	1	1	.10	6.
Natural resources rent %	8	1	1	.00	6
GDP per capita, constant	8	2	3	19	2
Physical capital formation	8	.	.	43.	9
Rural population % of total	9	5	1	10.	9
GDP constant 2010	8	3	7	8.5	5.
GDP growth	8	.	.	.97	.7
Female teacher % total	6	4	1	9.4	8
Ratio of female/male life	8	1	.	1.0	1.
Ratio of female/male	5	.	.	.43	1.
Ratio of Female/male gross	7	.	.	.55	1.
Ratio of female/male with	9	.	.	08	1.
Ratio of female/male with	9	.	.	.39	1.
Ratio of Female/male	9	.	.	0.1	1.
Index of gender gap	9	4	.	3.8	6.
Trade(M+X) /GDP	9	5	1	12.	1
Female/male ratio of cost	7	.	1	.00	1
Female/male ratio of time	7	1	.	1	1.
Population density	8	9	1	2.2	6
Control of corruption	9	-	.	-	1.
Political stability	9	-	.	-	1.
Government effectiveness	90	-.	.6	2.483	1.0
Regulatory quality	9	-	.	-	1.
Labour force	8	7	9	46	6.

Source : authors

The effects of gender bias on GDP per capital are presented in Figures 2.1 to 2.6. One can see that, there is a positive correlation between index of gender difference and GDP per capita (Figure 2.1). Indeed, Figure 2.1 shows that countries with no gender gap (the index of gender gap =6 or closed to 6) like Tunisia, Mauritius, Namibia and Libya have a high GDP

per capita. On the other hand, those who have a gender disparity in favor of men like Chad, CAR, Burundi, Mozambique and Congo have a low GDP per head. GDP per capita increases when there is no difference between men and women in the following aspects of gender bias: non-vulnerability employment (Figure 2.6); wage (Figure 2.2). However, Figure 2.5 shows that GDP per capita is low when the gender gap in labor force participation is in favor of women, that is when there are more women in the labor market than men.

Figure 2.1: Index of gender gap and log of GDP per capita in Africa (2002-2018)



Note: Gender index is index of gender gap; lGDP is log of GDP per capita
Source: Authors