COUNTRY ECONOMIC MEMORANDUM FOR BURKINA FASO
Making growth more efficient, sustainable, and inclusive
ACKNOWLEDGEMENTS

The Burkina Faso 2023 Country Economic Memorandum (CEM) was led by Kodzovi Abalo and Daniel Pajank, the World Bank’s Senior Country Economists for Burkina Faso. The core team comprised World Bank staff Michael O. Engman, Kyung Min Lee, Theophile Bougna, Aiga Stokenberga, Ernest Ruzindaza, Aletheia Amalia Donald, Jules Porte, Aminata Ouedraogo, Michael Evers, and Yannik Strittmatter.

The CEM was prepared under the overall guidance of Abebe Adugna, Clara De Sousa, Maimouna Mbou Fâm, and Theo David Thomas. Crucial advice and comments were received from Yue Man Lee, Fulbert Tchana Tchana, Jacques Morisset, Bledi Celiku, Emilie Jourdan, Philip Schuler, Kevin Carey, and Soraya Goga.

This Synthesis Report, written by Daniel Pajank, Kodzovi Abalo, and Jules Porte, draws from a set of World Bank staff-led background papers. Chapters 1 and 2 are informed by the Burkina Faso Country Scan. Chapter 3 is based on the paper “Boosting Agricultural Productivity and Growth,” co-authored by Ernest Ruzindaza and Gabriel Lawin. Chapter 4 is based on the paper “Firm-level Technology Adoption and Upgrading in Burkina Faso,” co-authored by Michael Engman, Marco Brancher (Harvard University), Marcio Cruz, Kyung Min Lee, and Xavier Cirera. Chapter 5 is based on two papers: “Transport Connectivity for More Resilient Growth in Burkina-Faso,” co-authored by Aiga Stokenberga and Theophile Bougna, and “Resource Misallocation, Specialization, and Transport Accessibility in Burkina Faso,” co-authored by Theophile Bougna and Advitha Arun. Chapter 6 is based on the paper “Boosting Growth Through Gender Parity in Burkina Faso,” co-authored by Aletheia Donald, Tomnnyy Islam (Eston University), and Anja Robakowski. Chapter 7 is based on the World Bank’s Burkina Faso Climate-Informed Macro-Fiscal Structural Model (BFA-ccMFM). Selected working papers authored by Burkinabè researchers also contributed to this Synthesis Report (detailed acknowledgments in the chapters).

The CEM benefited from a World Bank-internal webinar series titled “Making Growth in Burkina Faso More Efficient, Resilient, and Inclusive,” with five events featuring the following topics: (i) boosting growth through agriculture productivity and gender parity; (ii) boosting growth through better transport and technology adoption; (iii) growth story and growth opportunities; (iv) the urban link; and (v) the contribution of forests to the sustainable development of Burkina Faso. The team would like to thank the following World Bank staff for the invaluable comments received during these events: Chakib Jenane, Kofi Nouve, Michael O’Sullivan, Consolate Rusagara, Leo Iacovone, Jacques Morisset, Kevin Carey, Sylvie Deborn, Judy Baker, Soraya Goga, Leora Klapper, Olivia D’Aoust, Maria Sarraf, Loic Braune, Mirko Serkovic, Tim Brown, and Walker Kosmidou-Bradley.

The team acknowledges the excellent collaboration with the Burkinabè authorities, notably (i) the Ministry of the Economy, Finance, and Prospective (MINEFIP), especially the General Directorate of Economy and Planning (DGEP) and the National Statistics and Demography Institute (INSD); and (ii) the Ministry of Agriculture and Hydro-Agricultural Development.

The team gratefully acknowledges, with great satisfaction, the collaboration with over 50 economic researchers from across a dozen of Burkinabè universities, which culminated in the International Research Symposium on Growth and Development in Burkina Faso—organized jointly by the University Thomas Sankara (UTS, host of the event), MINEFIP, and the World Bank—and 16 background papers (including 12 written by Burkinabè researchers) that informed the analysis, findings, and policy options. The team acknowledges the critical role played by Professors Pam Zahnogono (President of the UTS), Kimseyinga Savadogo (UTS), and Eugénie Maiga (Norbert Zongo University). The team also thanks all non-Burkinabè contributors to the symposium, including Professors Marc Raffinot (University Paris Dauphine), Stefan Dercon (Oxford University), Gilles Duranton (University of Pennsylvania), Sonia Bharotra (Warwick University), Elodie Djemai (University Paris Dauphine), Diego Comin (Dartmouth University), and Ousmane Badiane (former Director of IFPRI). From the World Bank, Andrew Dabalen, Vasco Molini, Clement Joubert, and Elizabeth Foster also contributed to the symposium.

Catherine Compaore, Suzanne Rayaisse, Salimata Bessin Dera, Djeneba Bambara Sere, Maude Jean-Baptiste, and Micky O. Ananth provided invaluable administrative and operational assistance. The team thanks Lionel Yaro, Tassere Pitroipa, Nawun So Fang Michel Hien, and Nathalie David for their continued or just-in-time communication and logistical support, including on the webinar series and the international research symposium. Sally Hinchcliffe provided excellent editorial support. Studio nane has taken great care over the layout and graphic design of this CEM.

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1 The full Burkina Faso 2023 CEM includes the Synthesis Report, five World Bank-led background papers, 12 working papers written by economic researchers of Burkina Faso’s universities and selected by a joint scientific committee for the CEM Research Symposium, the material of the World Bank-internal webinar series, several blog posts relating to the Bank-produced background papers, media materials, including a capsule video, media interviews and articles, and the recording of the symposium.

2 Chapter 7 uses GDP losses induced by climate change, estimated for Burkina Faso in the GS Sahel CCDR.
## Abbreviations and Acronyms

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<tr>
<td>ACLED</td>
<td>Armed Conflict Location &amp; Event Data</td>
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<td>ASGM</td>
<td>Artisanal and small-scale gold mining</td>
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<td>BFA-ccMFMod</td>
<td>Burkina Faso Climate-Informed Macro-Fiscal Structural Model</td>
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<td>CCDR</td>
<td>Country Climate Development Report</td>
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<td>CCKP</td>
<td>Climate Change Knowledge Portal</td>
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<td>CEM</td>
<td>Country Economic Memorandum</td>
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<tr>
<td>EHCVM</td>
<td>Harmonized Survey of Household Living Conditions (Enquête Harmonisée sur les Conditions de Vie des Ménages)</td>
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<td>EICVM</td>
<td>Integral Survey on Household Living Conditions (Enquête Intégrale sur les Conditions de Vie des Ménages)</td>
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<tr>
<td>ERP</td>
<td>Enterprise resource planning</td>
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<td>FAT</td>
<td>Firm-level Adoption of Technology (survey)</td>
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<td>CFAP</td>
<td>Franc of the Financial Community of Africa (franc de la communauté financière en Afrique)</td>
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<td>ft</td>
<td>Foot</td>
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<td>G5</td>
<td>Group of Five (G5 Sahel countries)</td>
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<td>GBF</td>
<td>General business function</td>
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<td>GCM</td>
<td>General circulation model</td>
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<td>GDP</td>
<td>Gross domestic product</td>
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<td>GII</td>
<td>Gender Inequality Index</td>
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<td>GVA</td>
<td>Gross value added</td>
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<td>ICT</td>
<td>Information and communications technology</td>
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<td>IDP</td>
<td>Internally displaced person</td>
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<td>ILO</td>
<td>International Labor Organization</td>
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<td>IMF</td>
<td>International Monetary Fund</td>
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<td>INSD</td>
<td>National Institute of Statistics and Demography (Institut National de la Statistique et de la Démographie)</td>
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<tr>
<td>km</td>
<td>Kilometer</td>
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<td>LIC</td>
<td>Low-income country</td>
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<td>LSMS</td>
<td>Living Standards Measurement Study</td>
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<td>NEET</td>
<td>Not in education, employment, or training</td>
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<td>NGO</td>
<td>Non-governmental organization</td>
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<td>NTFP</td>
<td>Non-timber forest product</td>
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<td>PPP</td>
<td>Purchasing power parity</td>
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<td>RCP</td>
<td>Representative Concentration Pathway</td>
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<td>RGPH</td>
<td>General Census of Population and Housing (Recensement Général de la Population et de l’Habitation)</td>
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<td>SME</td>
<td>Small and medium-sized enterprise</td>
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<td>SPS</td>
<td>Sanitary and phytosanitary standards</td>
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<td>SSBF</td>
<td>Sector-specific business function</td>
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<td>SSP</td>
<td>Shared Socioeconomic Pathways</td>
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<td>TFP</td>
<td>Total factor productivity</td>
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<td>UN</td>
<td>United Nations</td>
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<td>UNDP</td>
<td>United Nations Development Programme</td>
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<td>UNICEF</td>
<td>United Nations Children’s Fund</td>
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<td>WAEMU</td>
<td>West African Economic and Monetary Union</td>
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<td>WBGT</td>
<td>Wet bulb globe temperature</td>
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Rapid growth in the past two decades has not been enough to transform Burkina Faso’s economy. Between 2000 and 2022, Burkina Faso’s economic output has more than tripled in real terms, but this has not translated into significant reductions in the number in extreme poverty. The country’s rapid GDP growth (an average annual growth rate of 5.6 percent) over the past two decades has been matched by very few low-income countries. However, similarly rapid population growth means GDP per capita has not even doubled, leaving the country still among the lowest income countries globally. Growth has been uneven; Burkina Faso’s strong convergence with regional peers in the early years of the century ended around 2013, while its aspirational peers (Ethiopia, Ghana, and Rwanda) have sustained their growth. The failure to convert rapid growth into a rise in per capita wealth has led to mixed results in poverty reduction; although the poverty rate has fallen by 10–15 percentage points between 2003 and 2018, the rising population means the absolute number in poverty is virtually unchanged, at 7 million.

Economic growth has been highly volatile due to exposure to weather and climate shocks, political instability and conflict, and external shocks such as the COVID-19 pandemic and the war in Ukraine. An underdeveloped economy with multiple sources of fragility leaves the country highly exposed to domestic and external shocks, which in turn has led to large swings in GDP growth. Weather events and climatic shocks have affected its highly rainfall-dependent agricultural areas, while inadequate infrastructure is a constraint to urban development and trade, making it harder to sustain growth. Political instability has worsened, culminating in the two coups in 2022, and is increasingly accompanied by growing fragility, driven in large part by agricultural expansion and instability. Over the past two decades, Burkina Faso has also been exposed to the effects of political and economic crises in neighboring Mali and Côte d’Ivoire, while its dependence on commodity exports—initially cotton, and more recently gold—has left it vulnerable to global shocks. In the past 3 years, COVID-19 and the spillover effects of the war in Ukraine have emerged as the latest external shocks affecting the economy.

Although the economy has undergone major sectoral changes, they do not reflect the degree of structural transformation needed to equip the country for future success. A slowdown in agricultural production over the past decade has left Burkina Faso less able to provide employment in rural areas and feed a growing population. Industrial gold mining has emerged as a new driver of GDP growth, now equaling agriculture in the share of total value added. However, the sector creates few jobs and has limited linkages to the local economy; despite accounting for 64 percent of headline growth during 2020–2021, mining only provided 1.5 percent of total employment in 2019. The contribution of manufacturing to economic growth has declined and the sector has not been able to generate many jobs. The service sector has been the main driver of economic growth, with tertiary output tripling in real terms. It is now the major provider of jobs outside the agriculture sector, but it is dominated by the expanding public sector, which has grown from 1.9 percent of total employment in 2007 to 5.2 percent in 2019.

The country’s recent growth has been neither efficient, sustainable, nor inclusive. Growth has not been efficient due to low productivity, a sub-optimal allocation of production factors, and major constraints to private sector development, including a low human capital base. Over the past two decades, growth in all economic sectors has been mainly based on the accumulation of labor and capital rather than on productivity improvements: total factor productivity (TFP) has contributed only 14 percent to GDP growth over 2000–2017. Inefficient allocation of labor and capital due to gender norms has constrained growth, while an inefficient allocation of production factors between the public and private sectors has hampered the development of the private sector. As the public sector absorbs the limited supply of better-educated workers, overall low levels of human capital will hold back technological progress in private firms. Poor attendance rates at secondary level and a low youth literacy rate—only 65 percent of 15–24-year-olds—suggest Burkina Faso continues to lag behind its peers in educational outcomes. Low technological sophistication among firms and poorly controlled urbanization are further critical impediments to private sector productivity.

Growth has also not been sustainable due to low levels of investment, the deterioration of public finances, and the destruction of natural resources, which all limit the economy’s resilience to shocks. On the demand side, growth has been mainly driven by consumption rather than by investment in human capital, infrastructure, or manufacturing, with private consumption alone contributing about 57 percent of total GDP growth between 2001 and 2021. Large fiscal deficits due to a ballooning wage bill, compounded by the security crisis, the COVID-19 pandemic, and the war in Ukraine, have caused public debt to soar, increasing the risk of debt distress and leaving little room for public investment. Deforestation, driven largely by agricultural expansion and the use of wood for fuel, has led to the loss of almost half the country’s forests in the past two decades. Combined with external factors, notably climate change, this could lead to long-term and even irreversible damage to the country’s environment and hinder sustainable development.

Finally, growth has not been inclusive due to the underemployment of young people and women in the formal sectors of the economy, and little redistribution of the fruits of growth. The labor market has been unable to keep up with the population growth rate, keeping informality at exceptionally high levels, particularly for women: with 98 percent of women in informal jobs, effectively almost no women in Burkina Faso work in the formal private sector. Youth are largely excluded from the labor market and struggle to find their place in society, making them vulnerable to recruitment by groups that engage in violence—41 percent of 15–24-year-olds are not in education, employment, or training. Despite some progress in reducing gender gaps (for example in access to primary education), stark disparities persist and hamper the inclusion of women in a more productive economy. Gender inequality has constrained the development of a skilled labor force in the country, while also hampering efficiency (with labor allocation decisions influenced by gender norms and not talent alone). The fruits of economic growth have not been evenly distributed across regions and income groups, with income inequality rising in recent years.
Boosting agricultural productivity can make growth more efficient and sustainable

The agriculture sector has not been able to fulfill its potential in supporting GDP growth and reducing poverty. Although agriculture provides the livelihood of a large majority of the population, low productivity growth means it has been unable to help reduce poverty and ensure food security. Land productivity has stagnated over the past two decades, with no significant improvements at the intensive margin, despite relatively high use of agrochemicals and pesticides—average fertilizer usage is 45 kg per hectare in Burkina Faso, more than twice the average for Sub-Saharan Africa. Labor productivity in agriculture has increased with the expansion of farmland (growth on the extensive margin), but a decline in capital productivity means that farmers with larger plots are not necessarily more efficient. Wide differences in land and labor productivity suggest there is scope to make substantial productivity gains: depending on the crop, the most productive farmers produce 2–3 times more per hectare than the least productive.

There are multiple drivers of low and declining agricultural productivity. The sector is dominated by small-scale farmers with limited access to agricultural inputs, capital, and mechanized equipment, and characterized by low output commercialization. Significant labor constraints have emerged as the young gravitate towards mining and to cities, while violence has forced large numbers of farmers to flee their land. This exodus is being further fueled by the sector’s heavy dependence on rainfall, which has left harvests highly exposed to climate variability and climate change; about one-third of Burkina Faso's land mass has been degraded by desertification. Large gender gaps place an additional constraint on agriculture productivity: on average, female-owned farms are 16 percent less productive across all crops than male-owned ones.

Increasing agricultural productivity and growth is a prerequisite for improving human and social welfare in Burkina Faso, where the livelihoods of the vast majority still depend on agriculture. Increasing the effectiveness of the specific policy options detailed in Table E1 below will require enhanced institutional capacity to embrace evidence-based planning and participatory implementation, empowered decentralized entities, and sectoral coordination and enhanced joint-sector reviews. Urban linkages also require significant attention as local economic development in many secondary towns is driven by connections to their agricultural hinterlands. Improved connections and processing facilities in towns could encourage value addition of agricultural products and widen market access.

Increasing technological sophistication of firms is another way to make growth more efficient

Very low levels of technological sophistication are hampering Burkinabè firms from increasing their productivity and creating more and better jobs. The average firm in Burkina Faso is very far from the international technology frontier, and even the most advanced firms lag behind those in peer countries. Even where firms have adopted more advanced technologies such as digital payment systems, they do not make extensive use of them and mostly rely on very basic, manual processes. The firms that do make intensive use of more sophisticated technologies are more productive, more resilient, and employ more people. They are also more resilient to shocks—the firms which had adopted more advanced technology were less likely to have to reduce their workforce during COVID-19. Simulations suggest moving firms from bottom third to the second third in terms of technological sophistication would increase labor productivity by 135 percent, and employment by 148 percent.

The main barriers to technology adoption and use are information asymmetries, inadequate skills, poor infrastructure, and underdeveloped financial markets. Lack of capabilities and information asymmetries are the main barriers to technology adoption on the demand side; most firms believe they use more sophisticated technologies than their local peers, but many are wrong. Firms also lack the highly educated managers and skilled workers needed to make the most of technological opportunities. Poor infrastructure is the main barrier to technology adoption on the supply side; while most firms have access to electricity, its quality and reliability are low, and 61 percent of firms have no internet. Underdeveloped financial markets are another key supply–side barrier to technological advancement.

Improving firm-level productivity will mean strengthening the enabling environment, developing firm-level capabilities, and increasing the human capital base. Tackling the challenges to technological sophistication requires a two-pronged approach: improving the capabilities of existing firms and enabling the development of more capable and new firms, through the policy options outlined in Table E3 below.

More efficient growth can also be achieved by improving resource allocation and productivity through better transport

Large market distortions prevent the efficient allocation of factors of production across provinces and industries, which results in more productive firms producing less than their optimal output. The uneven distribution of factors of production across provinces is leading to large market distortions, with job creation being no greater in the provinces where firms are more productive. Distortions are also leading to a misallocation of resources across firms within provinces, with the capital region facing the highest aggregate misallocation. The more productive firms face smaller capital distortions but larger output distortions; as a result, they produce less than their optimal output, while less productive firms produce more. Reducing distortion would bring significant gains in total factor productivity, with analysis showing that aggregate productivity could be improved by at least 36 percent if resources were reallocated from the less productive firms. Informal firms in secondary cities show the largest potential for productivity improvements.

Poor connectivity due to a lack of roads, inefficient transport systems, and rapid urbanization are the key drivers of these market distortions. The road network is very poor: only 2 percent of Burkina Faso's regional roads, and less than 1 percent of its secondary roads are paved. This particularly reduces access to markets and essential services during the rainy season, as roads are no longer passable. High trade costs and the absence of well-functioning urban and inter-urban transport systems limit access to international and local markets. Collectively, these factors are drivers of factor misallocation and low productivity of the private sector. Moreover, rapid urbanization, fueled by population growth and more recently by conflict, is compounding existing transport challenges. Ouagadougou, the largest city, lacks an efficient public transport system and provides among the lowest levels of accessibility to essential services across large cities in Sub-Saharan Africa. Many cities and towns in Burkina Faso have grown rapidly without planning, basic services, or infrastructure, leading to disconnectedness, sprawl, and leapfrog outward development, severely restricting economic development.
Economic development does not just involve increasing productivity and factor accumulation, but also the more efficient allocation of existing factors across firms. In Burkina Faso this means a focus on reforms to address the challenges of informality, improving access to domestic and international markets, investment in the country's secondary cities, and improving the speed of price transmission between markets. These can be achieved through the policy options outlined in Table E.1 below.

Gender parity can boost growth in a more equitable and inclusive way

Women farmers, entrepreneurs, and employees earn less than their male counterparts, with the gender differences highest for wage earnings. Burkinabè women live in a poor and unequal society, where women have low educational attainment, marry early, and are limited in their economic participation. Women participate less in paid work than men, and earn considerably less: in 2019, women's wage earnings were 82 percent lower than men's on average, driven by the large share of women working unpaid. Between 2014 and 2019, the overall gender gap in wage earnings has widened, although it has remained about the same for business revenues and narrowed in some sectors. In agriculture, gender gaps in farmers' harvest value have increased, while gender gaps in crop sales have been large and stable over time but with a great deal of regional variation.

The most important drivers of gender gaps across sectors are women's lack of capital, lower use of male workers in women-owned businesses, lack of control over income, and lower economic returns to marriage. The 20 percentage-point gender gap in labor force participation is not due to differences in characteristics between men and women, but rather to discrimination, social norms, market failures, or other institutional constraints. A large portion of the gender wage gap is due to men being more likely than women to work in non-agricultural sectors, have higher-skilled jobs, and work in managerial positions. In contrast, gender gaps in business revenues are driven by differences in characteristics: women-owned businesses make less use of male household labor, and are less likely to have access to electricity or financial accounts. In the agriculture sector, much of the gender gap is being driven by a lack of adoption of farming technology (machinery, fertilizer, and pesticides) by women farmers and by their choice of crops.

The policy objective in this area will be to increase women's engagement in higher-value sectors, improve their access to productive inputs, and increase their physical security and household agency. Table E.1 lays out the policy options for achieving these goals, while Chapter 6 also distinguishes which are the most credible options, which are emerging options, and which are still at the research frontier. These options are poised to strengthen the country's growth trajectory directly by expanding the supply of skilled labor and investment. They can also boost growth through enhancing total factor productivity, due to a more efficient use of women's talents, better-functioning institutions through the inclusion of more diverse perspectives and representation, and increased investment in children.

Looking forward, Burkina Faso could become a lower middle-income country by 2040

The prospects for Burkina Faso can be understood by considering three illustrative growth scenarios for the period 2022–2050: medium growth, low and fragile growth, and high growth. The high growth scenario reflects the impact of implementing the policy options outlined in Table E.1. In all three scenarios, the modeling accounts for the impact of climate change on economic output based on two climate scenarios: a “Hot/Dry” scenario and a “Wet/Warm” scenario, showing the upper and lower bounds of the aggregate impacts of climate change.

Under the medium growth scenario, with per capita GDP only 50 percent higher by 2050, Burkina Faso will remain a low-income country and see the poverty rate decline only very modestly. This medium growth scenario is marked by slow structural transformation, a fragile socio-political situation, and a failure to undertake significant structural reforms. The contribution of investment to GDP growth, in particular private investment, will decline. With total factor productivity growth keeping pace with historical trends of 0.6 percent per year, sectoral structural changes will be slow. Climate change without adaptation could reduce annual GDP by 3.5 percent by 2050 under the Wet/Warm climate scenario, and by 6.8 percent under the Hot/Dry climate scenario, mainly through lower labor productivity due to heat stress, damages to roads and bridges, and reduced yield of rainfed crops.

Under the low and fragile growth scenario, with growth trends below the medium growth scenario, stagnating per capita GDP means the country will remain in the group of LICs and the poverty rate will rise substantially. This scenario is marked by worsening fragility, a challenging socio-political situation, and a failure to undertake pro-growth reforms. This will hamper the country's transition away from agriculture and into services and industries. On the demand side, private consumption will remain the main driver of GDP growth over the period, while the contribution of trade will increase strongly, and investment will play a minor role. In the absence of productivity gains, Burkinabè will not experience sectoral structural changes.

Under the high, sustainable, and inclusive growth scenario, significant per capita GDP gains would see Burkina Faso join the group of lower middle-income countries by 2040 and remain in the group thereafter. This scenario is marked by a more decisive structural transformation, an improved socio-political situation, and a strong commitment to structural reforms, leading to a substantial reduction in poverty. On the demand side, private consumption will remain the main driver of GDP growth over the period, while net exports will gain importance, and investment, mainly public, will remain relatively stable. The structural transformation of the economy will accelerate, driven by higher total factor productivity.
### Policy Objective

**3.1. Diversify through creating demand for agricultural products, raising the productivity of livestock, and generating off-farm jobs in the rural economy**

- Promote diversification through stronger linkages between agriculture and agro-processing
- Improve livestock productivity through:
  - providing policy, institutional, and technical support*
  - expanding coverage of animal healthcare practices**
  - making feed supplements more widely available**
  - increasing productivity through higher quality of animal breeds***
  - strengthening zoonotic disease control***
  - enhancing value-addition**
- Diversify the rural economy through:
  - bringing artisanal mining workers into more formal mining**
  - combining cash grants and psychosocial components**
  - formalizing land tenure to ease security constraints and increase the efficiency of resource allocation***
  - investing in human capital to facilitate the transition out of agriculture into other sectors***

**3.2. Enhance domestic and international market access through market signals, information, transport, technology, and the reallocation of public spending to enable private sector investment and enhance participation of women and youth**

- Promote a move away from subsistence farming through:
  - improving market and transport infrastructure across the country (including organizing value chains)***
  - promoting market signals, the provision of information, and market linkages to help spur farmers’ adoption and use of new technologies**
  - investing in communication technology in rural areas to enable farmers to access timely information on market prices**
  - implementing proper land rights among farmers***
  - encouraging producers and cooperatives to participate more strongly in markets to reduce large margin spreads between producers and consumers (e.g., for horticulture crops and vegetables)**
  - catalyzing private sector investments in inputs, services, and market-oriented value chains**
  - promoting sanitary and phytosanitary standards (SPS) and food safety**

**3.3. Mitigate and manage risks through promoting climate-smart agriculture, irrigation, land restoration, and insurance and de-risking, and supporting the displaced and vulnerable**

- Promote climate-smart agriculture and resilience through:
  - mainstreaming climate change and fragility into the National Agriculture and Silvo-Pastoral Investment Plan*
  - increasing investment in irrigation and land-restoration technologies**
  - restoring and recovering land, protecting forests, and incentivizing reforestation***
  - increasing household resilience through insurance and de-risking, particularly in high-value agriculture**
- Support the vulnerable and IDPs through:
  - replenishing food stocks*
  - expanding safety net programs**
  - addressing issues of land and property to mitigate the risk of grievances and conflict and create enabling environments for economic development and integration for IDPs and hosts**

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<th>Policy Option</th>
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<tr>
<td>Diversification through stronger linkages between agriculture and agro-processing</td>
<td>High for efficiency and sustainability, and medium for equity</td>
</tr>
<tr>
<td>Improve livestock productivity through: providing policy, institutional, and technical support; expanding coverage of animal healthcare practices; making feed supplements more widely available; increasing productivity through higher quality of animal breeds; strengthening zoonotic disease control; enhancing value-addition</td>
<td>High for efficiency and sustainability</td>
</tr>
<tr>
<td>Diversify the rural economy through: bringing artisanal mining workers into more formal mining; combining cash grants and psychosocial components; formalizing land tenure to ease security constraints and increase the efficiency of resource allocation; investing in human capital to facilitate the transition out of agriculture into other sectors</td>
<td>High for efficiency and sustainability</td>
</tr>
<tr>
<td>Promote a move away from subsistence farming through: improving market and transport infrastructure across the country (including organizing value chains); promoting market signals, the provision of information, and market linkages to help spur farmers’ adoption and use of new technologies; investing in communication technology in rural areas to enable farmers to access timely information on market prices; implementing proper land rights among farmers; encouraging producers and cooperatives to participate more strongly in markets to reduce large margin spreads between producers and consumers (e.g., for horticulture crops and vegetables); catalyzing private sector investments in inputs, services, and market-oriented value chains; promoting sanitary and phytosanitary standards (SPS) and food safety</td>
<td>High for efficiency and sustainability</td>
</tr>
<tr>
<td>Promote climate-smart agriculture and resilience through: mainstreaming climate change and fragility into the National Agriculture and Silvo-Pastoral Investment Plan; increasing investment in irrigation and land-restoration technologies; restoring and recovering land, protecting forests, and incentivizing reforestation; increasing household resilience through insurance and de-risking, particularly in high-value agriculture</td>
<td>Medium for efficiency and high for sustainability</td>
</tr>
<tr>
<td>Support the vulnerable and IDPs through: replenishing food stocks; expanding safety net programs; addressing issues of land and property to mitigate the risk of grievances and conflict and create enabling environments for economic development and integration for IDPs and hosts</td>
<td>Medium for efficiency and high for sustainability</td>
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* Time horizon: * The policy option can be implemented in the short run; ** the policy option needs a 3–5-year implementation horizon; *** the policy option will only be applied within 5–10 years.
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<tr>
<th>Policy Objective</th>
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| **4.1. Strengthen the enabling environment for firms by reducing barriers to accessing electricity, digital services, and finance** | ■ Improve access to electricity through:  
▫ focusing scarce public resources on increasing access to affordable, reliable and modern electricity services*  
▫ enhancing sector planning and transactional capacities to foster the transformation of the energy sector towards cleaner and cheaper energy sources**  
▫ reducing the cost of electricity generation by increasing imports through regional integration and valorizing low-cost solar potential through competitively procured independent power producers**  
▫ creating system-wide storage to alleviate the risk of curtailment of variable renewable energy**  
▫ supporting the development, installation, and operation by private operators of photovoltaic-based mini-grids with storage**  
■ Tackle digital barriers through:  
▫ designing a licensing and auction system to increase competition in mobile internet services**  
▫ speeding up Universal Access Fund utilization to increase rural access and mobile broadband coverage*  
▫ allowing for market-based transfers of passive infrastructure such as towers and fiber optics to promote industry synergies and efficiency gains*  
■ Overcome financial barriers through:  
▫ creating technology adoption incentives targeted at SMEs**  
▫ providing financing instruments such as portfolio partial credit guarantees, lines of credit, and matching grants to promote private investment in technology adoption and upgrading** | High for efficiency and medium for sustainability |
| **4.2. Develop firm-level capabilities by providing information to firms about available technology, ways to integrate in global value chains, and training opportunities** | ■ Promote access to external knowledge through universities and think tanks, and promote exposure to international experience and global value chains including through collaborations with industry associations**  
■ Support collaboration between businesses and business development services consultants that can support firms in upgrading their technology**  
■ Reduce tariffs and regulations hampering the adoption of technology* | Medium for efficiency |
| **4.3. Increase the human capital base by developing and promoting digital skills with a focus on the younger generation** | ■ Address digital skills through:  
▫ establishing IT and tech labs in universities to strengthen students’ capacity to learn, experiment and build practical linkages with domestic and foreign researchers**  
▫ establishing Technology Centers in Ouagadougou and Bobo Dioulasso to showcase technology and allow for prototyping and testing***  
▫ developing training programs with academia and the private sector to promote the adoption of more advanced technologies in manufacturing and business administration**  
▫ integrating the development of digital skills systematically into the entire school system, as well as in technical and vocational education*** | High for efficiency |
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<th>Policy Objective</th>
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<tr>
<td>5.1. Invest in a more resilient and sustainable transport infrastructure with a focus on improving the quality and extent of the road network</td>
<td>■ Promote investment in all-season (climate resilient) road network, especially roads linking to agricultural zones and corridors to neighboring countries (feasible to start implementing in the short term but will require many years to bridge the gap)*&lt;br&gt;■ Explore private sector solutions to improving infrastructure, including public-private partnerships in road maintenance, logistical platforms, cold chains and storage, and urban transport**</td>
<td>Medium for efficiency and sustainability</td>
</tr>
<tr>
<td>5.2. Invest in complementary policies and the enabling environment to improve transport logistics and reduce trade costs for businesses</td>
<td>■ Improve the enabling environment through:&lt;br&gt;▫ establishing industry standards for registering new businesses and professionalize the sector**&lt;br&gt;▫ reviewing the system of quotas and reserved rights for national truckers serving the country's import/export markets*&lt;br&gt;▫ incorporating ICT to enhance free access to freight (virtual freight exchange)**&lt;br&gt;▫ supporting a capacity development initiative to strengthen the ability of local small and medium enterprises (SMEs) to engage in and compete for large transport infrastructure development projects, including through joint ventures*&lt;br▫ developing a more comprehensive domestic private sector promotion, such as pairing local SMEs with leading freight forwarders*</td>
<td>Medium for efficiency</td>
</tr>
<tr>
<td>5.3. Design policies to overcome informality and to improve the access of productive firms to labor, capital, and land, with a focus on secondary cities</td>
<td>■ Improving credit access for SMEs through more efficient markets by removing information asymmetries and developing missing or underdeveloped markets**&lt;br&gt;■ Concentrating the development of agro-processing and other forms of light manufacturing in secondary cities located between the farming areas and the destination markets**&lt;br&gt;■ Investing in secondary cities and towns to address market constraints**&lt;br&gt;■ Addressing the impact of “forced urbanization” through spatial planning and infrastructure investment, and economic development and social cohesion programs***&lt;br&gt;■ Giving local authorities a dedicated budget (additional resources) and more administrative discretion over policies to allow secondary towns—in particular cities/communes hosting IDPs—to better allocate resources to meet local needs**</td>
<td>Medium for efficiency</td>
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### Policy Objective

**Boosting Growth through Gender Parity (see Chapter 6)**

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| 6.1. Increase women’s engagement in higher-value sectors by improving their skills and involvement in management, and reducing occupational segregation | - Scale up skill-building programs for girls and women including:  
  - adolescent girls’ empowerment programs**  
  - skills-based livelihood programs**  
  - entrepreneurial mindset/personal initiative training**  
  - Increase the number of women in management through:  
  - establishing quotas for female managers*  
  - gender norms training on female leadership and role-modeling campaigns showcasing female managerial success stories**  
  - Reducing occupational segregation through:  
  - skills-based training and apprenticeships for women**  
  - providing information on earnings across sectors*  
  - introducing gender-equalitarian messaging and protocols at critical junctures of public service provision and government programs; this should include (a) encouraging men's involvement in household and childcare responsibilities to ensure women's participation, as well as gender-equal resource allocation of government benefits within households; and (b) subsidizing benefits to households engaging in gender-equal behavior, such as offering low-cost land titles for households that include the wife as a property holder***  
  - engaging men to change norms around gendered occupations and crops***  
  - providing male mentors to women* | High for efficiency and equity |
| 6.2. Increase women’s access to productive inputs through improving financial inclusion and business capital, use of and returns to labor, use of modern agricultural inputs, and returns to land | - Tackle low financial inclusion and business capital through:  
  - village savings and loans schemes**  
  - secure savings mechanisms (including through digital and mobile technology)**  
  - alternative methods to evaluate creditworthiness (e.g., psychometrics)**  
  - cashflow-based loans for procuring machinery and other productive inputs**  
  - issuing national IDs to women**  
  - Tackle low returns to labor through:  
  - cash transfers**  
  - encouraging mechanization**  
  - gender norms training so men are comfortable working under women**  
  - Tackle low use of modern agricultural inputs through:  
  - the use of digital technology for agricultural extension services**  
  - female extension workers and extension services targeting couples**  
  - Tackle low returns to land through:  
  - land regularization***  
  - conditionally subsidized land registration**  
  - increasing women's inheritance rights through issuing official birth and marriage certificates** | Medium for equity |
| 6.3. Increase women's physical security and household agency by improving knowledge of rights and laws, increasing their reproductive agency, and reducing the burden of care | - Tackle the lack of knowledge of rights and laws through:  
  - shifting social norms and behaviors through couples-based discussions***  
  - reducing bribery and gender-based violence by increasing understanding of legal rights and procedures between women and policy/public agents**  
  - equipping NGOs with training and materials to inform women about the law**  
  - reforming the remaining gender-regressive laws (on credit, mobility, and work in “dangerous” jobs) and launch large-scale dissemination campaign through government, media, NGOs and community representatives to inform the population about them*  
  - Tackle the high burden of unpaid care and domestic work through:  
  - providing public and private childcare services***  
  - increasing men’s participation in household and childcare responsibilities through role modelling and couple’s training*** | High for equity |
CHAPTER 1 Growth in Burkina Faso: Looking Back*

Between 2000 and 2022, economic output has more than tripled in real terms, but this has not translated into a significant reduction in the number of people in extreme poverty.

Burkina Faso’s rapid growth over the past two decades has been matched by only a handful of low-income countries. Between 2000 and 2022, gross domestic product (GDP) grew by an average of 5.6 percent annually, meaning economic output has more than tripled in real terms (Figure 1.1). Despite the recent gold boom, the pace has slowed slightly in recent years: GDP growth reached 6 percent per year during 2000–2008, moderating to 5.5 percent during 2009–2022. Only four low-income countries (LICs) experienced faster GDP growth over the same period: Ethiopia (8.6 percent), Rwanda (7.3 percent), Uganda (6.2 percent), and Mozambique (6.1 percent).

However, due to high population growth, GDP per capita has not even doubled, leaving the country among the poorest in international terms. In 2021, Burkina Faso was the 16th poorest country in monetary terms in the World Bank’s International Comparison Program, behind Uganda, the Gambia, and Mali; it was the 12th poorest country in 2000. The population has grown by an average of 3 percent per year from 2000 to 2022. As a result, GDP per capita rose by only 2.5 percent annually, meaning that per capita wealth did not quite double over the 22-year period (Figure 1.1). Although Burkina Faso compares relatively well with peers—among LICs, only Ethiopia, Rwanda, Uganda, and Mozambique experienced a higher GDP per capita growth rate—its recent growth has not been enough to close the gap with lower middle-income countries such as neighboring Côte d’Ivoire. If Burkina Faso continued to grow at the average rate it recorded during 2018–2022 (1.4 percent per capita per year; the medium growth scenario presented in Chapter 7), it would take it 86 years to reach Côte d’Ivoire’s 2022 GDP per capita. If the country was to grow at the rate its aspirational peers achieved during 2000–2022, it would take it only 27 years. Chapter 7 presents a plausible high growth scenario, which would mean it would take 45 years to reach where its richer neighbor stands now.

**FIGURE 1.1**
Burkina Faso’s growth has been rapid but still surpassed by its aspirational peers and has not translated into equally rapid per capita growth

Growth has been uneven; initially rapid convergence with regional peers ended around 2013, while the country’s aspirational peers have sustained their growth over the past two decades. In 2000, Burkina Faso’s GDP per capita represented 62.5 percent of the average GDP per capita of the West African Economic and Monetary Union (WAEMU) countries (Figure 1.2). After increasing steadily, it reached a plateau of around 82 percent in 2013, since when Burkina Faso has remained well below the WAEMU average, with the gap barely closing. Per capita GDP growth in its aspirational peers, Ethiopia and Rwanda, has been much faster. Although in 2000 Burkina Faso’s GDP per capita was 178 percent of Ethiopia’s and 150 percent of Rwanda’s, the GDP per capita of all three countries had converged by 2018.
The low transmission of GDP growth into a rise in per capita wealth has led to a mixed record in poverty reduction, with the number in poverty virtually unchanged. Based on the international poverty line ($2.15 in 2017 PPP), Burkina Faso's poverty rate stood at 31 percent of the population in 2018. This is high in international terms. For instance, Guinea-Bissau and Togo have comparable GDP per capita but lower poverty rates, at 22 percent and 29 percent respectively. Although Burkina Faso has reduced its poverty rate significantly since 2003, by between 10 to 15 percentage points depending on the data sources, its growth has not been particularly inclusive (see Chapter 2). Poverty has not fallen as fast as could have been expected given its GDP per capita growth. Due to the rising population, the absolute number of poor people is falling only very slowly, remaining at around 7 million Burkinabé (Figure 1.3). Since 2018, models suggest that the poverty rate has increased, reaching 33 percent, due to weak growth in agriculture and high inflation.

**FIGURE 1.2**
Convergence with Burkina Faso's regional peers ended around 2013, while it has been overtaken by its aspirational peers in GDP per capita terms

A - Burkina Faso's GDP per capita as a share of the WAEMU average (excluding Burkina Faso and Cote d'Ivoire), in percent

B - Burkina Faso's GDP per capita as a share of aspirational peers, in percent


**FIGURE 1.3**
Poverty is still very high, both as a share of the population and in absolute terms

A - National poverty headcount, in percent of the total population, Burkina Faso, 2003–2018

B - Number of poor, in million, Burkina Faso, 2003–2018

Source: World Bank staff calculations based on data from 2003, 2009, and 2014 Enquête Multisectorielle continue (EMC); 2018 mini-EMC, and 2018 EHCVM.
Economic growth has been highly volatile due to exposure to weather and climate shocks, political instability and conflict, and external shocks such as the COVID-19 pandemic and the war in Ukraine.

A lagging economic performance leaves the country highly exposed to domestic and external shocks, which has led to large swings in GDP growth. Burkina Faso faces structural hurdles to sustained GDP growth over the medium term. Between 2000 and 2022, its GDP growth has only exceeded 7.2 percent—the average rate among its aspirational peers (Ethiopia, Ghana, and Rwanda)—in 2003, 2005, and 2010 (Figure 1.4). In comparison, Ethiopia’s annual GDP growth never fell below 7.2 percent between 2004 and 2017. In Rwanda, annual GDP growth fell below 7.2 percent seven times between 2000 and 2022 (only two years between 2000 and 2012).

Weather events and climate shocks impact the country’s agricultural areas while inadequate infrastructure is a constraint on urban development and to trade, threatening sustained growth. The country faces major environmental problems, such as land degradation, soil erosion, desertification, and water pollution resulting from agricultural and livestock activities. Ongoing climate change, exacerbated in the Sahel, is resulting in more erratic rainfall. The succession, or concurrence depending on the country’s regions, of floods and periods of drought, have made agriculture production into an increasingly uncertain prospect as the sector is highly dependent on rainfall (see Chapter 3). Yet the country relies heavily on its fragile agricultural sector, which forms the livelihood or main source of revenue for a large share of households. In urban areas, inadequate infrastructure acts as a constraint to growth. For instance, in the Centre region, where Ouagadougou is located, the built-up area has increased by about 77 percent between 2001 and 2019, but few of these areas are located along paved roads. This has led to cities characterized by disconnectedness, spatial dispersion, and “leapfrog” outward development (see Chapter 5). Poor roads mean connectivity between cities is a major issue, as well as access to international markets through the three main gateway corridors to the ports of Lomé, Tema, and Abidjan.

Political instability has worsened and is increasingly accompanied by growing insecurity. Since the start of the last decade, the country has experienced continuing political unrest. The first upheavals occurred in 2011, when demonstrations broke out to protest the high cost of living, centralization of power, and corruption. In 2014, major demonstrations following President Compaoré’s attempt to change the constitution to remain in office, led to his downfall after 27 years in power. Regular terrorist attacks since 2019 have displaced around 2 million people internally, destabilizing agricultural production and the towns where they have fled to, compounding the food and humanitarian crisis (Figure 1.5). Political instability rooted in heightened insecurity is reflected in the two military-led coups d’état in 2022. The deterioration of security in the region has reinforced the political instability, which in turn feeds the armed groups that cause insecurity, creating a vicious spiral.

Source: World Bank (National Accounts data and World Development Indicators database).
Over the past two decades, Burkina Faso has been hit by the impact of crises in Mali and Côte d’Ivoire, while its dependence on commodity exports have left it vulnerable to global shocks. The recent history of Burkina Faso has been marked by a series of shocks affecting its GDP growth. Côte d’Ivoire is one of the main gateways for its trade and also hosts a large community of Burkinabè emigrants (3–5 million, depending on the sources), both temporary and permanent. These provide a safety net for many families so the two crises (in 2002–2007 and 2010–2011) that affected Côte d’Ivoire also destabilized Burkina Faso, and ultimately had an impact on its economic growth. The insecurity that has disrupted agriculture and gold mining is not unique to the country but has regional roots, closely linked to the Malian crisis that began in 2012 and the proliferation of regional terrorist groups and ethnic militias in the Sahel. More recently, the global COVID-19 pandemic and the war in Ukraine have also affected GDP growth. In addition, over the last two decades, Burkina Faso’s economy has shifted from dependence on cotton exports to dependence on gold production, leaving the country highly vulnerable to external shocks given the economy’s exposure to commodity price volatility.

Although the economy has undergone major sectoral changes, these have been driven by labor reallocation into less productive informal sectors and uncontrolled urbanization rather than productivity gains and, hence, do not reflect the degree of structural transformation needed to equip the country for future success.

A slowdown in agricultural production over the past decade has left Burkina Faso less able to provide employment in rural areas and feed its growing population. Over the past two decades, primary sector output has doubled, but the sector has gradually declined as a share of value-added, mainly due to the decline of the cotton subsector. During the first decade of this century, relatively low international prices weakened the contribution of cotton to GDP growth. Despite somewhat higher prices in the second decade, cotton production stagnated for several reasons: rainfall and weather-related causes; insecurity; parasitic attacks on cotton plants; delay in delivery and poor quality of inputs, especially fertilizers; and cotton farmers’ boycotts due to loss of income. Despite the increasing importance of livestock farming, agriculture’s contribution to GDP growth was therefore relatively marginal, except during 2010–2014. More worryingly, this trend has been accompanied by a decline in agriculture production per capita in the second decade, including of food production (Table 1.1). The shift from agriculture to gold mining, together with climate change and other constraints faced by the sector, has therefore contributed to deteriorating food security. This fall in agriculture production is in line with the employment trends that show a slight decline in primary sector employment—which accounted for around 63 percent of total employment in 2019.
CHAPTER 1 Growth in Burkina Faso: Looking back

Industrial gold mining has emerged as a new driver of GDP growth, but the sector creates few jobs and has limited linkages to the local economy. Overall, the most important shift in the sectoral distribution of GDP has been the opposing trajectories of agriculture and mining. While agriculture’s share in total value-added was 21 percentage points higher than mining in 2000, by 2021 the two sectors’ shares were almost the same (Figure 1.6). The mining sector’s rising contribution to GDP growth has helped to cushion volatility, especially amid external shocks such as COVID-19, which was associated with higher international gold prices. Mining output rose sharply at the beginning of the 2010s, explaining half of the secondary sector’s contribution to GDP growth since 2010; 18 percent of headline growth during 2010–2019 and 64 percent during 2020–2021 (COVID-19 pandemic and recovery years). However, extractive industries, and in particular gold mining, are dominated by large foreign companies that import the equipment needed for their operations and export all of their production, resulting in few linkages with local firms. Formal gold mining is a highly mechanized process that requires a limited number of workers. Although artisanal gold mining is labor intensive, it represents only a fraction of the sector compared to formal extraction. Overall, extractive industries and mining only represented 1.5 percent of total employment in 2019.\(^4\) Compared to agriculture, extractive industries might generate higher gains, but they are short ended and highly concentrated.

FIGURE 1.6
Gold mining has emerged as a new driver of GDP growth, while the agricultural sector’s contribution to growth has gradually declined

A - Average contribution to value-added growth by subperiod

B - Agriculture and mining output as a share of total value added

Source: INSD National Accounts, World Bank staff estimates.

\(^4\)INSD data.
The contribution of manufacturing to economic growth declined and the sector has not generated many jobs. The expansion of gold mining meant the secondary sector overtook the primary sector in 2010–2011 but the manufacturing subsector has not followed the same trajectory. On the contrary, its contribution to economic growth has declined from 0.6 percentage points of GDP growth during 2000–2004, to only 0.3 percentage points during 2015–2019. Overall, manufacturing contributed about 10 percent of headline GDP growth over the last two decades. One explanation for this trend lies in the decreasing contribution of the food industry, which could be linked with the reductions in food production discussed above. Other non-extractive industries have been barely more dynamic, with construction contributing only 6 percent to GDP growth over the last two decades, while the contribution of electricity, water, and sanitation remains marginal. In line with its contribution to GDP growth, manufacturing provided only 6.3 percent of total employment in 2019, although this represents a minor increase since the beginning of the 2000s, when it accounted for around 3 percent of jobs.

The service sector has been the main driver of economic growth and a major provider of employment but is dominated by the expanding public sector. Tertiary output more than tripled in real terms and remains the key driver of economic growth. Over the last two decades it has accounted for an average of 44.5 percent of total GDP. Its share has slightly decreased relative to the secondary sector, specifically the extractive industry, but the sector regained its central importance between 2015 and 2019 (Figure 1.7). This dynamic has been largely driven by public sector services which accounted for two-thirds of the sector’s contribution during 2015–2019 and 84 percent during 2020–2021. The tertiary sector has seen a doubling of its share of total employment over the last two decades, from 12 to 25 percent. A large part of the rising employment in the service sector has been due to public sector expansion. The number of civil servants has increased by 80 percent between 2011 and 2019, to reach around 4.8 percent of total employment.

The tertiary sector has been the main driver of economic growth, while the primary sector’s share of employment has fallen substantially.

**FIGURE 1.7**

- **A** - Sectoral share in GDP (in percent) and sectoral value-added (constant USD 2015, bn), two-year moving average
- **B** - Sectoral distribution of employment, as a share of total employment

Source: INSD National Accounts, World Bank staff estimates.
Notes: Integral Survey on Household Living Conditions (EICVM = Enquête intégrale sur les Conditions de Vie des Ménages); General Census of Population and Housing (RGPH = Recensement Général de la Population et de l’Habitation).
CHAPTER 2  

Shortcomings of Burkina Faso’s Growth Model*

*This chapter is based on the following background research papers: Abalo, K.; Pajank, D. & Porte, J. “The Burkina Faso CEM Country Scan” and Kinda, R. “Are Lower Electricity Subsidies a Drag on Burkina Faso’s Economy?”
CHAPTER 2 Shortcomings of Burkina Faso’s Growth Model

This chapter identifies several shortcomings of Burkina Faso’s current growth model. It uses a human-capital enhanced Solow Growth Model to help organize the analysis (Figure 2.1). This allows growth to be examined from the perspective of efficiency (mainly technological progress and labor and agriculture productivity), sustainability or resilience (mainly physical capital accumulation), and equity or inclusiveness (mainly labor market and population growth). This categorization is obviously a simplification in order to provide a clear framework for organizing this synthesis report; the columns in Figure 2.1 should not be considered in isolation as there are many cross-linkages. For example, investment in roads can make growth more sustainable but it can make it also more efficient, and potentially even more inclusive by improving girls’ access to school. The deep dive chapters that follow will help to elaborate some of the cross-linkages between the three pillars.

FIGURE 2.1
Growth depends on improving human capital and productivity, building up physical capital, and making the most of the rapidly growing potential workforce

Y = A\text{H}^{\alpha_H} K^{\alpha_K} L^{1-\alpha_K-\alpha_H}

Source: World Bank staff.

Growth has not been efficient, sustainable, or equitable due to low productivity, a sub-optimal allocation of production factors, and major constraints to private sector development, including a low human capital base.

Over the past two decades, growth in all economic sectors has been mainly based on the accumulation of labor and capital rather than on productivity improvements. In Burkina Faso, total factor productivity (TFP) only contributed 14 percent to GDP growth over 2000–2017, while labor contributed 32 percent and capital 52 percent (Figure 2.2). The contribution of TFP has fallen over that period: from 29 percent during 2000 to 2008 to -2 percent during 2008 to 2017. Over the latter period, Burkina Faso compares rather poorly internationally: TFP contributed positively to GDP growth in Mali (5 percent) and Rwanda (10 percent) and was the main contributor to GDP growth in Côte d’Ivoire (55 percent) and Ghana (62 percent). Burkina Faso’s agricultural sector is dominated by smallholder farmers with limited access to mechanized agricultural equipment, low use of inorganic fertilizers, low resilience to climate shocks, and limited access to finance. In 2015–2019, agricultural productivity fell by 2.3 percent due to overall declines in land and capital productivity (see Chapter 3 for more details). The secondary sector expanded thanks to the mining sector, but its development relies heavily on capital accumulation and potential TFP gains are rather limited. Moreover, given the few links between the mining sector and local businesses, spillovers from rapid mining expansion have been limited. Although manufacturing is traditionally associated with productivity gains, the sector was not able to ramp up in Burkina Faso. Finally, services output is concentrated in low-productivity subsectors, such as trade and repair or public administration.
Inefficient allocation of labor and capital due to gender norms has constrained growth, while inefficient allocation of production factors between public and private actors has hampered the development of the private sector. One of the underlying reasons for factor misallocation in the economy is pervasive gender inequality. Gender norms dictating that women should leave the labor force upon marriage, be the primary caregiver, prioritize contributing to their husbands’ economic activity, and not work in certain sectors distort the allocation of talent and resources in the economy. In addition, women’s lack of representation in decision making at all levels of the economy, including the political leadership, is likely to have hampered institutional functioning in Burkina Faso. Similarly, the private sector is key to raising productivity, through the creation of productive jobs and improving the allocation of capital. In Burkina Faso, however, the number of public employees has increased rapidly over the last decade with more than 51,000 new positions created since 2016. Government employees enjoy a substantial wage premium over their formal private sector peers, after accounting for education and demographic characteristics. The most educated are therefore encouraged to join the public sector, limiting productivity gains in the private sector. The contribution of public sector services to GDP growth is also impeding private sector development (Figure 2.2), as the public sector crowds out the financing of the private sector: banks’ appetite for relatively safe and profitable investments in government securities is reducing the credit available to the private sector.

**FIGURE 2.2**

GDP growth is characterized by low productivity and inefficient allocation of production factors

<table>
<thead>
<tr>
<th>A - Decomposition of GDP growth</th>
<th>B - Contribution to GDP growth, in percentage points and share of GDP growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital Stock ($/g)</td>
<td>Public sector services</td>
</tr>
<tr>
<td>Share of Real GDP Growth</td>
<td>14</td>
</tr>
<tr>
<td>0%</td>
<td>52</td>
</tr>
<tr>
<td>20%</td>
<td>34</td>
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<tr>
<td>40%</td>
<td>25</td>
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<tr>
<td>60%</td>
<td>16</td>
</tr>
<tr>
<td>80%</td>
<td>9</td>
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<td>100%</td>
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</tbody>
</table>


Poor education outcomes and low levels of human capital, especially among the young, will hold back technological progress in private firms. Burkina Faso lags behind peer countries in its educational outcomes, which are key to improving labor productivity. It has the lowest levels of schooling among comparator countries, with a mean of only 1.6 years (Figure 2.3). The adult literacy rate stood at 41 percent in 2018, far behind structural peers (76 percent), and the Sub-Saharan average (65 percent) although slightly ahead of regional peers, Mali and Niger (35 percent). The youth literacy rate—which more accurately reflects recent efforts in education and anticipates the country’s future—is also particularly low. Only 58 percent of Burkinabè aged 15 to 24 are literate, against 93 percent of their Ghanaian peers (Figure 2.3). Attendance rates— a better indicator of school attendance than the enrollment rate—are also poor in Burkina Faso. Its primary school attendance rate is 52 percent,6 in line with regional peers but much lower than aspirational peers such as Rwanda (94 percent), and falls sharply for lower secondary (18 percent) and above all for upper secondary where the attendance rate is only 5 percent.7

Low technological sophistication and poorly controlled urbanization are critical impediments to private sector productivity. Burkina Faso’s firms have lower technological sophistication than all other countries with data available.8 On a scale from 1 to 5 (from less to more sophisticated), the average level for Burkina Faso is 1.2, compared to 1.6 for Ghana and Kenya, and 2.3 for Korea. As Chapter 4 explores in more detail, widespread power outages and low levels of internet access are barriers to the adoption of technology by all but the largest firms. In addition, although urbanization can boost firms’ productivity through economies of scale, clustering effects, and competition, firms have struggled to benefit from urbanization in Burkina Faso. As outlined in Chapter 5, the country’s rapid urbanization has led to a number of weaknesses: poor transport services—whether formal public transport or informal private provision—and uncontrolled urban expansion, accompanied by housing issues and exacerbated by large numbers of internally displaced persons (IDPs).

6 Adjusted net attendance rate: Percentage of children of a given age that are attending an education level compatible with their age or attending a higher education level.

7 With a great disparity depending on the wealth quintile.

8 As of July 2022, the Firm-level Adoption of Technology (FAT) survey has been carried out in Burkina Faso, Bangladesh, Brazil, Ghana, India, Kenya, Korea, Malawi, Poland, Senegal, and Vietnam.
CHAPTER 2 Shortcomings of Burkina Faso’s Growth Model

Growth has not been efficient, sustainable, or equitable due to low levels of investment, the deterioration of public finances, and the destruction of natural resources, which all limit the economy’s resilience to shocks.

On the demand side, growth has been mainly driven by consumption rather than by investment in human capital, infrastructure, or manufacturing to create more and better jobs. Consumption has been the main driver of GDP growth in the past two decades, contributing almost three-quarters of headline growth. Private consumption alone contributed around 57 percent of total GDP growth between 2001 and 2021 but its share has fallen slightly in recent years. Public consumption was outpacing it before the COVID-19 crisis, contributing 27 percent to GDP growth over 2015–2019, driven by a rising public wage bill and higher security spending (Figure 2.4). Investment contributed about one-third to GDP growth over 2001–2021. This has been largely dominated by private investment—accounting for three-quarters of investment’s contribution to GDP growth—mainly due to investment in gold mining. Public investment represented less than 6.7 percent of GDP and contributed on average 0.3 percentage points to GDP growth (Figure 2.4) even though investment in human capital, infrastructure, and manufacturing will be critical for long-term growth. Burkina Faso ranks only 184th out of 191 countries in the Human Development Index. It has the lowest average number of years of schooling and the second-lowest life expectancy among its peers. The country will therefore need to make a major shift in the drivers of growth to effectively address its long-term growth constraints.

FIGURE 2.3
Low levels of human capital are holding back current and future growth

A - Mean years of schooling, selected countries, latest year available

Source: World Development Indicators, World Bank.

B - Literacy rate, aged 15 to 24, in share of total population, 2021 or latest year available

Source: UNICEF global database on literacy rate, World Bank staff estimates.

FIGURE 2.4
Growth has been largely driven by consumption, with low levels of public investment despite pressing needs

A - Average contribution to GDP growth

Source: INSD National Accounts data, World Bank staff estimates.

B - Average contribution to GDP growth, in shares of the total contribution

Source: INSD National Accounts data, World Bank staff estimates.
Large fiscal deficits due to a ballooning wage bill mean public debt has soared, increasing the risk of debt distress, and leaving little room for public investment. Over the last two decades, public expenditure has increased faster than public revenues. In 2010, the wage bill accounted for 22 percent of total government spending, but the share had soared to 37 percent in 2021, an increase from 5 percent of GDP to 9 percent (Figure 2.5). Personnel spending has been well above the WAEMU-mandated ceiling of 35 percent of tax revenue over 2015–2019 and surpassed 65 percent of tax revenue in 2020. The high wage bill reflects the combination of a rapid increase in employment in the public sector from a low base, and high and increasing average compensation. Consequently, public expenditure and net lending more than doubled from 13.9 percent of GDP in 2000 to 31.3 percent in 2022. Over the same period, total revenue and grants rose from 11.7 to 20.7 percent of GDP. Average fiscal deficits have therefore increased, from 31 percent of GDP over 2000–2010 to 4.3 percent over 2011–2022. The accumulation of growing fiscal deficits led to a rise in public debt (Figure 2.5). The latter reached 58.3 percent of GDP in 2022, 36 percentage points higher than the low point in 2003 after the Heavily Indebted Poor Countries (HIPC) initiative, and a striking 32 percentage point increase since 2014. These trends cannot be sustained to support growth over the medium to long term.

Well-established patterns in agriculture and energy use are leading to the rapid destruction of forests, which once accounted for a third of Burkina Faso’s wealth. Low productivity and high population growth means increases in agriculture production over the last two decades have been based on extending the use of land. Burkina Faso has been losing 243,451 hectares of forest land on average per year (Figure 2.6). Agricultural expansion and the use of wood for energy have been the main drivers of deforestation in the country, with wood consumption being responsible for 40 percent of total deforested areas and agriculture for 59 percent. The impacts of mining and bushfires have fallen over the past few years. Overall, between 1992 and 2014, 47.5 percent of forests changed land-use type: 38.6 percent were converted to cultivated land and 7.9 percent to grasslands. Burkina Faso has therefore lost almost half of its forests in 22 years, even though they will be critical in the adaptation to climate change (Figure 2.6).9

* For a more thorough analysis, including the benefits that forests provide in Burkina Faso, see World Bank (2022c).
The labor market has been unable to keep pace with population growth, keeping informality at exceptionally high levels. The countries that have been the most successful at reducing poverty, notably through employment, have also been those that have recorded a sharp decline in their rates of population growth. In Burkina Faso, however, rapid population growth has outpaced job creation, while participation in the labor market has declined in urban and rural areas. The labor force participation rate fell by about 5 percentage points from 70.2 percent in 2009 to 64.8 percent in 2020. This is the lowest participation rate among all peer countries, whether regional or aspirational. For instance, Rwanda’s participation rate was 18 percentage points higher, at 83 percent, in 2019. Informality is another sign of low inclusivity, as it comes with no formal safety nets such as employment insurance, social security, or pension schemes. Informality remains the norm in Burkina Faso, particularly because urbanization is still limited, and agricultural jobs still account for a significant proportion of the workforce. Even though these characteristics are also relatively common among peer countries, Burkina Faso is the most affected. Its informal employment rate in non-agriculture sectors is 94.3 percent, against an average of 69 percent for aspirational peers, and 78 percent for structural peers (Figure 2.7).
Youth tend to be excluded from the formal labor market and struggle to find their footing in society, making them vulnerable to recruitment by groups that engage in violence. When an economy does not create enough jobs, it first excludes young people (and women in particular). Young people represent the majority in Burkina Faso—55 percent of the population are under 19 years old, and 64 percent under 24—but they suffer from low educational and employment levels. The share of young people not in education, employment, or training (NEET) is the highest among peer countries except Niger: 41 percent of Burkinabè aged 15 to 24 years old were considered NEET, 30 percent of young men and almost half of young women (Figure 2.8). Young people who are excluded from the labor market and other sources of socialization or income simultaneously represent a risk (of ideological radicalization or participation in armed conflict) and a lost opportunity (no entrepreneurship, no access to finance, loss of skills).

Despite some progress in reducing gender gaps, stark disparities continue to hamper the inclusion of women into a more productive economy. Overall, stark gender disparities remain, as illustrated by the United Nations Development Programme (UNDP) Gender Inequality Index (GII), where Burkina Faso ranked 157th out of 170 countries in 2021. As Chapter 6 explores, there are significant gender gaps in both labor force participation and wage earnings, driven in large part by the high share of women working unpaid. The informal employment rate of women is 97.3 percent in the non-agriculture sector, and 99.8 percent in agriculture. Effectively, almost no women in Burkina Faso work in the formal sector, while in Rwanda about one-third of the women working outside agriculture have formal employment. On the other hand, gender gaps in school enrollment, at primary and secondary level, have reversed over the last two decades. For now, and for the new generation to come, Burkina Faso seems to have achieved educational parity, unlike most of its peer countries. It has reduced maternal mortality by more than a third during 2000–2017 and the adolescent fertility rate, although still high at 100 births per 1,000 adolescent girls, is lower than for regional peers (Figure 2.8). Aspirational peers have better outcomes, however: 39 births per 1,000 girls in Rwanda, and 63 in Ethiopia, a key reason for their higher per capita GDP growth.
CHAPTER 2 Shortcomings of Burkina Faso’s Growth Model

The fruits of economic growth have not been evenly distributed across regions and income groups. The large share of rural households and continuing low agriculture productivity have slowed poverty reduction. In the past decade, rural poverty has fallen much more slowly than urban poverty, widening already existing disparities. The poverty headcount ranges from 5.3 percent in the Centre region to 70.9 percent in the Nord region. The Nord, Centre-Nord, and Boucle du Mouhoun regions each host over 1 million people in extreme poverty (Figure 2.9). This spatial disparity is confirmed by income distribution indicators. After decreasing steadily between 2003 and 2014, the Gini index increased again in 2018, demonstrating the lack of inclusiveness of recent growth. The share of income received by the bottom 40 percent of the population also increased until 2014, to reach 20 percent of the total, but fell back to 14 percent in 2018 (Figure 2.9). Meanwhile, the income share of the top 10 percent fell from 33.8 percent of total income in 2003 to 29.6 percent in 2014, but increased to 37.5 percent in 2018.

FIGURE 2.8
Youth and women find it hardest to join the labor market
A - The proportion of youth (aged 15–24 years) NEET (%), selected countries, latest data available

B - Female labor force participation (in percent of total female population) and fertility rate (average births per woman), Burkina Faso and aspirational peers, 2022 and 2021


FIGURE 2.9
Poverty is concentrated in rural areas while inequality is increasing
A - Poverty headcount by region, in shares of the regional population, Burkina Faso, 2018

B - Gini index and income share held by the bottom 40 percent, Burkina Faso, 2003–2018

The following deep dive chapters present policy options derived from micro analysis in selected areas to help address the shortcomings of the current growth model and realize a higher growth scenario, examining productivity in the agriculture sector, the technological sophistication of firms, transport and resource allocation, and tackling gender gaps. These topics were selected based on the key constraints to growth identified in the country scan. An additional factor was the availability of staff with the experience needed to conduct a thorough analysis. The topic selection therefore does not suggest that other areas (e.g., energy, health, education, water, competition policy) are not important. Based on an in-depth analysis (see the background papers cited for each one), the deep dive chapters derive policy options to achieve more efficient, sustainable, and inclusive growth. For example, mitigating and managing risks through promoting climate-smart agriculture, irrigation, land restoration, insurance, and de-risking (Chapter 3) could help make growth more resilient. Similarly, increasing the human capital base by developing and promoting ICT skills with a focus on the younger generation (Chapter 4) could help make growth more efficient and inclusive. The implementation of the various policy options that follow could help shift Burkina Faso to a higher growth trajectory. Chapter 7 presents this higher growth scenario and contrasts it with a medium growth scenario.
CHAPTER 3  Boosting Agricultural Productivity

*This chapter is based on the following background research papers: Ruzindazo, R. and G. Lawin “Boosting Agricultural Productivity” and Seogo, W. “Food Deficits and Recourse to Off-Farm Activities by Households in Burkina Faso.”
Agriculture provides a livelihood for a large majority of the population, but it has been unable to help reduce poverty and ensure food security due to its very low productivity growth. As well as supporting about three-quarters of the population, especially in rural areas (Figure 3.1), agriculture contributes over 50 percent of non-gold merchandise exports. However, its contribution to gross value added has declined sharply, from 23 percent in 2000 to 14 percent in 2021. This decline is mainly explained by its low productivity growth, especially over the period 2015–2019 when agricultural productivity fell at the second fastest rate among regional peers (Figure 3.1). Weak productivity growth in agriculture has not helped to either reduce the number of poor or to increase food security. Subsistence farming prevails with close to 40 percent of households selling none of their agricultural produce. Only about 20 percent sell more than half of their harvest and just 1 percent report selling all their produce. Market orientation is gender sensitive, with men selling greater quantities of agricultural products than women (see Chapter 6). Poorer households in rural areas also tend to be less diversified and rely more heavily on their income from agriculture.

Land productivity has increased marginally over the past two decades with no significant improvements at the intensive margin, despite relatively high use of agrochemicals and pesticides. Between 1999 and 2019, land productivity has remained at relatively low levels compared to peers (Figure 3.2). In contrast, land productivity growth in Ethiopia was twice as large as Burkina Faso’s over this period, making its land now around 40 percent more productive. Land productivity in Ghana also improved (by about 50 percent), slightly enhancing the already large productivity gap with Burkina Faso. This low and sluggish productivity growth comes despite high levels of agrochemical and pesticide use. In 2019, about 40 percent of households in Burkina Faso reported using pesticides, less than in Côte d’Ivoire but more than in Ethiopia, Malawi, Niger, Nigeria, Tanzania, and Uganda (Figure 3.2). Pesticide use is higher among cotton and rice growers, which also recorded yield expansion. About half of Burkinabé households use inorganic fertilizer, similar to Ethiopia but double that in Côte d’Ivoire. The average fertilizer use is 45 kg per hectare in Burkina Faso, more than twice the Sub-Saharan Africa average of 20 kg per hectare. However, agricultural input subsidies in place since 2008 have only had a marginal impact, covering about 2 percent of the need for chemical fertilizers and certified seeds for the main cereals (millet and sorghum) and cash crops (excluding cotton).10

Labor productivity in agriculture has increased with the expansion of farmland (growth on the extensive margin), but a decline in capital productivity means that farmers with larger plots are not necessarily more efficient. Farms in Burkina Faso are typically small, and the land available per agricultural worker is usually less than one hectare. Labor productivity, a measure of the output per agricultural worker, has increased sharply over the past two decades, surpassed only by Ghana among peer countries. Breaking down labor productivity into land productivity times the number of hectares farmed per person shows that the rise in labor productivity in Ghana was partly due to an increase in land productivity (i.e., a higher yield per hectare), whereas in Burkina Faso it was due to rural household members moving out of agriculture and supporting their household’s income with an increasing share of non-farm activities (e.g., artisanal goldmining), while fewer agricultural worker are

occupied on larger plots of land. Even though Burkinabé farmers can produce more output on a larger plot, they are on average not more efficient than farmers with smaller plots (Figure 3.3). In fact, an interesting U-shaped relationship between farm size and efficiency has been found, meaning that above a certain size, the relation between size and productivity becomes positive. Unfortunately, most farms in Burkina Faso do not reach the 20-hectare threshold where the relation becomes unambiguously positive. To substantially increase agricultural yield requires investment. However, the agricultural sector is severely capital constrained, even more so than 15 years ago, as indicated by a rapid decline in capital productivity in recent years (Figure 3.3).

**FIGURE 3.2**

High use of pesticides has not improved land productivity, leaving Burkina Faso lagging its peers

A - Land productivity by country from 1999 to 2019 (USD/ha)  
B - Share of households using pesticides (%), 2019

Source: Author’s calculations and USDA Economic Research Service data.

Source: Author’s calculations and EHCVM, 2019.

**FIGURE 3.3**

Larger plots show smaller yields than smaller ones while capital productivity has halved

A - Gross value of crop production per ha by farm size (ha), B - Capital productivity in Burkina Faso (1999–2019) 2019

Source: Author’s calculations and USDA Economic Research Service data.

Source: Author’s calculations and EHCVM, 2019.

Differences in land and labor productivity suggest there is scope to make substantial productivity gains. The value of production per hectare for the most productive Burkinabé farmers (those at the 75th percentile) is typically 2–3 times that of farmers producing at the 25th percentile (Figure 3.4). In fact, large differences in productivity between farm size and efficiency have been found, meaning that above a certain size, the relation between size and productivity becomes positive. Unfortunately, most farms in Burkina Faso do not reach the 20-hectare threshold where the relation becomes unambiguously positive. To substantially increase agricultural yield requires investment. However, the agricultural sector is severely capital constrained, even more so than 15 years ago, as indicated by a rapid decline in capital productivity in recent years (Figure 3.3).
Agricultural productivity is hampered by limited access to agricultural inputs, capital, and mechanical equipment, and by limited commercialization of outputs. A key factor behind Burkina Faso's low agricultural productivity lies in the structure of the agricultural sector, which is dominated by small-scale farmers with very limited use of mechanized equipment, low levels of fertilizer use, and limited access to finance. For example, less than 1 percent of farmers use tractors, power tillers, rice hullers, or maize shellers. The commercialization of farm output is also at a very low level. Large farmers are not necessarily more market oriented (at least not in relative terms). Commercialization is associated with the gender of the household head, land certification, access to irrigation, the type of crop grown, and the use of inputs (organic and inorganic fertilizer, pesticides). For example, growing cotton, ground nut, and roots and tubers is strongly and positively correlated with commercialization. Urban linkages also require significant attention—in many secondary and small towns, local economic development is driven by the connections between the city and its agricultural hinterland, but in different ways. For example, in Kaya, agriculture drives jobs, with most urban workers relying on small trade tied to the hinterland. Despite low productivity, agriculture employs 44 percent of heads of households in urban areas. But lack of processing facilities in towns, coupled with poor access, hamper value addition of agricultural products and restrict market access.

Significant labor constraints have emerged as the young gravitate towards small-scale mining and cities, while violence has forced large numbers of farmers to flee their land. The boom in artisanal and small-scale gold mining (ASGM) has enticed large portions of the rural and young population to abandon agriculture. About 140,000 people are estimated to work directly in ASGM and up to 1 million people's livelihoods depend on it. The mass exodus of young people towards mining sites and cities has significantly reduced the labor force available to farm the expanding agricultural areas. Given the low levels of mechanization, about half of all rural households have resorted to hired labor to compensate for shortages of family labor (compared to 75 percent in Côte d'Ivoire and 30 percent in Ethiopia). Some farmers have also turned to herbicides to reduce the need for labor, with mixed success. Labor needs are often met by mutual labor exchange arrangements, rather than through agricultural wage labor, except for cotton. The type of labor input differs significantly by cropping system (Figure 3.5). Another, more recent, disruption of agricultural activity has been the spread of violent attacks by armed groups since 2018. As of end 2022, about 1.9 million people were counted as internally displaced, most of whom are farmers.

The drivers of low and declining agricultural productivity are limited access to inputs, finance and equipment, labor shortages, dependence on rainfall, and gender gaps.

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Low agricultural productivity is further fueled by the sector’s heavy dependence on rainfall, which makes harvests of major food and cash crops highly exposed to climate variability and change. Climate variability, water scarcity, and extreme events such as droughts, excessive rains, floods, and pests are causing considerable crop losses. This severely affects land and labor productivity and rural household incomes. The changing climatic conditions, including increased temperatures, rainfall variability, heavier precipitation events, delayed onset of rains, land degradation, desertification, and the more frequent recurrence of droughts, are impacting agricultural productivity and making harvests of the major food and cash crops highly uncertain. About one-third of Burkina Faso's national territory is degraded by desertification. Some farmers are using adaptative strategies to cope with these negative impacts. These include the application of organic matter, minimum tillage, crop rotation, agroforestry, the use of furrows, and the zaï pit systems. While such sustainable farming strategies conserve soil carbon, reduce losses from direct evaporation, and preserve soil nutrients, Burkina Faso's overall adaptative capacity remains low and is not enough to cope with the effects of both climate variability and a changing climate in the long term.\(^\text{11}\)

Large gender gaps place an additional constraint on agricultural productivity. Female-headed households face the lowest returns on agricultural labor (i.e., hired male labor), with productivity being 16 percent lower on female-owned farms than on male-owned ones for all crops, and 22 percent lower for food crops. The most important factors behind this gender gap are smaller household labor forces, less use of agricultural inputs (i.e., improved seeds, fertilizer, and pesticide), less crop diversification, and limited involvement in growing export crops among female-headed household farms. Having a smaller farm is the main factor acting in favor of female-owned farms, due to the inverse relationship between farm size and productivity. Greater use of hired male labor also works in favor of female famers.

\(^{11}\) For a more thorough analysis of the climate change and development nexus in Burkina Faso, see World Bank (2022b).
Policy options are available to diversify within and outside of agriculture, enhance domestic and international market access, and mitigate and manage climate and fragility risks.

Increasing agricultural productivity and growth is a prerequisite for improving human and social welfare for an agriculture-based economy like Burkina Faso. To boost agricultural productivity and growth, a three-pronged approach could be considered: (i) diversifying within and outside agriculture; (ii) improving market access; and (iii) implementing actions to mitigate and manage climate and fragility risks, each detailed below. Three additional measures will increase the effectiveness of this approach. First, enhancing the institutional capacity to embrace evidence-based planning and accelerate participatory implementation, including the participation of women and youth. Evidence suggests that well-timed interventions can be most effective in improving productivity. Second, empowering decentralized entities to plan, deliver, and be held accountable for local level agriculture plans. Third, sectoral coordination and enhanced joint sector reviews could help all partners to combine their efforts to build an efficient and effective agricultural sector.

Policy Priority 3.1: Diversify through creating demand for agricultural products, raising the productivity of livestock, and generating off-farm jobs in the rural economy. Stronger vertical linkages between agriculture and agro-processing (e.g., for perishable products) would create demand for agricultural products. Burkina Faso has already made noticeable progress in agricultural diversification in maize, cashew nuts, and rice, leading to increased yield gains. More land has been devoted to growing rice, reducing imports and contributing to improving food security. Livestock is the second largest source of income for rural households (8.7 percent of rural household income) and offers considerable scope for productivity growth. Some of the major constraints to be addressed include weak policy, institutional, and technical support; limited coverage of animal healthcare practices; limited feed supplements; low productivity due to the poor quality of animal breeds; weak zoonotic disease control; and limited value-addition. Finally, several policy options are available to diversify household incomes, empower women, and boost household consumption in the rural economy: (i) bringing artisanal mining workers into more formal mining under safer conditions; (ii) combining cash grants and psychosocial components; (iii) formalizing land tenure to ease security constraints and increase the efficiency of productive resource allocation (particularly important for enabling women to switch into non-farm enterprises); and (iv) investing in human capital (education and health) to facilitate the transition out of agriculture into other sectors.

Policy Priority 3.2: Enhance domestic and international market access through market signals, information, transport, technology, and the reallocation of public spending to enable private sector investment—including in processing facilities in nearby cities/towns—and enhance the participation of women and youth. Better access to domestic and international markets allows small producers to reliably sell more products of better quality and at higher prices. Several options are available to switch the focus from subsistence farming to responding to market opportunities: (i) improving market and transport infrastructure (including organizing value chains); (ii) promoting market signals, the provision of information, and market linkages to help spur farmers’ adoption and use of new technologies; (iii) investing in communication technology in rural areas to enable farmers to access timely information on market prices; (iv) promoting access to finance and risk-sharing facilities in agriculture; (v) implementing proper land rights among farmers; (vi) encouraging producers and cooperatives to participate more strongly in markets to reduce large margin spreads between producers and consumers (e.g., for horticulture crops and vegetables); (vii) catalyzing private sector investments in inputs, services, and market-oriented value chains, including transformational investments for agricultural value addition in nearby cities/towns; and (viii) promoting sanitary and phytosanitary standards (SPS) and food safety.

Policy Priority 3.3: Mitigate and manage risks through promoting climate-smart agriculture, irrigation, land restoration, and insurance and de-risking, and supporting the displaced and vulnerable. Several policy options are available to mitigate and manage risks related to climate change and fragility. To promote climate-smart agriculture and resilience, climate change and fragility could be mainstreamed into the National Agriculture and Silvo-Pastoral Investment Plan using the evidence generated by the Climate Agriculture Investment Plan for Burkina Faso and the G5 Sahel Country Climate Development Report. As a next step, the Government could continue to strengthen agricultural resilience through increased investment in irrigation and also in new technologies necessary for land restoration. Efforts could be undertaken to restore and recover land, to protect forests, and incentivize reforestation. To help rural households become more resilient to climate change and increase productivity, would require more attention to insurance and de-risking (conflict, rainfall, climate, and global price risks) for the agriculture sector, particularly for high-value agriculture. Finally, the Government could ensure it replenishes strategic food stocks and support safety net programs for internally displaced people and other vulnerable farmers as the security situation impacts food security and forces farmers off their land.
CHAPTER 4 Increasing Technological Sophistication of Firms*

*This chapter is based on the following background research papers: Engman, M., M. Brancher, M. Cruz, K.M. Lee, and X Cirera “Firm-level Technology Adoption and Upgrading in Burkina Faso” and Kabore, F. “Technological Catch-up and Human Capital in West Africa: A Capability and Schumpeterian Approach.”
The average firm in Burkina Faso operates very far from the technology frontier, and even the most advanced firms are not much closer. Technology is the key factor for economic growth. Adopting and also using improved technology can help increase firms’ productivity and create more and better jobs. Despite this potential, large numbers of firms in Burkina Faso still rely on less sophisticated technologies. Cross-country comparisons show that the distribution of technology shifts to the more sophisticated end of the scale as countries grow wealthier, with the right “tail” growing fatter as more firms move closer towards the technology frontier. Figure 4.1 shows that firms in Burkina Faso are not just well behind the frontier of technology but also behind those in other African countries such as Ghana and Kenya. The same pattern is found even among firms in the top 20 percent for the adoption and use of more advanced technologies. Indeed, cross-country differences are much wider when comparing firms in the top-20 percent than average ones, which suggests even the best-performing firms in Burkina Faso are not making intensive use of more sophisticated technologies to carry out their business.

Although some firms have adopted more advanced technologies such as standard software and digital payment systems, they rarely use them and still rely on basic, manual processes. Just because a firm has adopted a technology does not guarantee it will make intensive use of it, so it is important to distinguish between extensive and intensive margins of technology use. Extensive margins reflect whether a firm has adopted a technology to perform a given task on some occasions, while intensive margins reflect whether the technology is mostly used to perform this task. In terms of extensive margins, average firms in Burkina Faso have adopted more advanced technologies, especially for payment, where they are close to the levels in Ghana, whereas they lag behind in other general business functions (Figure 4.2). In terms of intensive margins, firms in Burkina Faso still mostly rely on manual processes to perform their business functions. For example, 8.5 percent of firms have access to enterprise resource planning (ERP) software for business administration and planning related tasks but, in practice, only 1.5 percent use it intensively while others rely on less sophisticated technology such as computers with standard software (e.g., Excel). The gap between extensive and intensive margins is wider in payment methods. Although 20.7 percent of firms have adopted online banking and 53.4 percent have online platforms, 86.4 percent of businesses still rely on cash most of the time (Figure 4.2).
Firms using more sophisticated technologies are more productive, more resilient, and employ more people.

Technological upgrading can unlock the private sector’s potential to improve productivity and create better quality jobs. Studies show that cross-country income differences are explained by differences in aggregate productivity (Hall and Jones, 1999; Caselli, 2005), with technology differences accounting for most productivity differences across countries and its impact on growth (Comin and Hobijn, 2010; Comin and Mestieri, 2014; Easterly and Levine, 2001; Kwon and Stoneman, 1995). In Burkina Faso, the relation between technological upgrading and labor productivity is only positive when the technology is more intensively used, especially for sector-specific technology. This is in line with findings from other countries such as Kenya and Senegal. Firms that use more sophisticated technologies have more employees, which suggests that technology complements rather than replaces labor in Burkina Faso (Figure 4.3). Moreover, the firms with more advanced technologies are also more resilient to shocks. During COVID-19, when most companies had to reduce their workforce, those which had adopted more advanced technology were less likely to do so.

Firms using more sophisticated technologies are more productive, more resilient, and employ more people.

The more technologically advanced businesses are more productive and employ more people.

A - Value added per worker, by intensive use of general business function (GBF) and sector-specific business function (SSBF) technology

B - Firms with more sophisticated technology tend to provide more employment, and were also less likely to reduce employment during COVID-19
Simply upgrading the technological sophistication of the bottom third of firms to the level of the second third would significantly increase both employment and productivity. Before the huge negative shock of COVID-19, the Burkinabé economy was absorbing roughly 60 percent of new entrants to the labor market, with few of the new jobs offering decent incomes. The country now needs to create more and better jobs much faster to raise living standards and reduce social vulnerabilities. If technology and (skilled) labor are complementary factors, then technological upgrading can be a way to support more and better job creation by improving the competitiveness of businesses and promoting growth. If the “average firm” in Burkina Faso were to reach the level of sophistication of a firm in the top 10 percent, it would shift from handwritten processing to the use of standard software for its business and production processes. It might use online chat for consumer information instead of face-to-face discussion and use computers instead of manual processes for quality control. As a result, a simple simulation suggests the number of employees would increase 282 percent and labor productivity 65 percent (Figure 4.4). A more plausible simulation suggests an even larger impact on employment and productivity. As current technological levels in the country are so low, shifting a firm from the bottom third of the technology sophistication distribution to the second third, would still mean the adoption of basic technologies. In this case, employment would rise 148 percent and labor productivity 135 percent.

**FIGURE 4.4**
Simple simulations suggest upgrading technology would improve firms’ performance in employment, productivity, and sales

<table>
<thead>
<tr>
<th>Percentile</th>
<th>Number of workers</th>
<th>Labor productivity</th>
<th>Sales value</th>
</tr>
</thead>
<tbody>
<tr>
<td>33\textsuperscript{rd} to 66\textsuperscript{rd} percentile</td>
<td>+148%</td>
<td>+135%</td>
<td>+89%</td>
</tr>
<tr>
<td>Mean to 60\textsuperscript{th} percentile</td>
<td>+49%</td>
<td>+2%</td>
<td>+71%</td>
</tr>
<tr>
<td>Mean to 70\textsuperscript{th} percentile</td>
<td>+92%</td>
<td>+12%</td>
<td>+83%</td>
</tr>
<tr>
<td>Mean to 80\textsuperscript{th} percentile</td>
<td>+153%</td>
<td>+27%</td>
<td>+101%</td>
</tr>
<tr>
<td>Mean to 90\textsuperscript{th} percentile</td>
<td>+282%</td>
<td>+65%</td>
<td>+145%</td>
</tr>
</tbody>
</table>

Source: Author’s calculations based on FAT survey, 2021.

Information asymmetries, lack of capabilities, poor infrastructure, and underdeveloped financial markets are the key barriers to the adoption and use of technology.

Understanding how and why firms adopt and use more sophisticated technologies can help to design more effective policies to promote sustainable, private sector-led growth. As technological progress is one of the primary engines of economic growth, understanding its drivers and constraints is crucial to designing policies to foster economic development. Most firms in Burkina Faso see competition, the depreciation or replacement of old equipment, and the production of new products as the main reasons for investing in new technologies (Figure 4.5). Smaller firms adopt new technologies to access new markets, while larger firms do so to adjust to regulations. Managerial quality is also an important driver for the adoption of advanced technologies. More highly educated managers (e.g., with a post-graduate degree) are positively and significantly associated with the use of more sophisticated technologies in both extensive and intensive margins of general business functions (Figure 4.5). The association between managers’ experience of studying abroad and technology is positive and significant for both general business functions (GBF) and sector-specific business functions (SSBF), except for the intensive margin of sector-specific business functions.

Lack of capabilities and information asymmetries are the main barriers to technology adoption on the demand side. According to businesses in Burkina Faso, the three main constraints to greater adoption and use of technology are lack of demand and uncertainty, lack of capability (e.g., lack of knowledge on how to acquire new technologies or lack of skills to use them), and lack of finance (Figure 4.6). More than 60 percent of firms cite lack of capability as the main constraint. Education levels are positively associated with the probability of using computers on the job (Riddell and Song, 2017). However, in Burkina Faso, the share of firms which have managers with post-graduate education or experience studying abroad is relatively low, especially among small and medium size firms (Figure 4.7). Similar patterns exist for skilled labor: the share of workers with vocational training or college degrees is also quite low. These suggest that low levels of human capital among both managers and workers prevent the adoption of advanced technologies. However, perceived barriers are not necessarily the only relevant issues facing firms. Firms in Burkina Faso consistently believe they are using more sophisticated technologies than their local competitors in the same sector, but this is usually not the case (Figure 4.6). Analyzing the relationship between perceived barriers and self-assessed technology use suggests that information asymmetries may be distorting incentives to adopt advanced technologies.
FIGURE 4.5

Competition, diversification, and managerial quality are key drivers of technology use

A - Reasons for adopting technologies by firm size, percent of firms

- Competition
- Depreciation or replacement
- Produce new products
- Access new markets
- Produce similar products more efficiently
- Adjust to regulations

B - Use of technology by managers’ educational history and business function

- High-school or College
- Post-Graduation
- Studied Abroad

Source: Author’s calculations and FAT survey, 2021.

FIGURE 4.6

Lack of demand, capacity, and finance are all barriers to adopting new technology, but so too are information asymmetries

A - Barriers to adopting technologies by firm size, percent of firms

- Lack of demand and uncertainty
- Lack of capabilities
- Lack of finance
- Government regulations
- Poor infrastructure

B - Self-assessed technology with respect to other firms

Source: Author’s calculations and FAT survey, 2021.

FIGURE 4.7

Low levels of human capital affect managers and the skilled workforce alike

A - Managers’ educational history by firm size

B - Workers’ educational attainment by firm size

Source: Author’s calculations and FAT survey, 2021.
Poor infrastructure is the main barrier to technology adoption on the supply side; while most firms have access to electricity, its quality and reliability are low, and more than half of firms have no internet. Although the share was lower, firms also perceived poor infrastructure to be a barrier to technology adoption especially for larger firms, which are more likely to adopt sophisticated technology (Figure 4.6). The infrastructure challenge is twofold: (i) connecting firms to reliable and affordable electricity; and (ii) improving digital access through the spread of mobile internet services. Access to electricity is uneven, especially across sectors. About 90 percent of firms in manufacturing and services are connected to the electricity grid, but only 43 percent of those in agriculture are (Table 4.1). The quality and reliability of grid electricity is also a serious impediment to technological advancement: 85 percent of firms suffer power outages, with most firms facing at least ten incidents in a typical month. Although a generator is crucial for the use of more sophisticated technologies, only 22 percent of firms have one. Over 60 percent of Burkinabé firms have no connection to the internet, with internet connectivity highly positively correlated with size: only 30 percent of large firms have no access to the internet compared to almost 70 percent of small firms. The share of firms with access to smartphones (28 percent) is also considerably lower than, for example, in Kenya (81 percent).

TABLE 4.1
Competition, diversification, and managerial quality are key drivers of technology use

<table>
<thead>
<tr>
<th>Technology</th>
<th>Mean</th>
<th>Small</th>
<th>Medium</th>
<th>Large</th>
<th>Agriculture</th>
<th>Manufacturing</th>
<th>Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Having electricity</td>
<td>86</td>
<td>85</td>
<td>89</td>
<td>93</td>
<td>43</td>
<td>88</td>
<td>91</td>
</tr>
<tr>
<td>Power outage</td>
<td>85</td>
<td>80</td>
<td>95</td>
<td>100</td>
<td>77</td>
<td>98</td>
<td>84</td>
</tr>
<tr>
<td>Having generator</td>
<td>22</td>
<td>18</td>
<td>21</td>
<td>68</td>
<td>34</td>
<td>34</td>
<td>19</td>
</tr>
<tr>
<td>Having mobile phone</td>
<td>81</td>
<td>78</td>
<td>87</td>
<td>97</td>
<td>89</td>
<td>89</td>
<td>79</td>
</tr>
<tr>
<td>Having computer</td>
<td>50</td>
<td>41</td>
<td>67</td>
<td>91</td>
<td>38</td>
<td>53</td>
<td>51</td>
</tr>
<tr>
<td>Having Internet</td>
<td>39</td>
<td>33</td>
<td>49</td>
<td>70</td>
<td>37</td>
<td>36</td>
<td>40</td>
</tr>
<tr>
<td>Having smartphone</td>
<td>28</td>
<td>24</td>
<td>34</td>
<td>56</td>
<td>40</td>
<td>40</td>
<td>25</td>
</tr>
</tbody>
</table>

Source: Author’s calculations and FAT survey, 2021.

Underdeveloped financial markets are another key supply-side barrier to technological advancement. Over 70 percent of firms mention the lack of finance as a critical barrier to technology adoption. It is predominantly large firms that can access commercial credit. They are nearly twice as likely to take out loans to purchase machines or software than small firms. Nevertheless, even for large firms, the predicted probability of having access to financial loans for the acquisition of machines or software is roughly one-fourth of the average for large firms in other countries for which the Firm-level Adoption of Technology (FAT) data are available. Firms with lower levels of technological sophistication are the ones likely to identify financial barriers as the main constraint to adopting more modern technology. Common constraints to accessing finance to invest in technology are high interest rates and collateral requirements. Firms with more sophisticated technologies owned by women or with a female manager are more likely to flag a lack of finance as the main barrier to technology adoption. This could be explained by gender bias in the financial market and by the fact that, generally, women in Burkina Faso lack capital to serve as collateral.

Policy options are available to strengthen the enabling environment, develop firm-level capabilities, and increase the human capital base.

Tackling the challenges to technological sophistication requires a two-pronged approach: improving the capabilities of existing firms and enabling the development of more capable and new firms. To advance technologically, Burkinabé firms could strengthen their capabilities in three areas: (i) information and behavioral biases; (ii) management and organization; and (iii) know-how and skills. This can be supported and incentivized through policies and programs that address potential market inefficiencies but also through exposure to international practices and experience. Programs that promote knowledge of more advanced technologies and policies that induce competition among firms will be critical. Together with improving access to finance and reliable infrastructure, they can provide an enabling environment for the development of more technologically sophisticated firms (Figure 4.8).
Policy Priority 4.1: Strengthen the enabling environment for firms by reducing barriers to accessing electricity, digital services, and finance. Options to improve access to electricity: (i) focus scarce public resources on increasing access to affordable, reliable and modern electricity services (e.g., grid densification in rural areas); (ii) enhance sector planning and transactional capacities to foster the transformation of the energy sector towards cleaner and cheaper energy sources; (iii) reduce the cost of electricity generation by increasing imports through regional integration and valorizing low-cost solar potential through competitively procured independent power producers; (iv) create system-wide storage to alleviate the risk of curtailment of variable renewable energy; and (v) support the development, installation, and operation by private operators of photovoltaic-based mini-grids with storage. Options to tackle digital infrastructure barriers: (i) design a licensing and auction system to increase competition in mobile internet services; (ii) speed up Universal Access Fund utilization to increase rural access and mobile broadband coverage; and (iii) allow for market-based transfers of passive infrastructure such as towers and fiber optics to promote industry synergies and efficiency gains. To overcome financial and capabilities barriers, government programs could focus on creating technology adoption incentives, such as tax incentives, grants, vouchers, and favorable finance, targeted at small and medium firms. Specific financing instruments such as portfolio partial credit guarantees, lines of credit, and matching grants could be provided to promote private investment in technology adoption and upgrading.

Policy Priority 4.2: Develop firm-level capabilities by providing information to firms about available technology, ways to integrate in global value chains, and training opportunities. Providing adequate information about the availability of technologies and inducing the exchange of information between firms in the same sector are important options to reduce information asymmetries and develop firm’s capabilities. This could happen through the promotion of access to external knowledge through universities, trade flows, exposure to global value chains, and education abroad, and through working with sectoral associations to provide information and training. It is also possible to support collaboration between businesses and vetted consultants that can support firms in upgrading their technology, and to reduce tariffs and regulations hampering the adoption of technology.

Policy Priority 4.3: Increase the human capital base by developing and promoting digital skills with a focus on the younger generation. Lack of managerial capabilities and skilled labor are barriers to technology adoption. The country could fall behind without addressing the lack of capabilities, especially digital skills, to adopt and use advanced technologies. This could be done through the following options: (i) establish IT and tech labs in universities to strengthen students’ capacity to simulate and experiment and to build practical linkages with domestic and foreign researchers; (ii) establish Technology Centers in Ouagadougou and Bobo Dioulasso to showcase technology and allow for prototyping and testing; (iii) develop training programs with academia and the private sector to promote the adoption of more advanced technologies in manufacturing and business administration; and (iv) integrate the development of digital skills systematically into the entire school system, including at the primary, secondary, and tertiary levels as well as in technical and vocational education.
CHAPTER 5

Improving Resource Allocation and Productivity through Better Transport*

Large market distortions prevent the efficient allocation of factors of production across provinces and industries, which results in more productive firms producing less than their optimal output.

An uneven distribution of factors of production across provinces leads to large market distortions, with job creation being no greater in those provinces where firms are more productive. Data from 2016 show that most firms and workers are concentrated along the road network linked to the two main cities of Ouagadougou and Bobo-Dioulasso and in the south-eastern part of the country (Figure 5.1). In the absence of market distortions, average capital and labor productivity would be higher in places with more firms and workers due to agglomeration effects such as economies of scale and opportunities for specialization. This is, however, generally not the case in Burkina Faso (with a few exceptions such as the crowded capital region, where labor productivity is high). The less productive firms are tending to use more capital relative to labor while the more productive ones are facing large capital distortions. Likewise, productive firms face larger output distortions, causing them to produce less than their optimal output.\textsuperscript{12}

\textbf{FIGURE 5.1}
\emph{Firms, employment, and productivity are unevenly distributed across provinces}

\textbf{A - Number of firms, 2016}  
\textbf{B - Total Labor, 2016}

\textbf{C - Average Capital Productivity in USD, 2016}  
\textbf{D - Average Labor Productivity in USD, 2016}

\textsuperscript{12} Capital and output distortions refer to situations where prices and production are higher or lower than the levels that would exist in a competitive market. Distortions are not directly observable. Optimal output is thus achieved by a firm in a (simulated) frictionless environment (no distortions).
Distortions also lead to the misallocation of resources across firms within a province, with the capital region facing the highest aggregate misallocation. The level of resource misallocation can be measured by the dispersion of marginal revenue products of inputs across firms. Within a province, an equal distribution of marginal revenue products of inputs signals well-functioning markets and allocative efficiency, i.e., resources are allocated according to their highest value use. Deviations indicate distortions across industries. Zondoma (150 km from Ouagadougou) has the lowest misallocation on this measure while it is highest in Ziro (Centre-Ouest), Loroum (Nord), Zoundweogo (Centre-Sud), and Leraba (Cascades). Misallocation means more productive firms are unable to access production factors, particularly physical resources. The loss in aggregate productivity due to misallocation of resources is greatest in Ouagadougou, and is also high in Bobo-Dioulasso, the second largest city.

The more productive firms face smaller capital distortions but larger output ones, meaning they produce less than their optimal output, while less productive firms produce more. In Burkina Faso, distortions to access capital fall sharply for the most productive firms. This means that these firms tend to use more capital relative to labor (Figure 5.2). The less productive firms, on the other hand, have difficulty accessing capital but they provide low-skilled jobs. In contrast, when it comes to output distortions, the data show that distortions increase with firm productivity: the more productive a firm is, the greater the output distortions become. The more productive firms thus end up producing less than their optimal output—i.e., the combination of their maximum production capacity and minimal costs—while less productive firms are producing beyond their optimal level, resulting in an inefficient allocation of resources and lower total factor productivity (TFP).

Reducing distortion would bring significant gains to total factor productivity, with informal firms in secondary cities offering the greatest potential for productivity improvements. Burkina Faso’s aggregate productivity could be improved by at least 36 percent if production resources were reallocated or redirected (through government regulations) from the less productive firms to the more productive ones. The estimated productivity gains differ depending on sector, geographical area, and informality status. The estimated relative TFP gain is highest in agriculture (78 percent) but also significant in manufacturing (23 percent) and services (13 percent). Geographically, Kénédougou (Hauts-Bassins region) has the highest potential TFP gains followed by Tapoa, Gourma, and Kouritenga (Est region), whereas Ouagadougou and Bobo-Dioulasso have a lower potential due to congestion and more binding constraints to land and capital (Figure 5.3). Higher levels of informality are associated with greater resource misallocation and higher potential productivity improvements.13

13 These estimates are based on two rounds of Burkina Faso’s business census (2009 and 2016). For further details and the methodology see Bougna and Advitha (2022).
CHAPTER 5 Improving Resource Allocation and Productivity through Better Transport

The greatest potential for improving total factor productivity lies in the secondary cities

Lack of transport connections reduces access to markets and increases costs

The poor road network is a key driver of market distortions, factor misallocation and the low productivity of firms in Burkina Faso. Burkina Faso faces many of the typical connectivity challenges of Sub-Saharan Africa, with only 2 percent of regional roads and less than 1 percent of secondary roads paved. About half of the non-classified road network is impassable during the rainy season, and in many regions more than 85 percent of the rural population live more than 2 kilometers away from an all-season road (Figure 5.4). This severely restricts access to domestic markets. For foreign markets, the ports of Tema, Lomé, and Abidjan are each located about 1,000 kilometers from Ouagadougou, the capital city and economic hub. Improving access to both domestic and foreign markets would improve resource allocation, with positive spillovers across all sectors of the economy. Each 1 km reduction in the distance to a primary or secondary road can increase the value added per worker for a firm by 5–7 percent, and by 6–20 percent in highly specialized agglomerations like Ouagadougou and Bobo-Dioulasso.
High trade costs and the absence of well-functioning urban and inter-urban transport systems are limiting access to international and local markets. The cost of importing a container in Burkina Faso is more than double that in neighboring countries with direct access to the sea (Figure 5.5). Trucking costs make up over 60 percent of the total corridor transport costs for imports into Burkina Faso, with ports accounting for 20 percent, and border crossings and clearance at the inland terminal 15 percent. The country’s trucking sector is dominated by small, informal, and inefficient transporters who rely on intermediaries and market organizers to find freight. About 40 percent of firms in Burkina Faso identify transport as a major business constraint, compared to an average of 26 percent for Sub-Saharan Africa. Internally, only half of the population lives within 2 hours of a local market by motorized transport. The prices of key staple crops vary considerably across regions, with those with poor connectivity experiencing higher prices. Local market access is high only near Ouagadougou and, to a lesser extent, in Bobo Dioulasso (Figure 5.5). However, in those cities, congestion, the lack of reliable public transport, and heavy reliance on informal transport also negatively impact productivity.

A third driver of resource misallocation is rapid urbanization fueled by population growth, and more recently by conflict, which is compounding existing transport challenges. Internationally, with almost 80 percent of economic activities generated in cities, urban areas provide opportunities for economic growth and prosperity as the private sector and workers capitalize on proximity which makes skills’ matching and job searching more efficient. But these interactions are often limited by barriers to mobility. Long commuting times, congestion, and high transport costs make it harder for firms in some cities to access workers specific skills, leading to lower productivity. Despite higher fertility rates in rural areas, the urban population share has more than doubled from 15.5 percent in 1996 to 31.5 percent in 2021, and it is expected to reach 52 percent by 2050. Ouagadougou and Bobo-Dioulasso account for more than 60 percent of the country’s urban population. Combined with rapid population growth overall, the urban population has grown from 1.6 million in 1996 to 7 million in 2021, and is expected to reach 22.6 million by 2050. Ouagadougou lacks an efficient public transport system. Its paved road network is extremely sparse, limited to seven radial roads of national importance, resulting in increasing congestion and travel times for both public and private transport modes. The bus system serves only the central city meaning only 47 percent of residents live within walking distance of a public transport route, in contrast to cities like Nairobi or Kampala, where the shares approach 90 percent. Bobo Dioulasso, Kaya and Ouahigouya are also becoming centers of migration offering refuge and economic resilience for the forcibly displaced. Although IDPs have based their initial locations on social networks (primarily family networks), security concerns were the overwhelming motivation to move to secondary cities in the year before the census in 2019 (37 percent) reflecting an increased “forced urbanization,” which may have worsened with the deteriorating security context since then.14

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14 Generally, cities provide socio-economic resilience as they attract economic migrants in a region where mobility is a livelihood strategy; intra-regional mobility is driven by employment opportunities in labor intensive areas, which are commonly in and around cities. Cities also provide a place of refuge for the forcibly displaced, providing a safe haven away from violence and conflict in their areas of origin, as well as new opportunities. Providing economic opportunities and addressing binding constraints outside of Ouagadougou, is one way to address territorial disparities by generating job opportunities and economic development and fostering decentralization. The urban master plans for all the regional capitals identify the need to address inefficient land use planning and management (including protecting rights-of-way), local development issues, and urban mobility in order to make their economic opportunities accessible to labor, goods, and services.
Many cities and towns in Burkina Faso are characterized by disconnectedness, spatial dispersion, and leapfrog outward development. Leapfrog outward development is a process whereby new, previously disconnected neighborhoods are absorbed by a growing city even as new development near the center is lacking\textsuperscript{15} Both Ouagadougou (3.5 million residents) and Bobo-Dioulassou (0.7 million) are experiencing this pattern of growth (Figure 5.6). No other high-density cities in Burkina Faso have more than 150,000 residents, although some of these secondary cities, such as Kaya and Ouahigouya, are also experiencing extensive sprawl and leapfrog development. However, it has been the towns and smaller cities that have led the country’s urbanization since the early 2000s, driven by the mining sector. Many of the towns within a five-hour drive of commercial and artisanal mining sites, such as Kongoussi, are characterized by massive extensive spread along the regional road corridor and in nearby settlements. Continuous urban growth, in the absence of appropriate spatial planning and sufficient investment, has resulted in: (i) low density and sprawling development that consumes agricultural and marginal land (prone to climate-related disasters and the impacts of climate change); (ii) lack of safe urban roads and inefficient urban transport systems; (iii) informal settlements at the outskirts of cities/towns that are poorly connected to areas of economic opportunity; and (iv) a dearth of services and a less than ideal environment for economic development.

\textsuperscript{15} Leapfrog outward development is not necessarily a policy choice but a consequence of a lack of policy action to effectively tackle urbanization and population growth.
Policy options are available to alleviate the large market distortions and improve resource allocation and productivity of firms in Burkina Faso.

Economic development is not just about higher productivity and factor accumulation, but also about more efficient allocation of factors among firms. Improving the distribution of factors of production towards more productive firms is essential to improving aggregate productivity. This will require implementing reforms to address challenges associated with informality. Improving Burkina Faso's access to domestic and foreign markets would also provide dividends through better resource allocation with positive spillovers in all sectors. Better allocation of resources in secondary cities could boost manufacturing and service sector productivity gains. Improving the speed of price transmission between urban and rural markets will reduce price disparities and improve welfare in rural areas. To achieve this, the Government could focus on three policy priorities: (i) improving the road network; (ii) improving transport logistics and reducing trade costs; and (iii) overcoming informality and improving the access of productive firms to labor, capital, and land.

Policy Priority 5.1: Invest in a more resilient and sustainable transport infrastructure with a focus on improving the quality and extent of the road network. Connectivity is key for unlocking the growth potential and increasing the allocative efficiency of economically lagging countries like Burkina Faso. Investments in transport infrastructure have the potential to stimulate growth through trade, structural transformation, agglomeration, and productivity improvements. Public investment in the road network will remain critical, especially in roads linking to agricultural zones and corridors linking to neighboring countries. The Ouagadougou-Lomé corridor 20-km buffer (radius) area already represents a significant generator of economic activity for the country and is home to a significant share of the population. In contrast, the stretch of the Niamey-Lomé corridor that runs through Burkina Faso remains sparsely traveled and populated, with little economic activity in its direct area of influence. This is due not just to security issues in the corridor area but also the poor condition of the roads feeding it. Private sector solutions to improving infrastructure could also be explored, including public-private partnerships in road maintenance, logistical platforms, cold chains and storage, and urban transport.

Policy Priority 5.2: Invest in complementary policies and the enabling environment to improve transport logistics and reduce trade costs for businesses. Investments in physical infrastructure have a greater impact when they are paired with policies to reduce trade costs and improve the allocation of resources. Several policy options are available to improve the enabling environment: (i) establish industry standards for registering new businesses and professionalize the sector; (ii) review the system of quotas and reserved rights for national truckers serving the country's import/export markets; (iii) incorporate ICT to enhance free access to freight (virtual freight exchange); (iv) support a capacity development initiative to strengthen the ability of local small and medium enterprises (SMEs) to engage in and compete for large transport infrastructure development projects, including through joint ventures; and (v) develop a more comprehensive domestic private sector promotion, such as pairing local SMEs with leading freight forwarders.

Policy Priority 5.3: Design policies to overcome informality and to improve the access of productive firms to labor, capital, and land, with a focus on secondary cities. As the country's population continues to grow and rapidly urbanize, firms will have to generate more jobs, and more productive firms will need to create better jobs. Informal firms in secondary cities have the greatest potential for productivity improvements, and policies could be designed to encourage the flow of resources towards these firms. In practical terms, the Government can improve markets efficiency to allow resources to be used intensively and efficiently by productive firms. It can play an interventionist role by removing market failures (in the capital and labor markets) to ensure the free and efficient flow of resources, such as the regulation of credit access for SMEs. To avoid further metropolitan congestion, the development of agro-processing and other forms of light manufacturing could be concentrated in secondary cities that are located between the farming areas and the destination markets. Developing secondary cities increases farmers' incomes in the surrounding rural areas, especially if connectivity is improved between rural hinterlands and secondary towns, and between secondary towns and big cities. Local authorities could be given a dedicated budget or more administrative discretion over such policies so that secondary towns could better allocate resources to meet local needs. Finally, cities/towns impacted by “forced urbanization” and conflict require spatial planning and concomitant investments and service delivery to ameliorate the long term impacts of hosting migrants, coupled with programs supporting social cohesion and economic development.
CHAPTER 6  Boosting Growth through Gender Parity*

Burkinabè women live in a poor and unequal society, where women have low educational attainment, marry early, and are limited in their economic participation. A poor performance in the Gender Inequality Index (GII) stemming from child marriage, low levels of education among women, and harmful practices, reduce opportunities for women and girls to realize their potential. As many as 74 percent of women, compared to 59 percent of men, have had zero years of schooling. Progress in girls’ completion rates at primary level does not extend into secondary education: girls have a higher primary school completion rate (69.4 percent) than boys (60.5 percent), and transition well into lower secondary with a gross enrollment rate (GER) of 56.5 percent (compared to 50.8 percent for boys) but are lost prior to upper secondary where their GER is 20.2 percent (25.4 percent for boys). Early marriage and pregnancy account for 42 percent of school dropout: Burkina Faso has one of the highest rates of child marriage in the world with 52 percent of girls marrying before they reach 18 (10 percent before the age of 15), and 25 percent of adolescent girls have their first child between the ages of 15 and 19. Girls and women of reproductive age (15-49 years) often face barriers to fulfilling their sexual and reproductive health needs and rights: only 28 percent of women in 2020 had their family planning needs met with modern methods (e.g., condoms or the pill). Although the maternal mortality ratio per 100,000 live births (320) is lower than the regional average (425), it remains well above the global mean (160). As of July 2022, women held less than 20 percent of the seats in parliament.

Women farmers, entrepreneurs, and employees earn less than their male counterparts, with the gender differences highest for wage earnings.

FIGURE 6.1
Women tend to work in lower paid jobs and less lucrative sectors

A - Distribution of occupations, by gender

B - Distribution of business managers, by gender and sector

C - Occupational segregation in crops grown by gender

Source: 2018/19 EHCVM.

Women participate less in paid work, and earn considerably less than men. When looking at paid work, women’s participation in the labor force is 20 percentage points lower than that of men (Figure 6.2). The gap falls to 10 percentage points for paid and unpaid work combined, with only minor differences across age groups. In 2019, only 60 percent of women ages 15-64 participated in the labor force, compared to 75.7 percent of men in the same age group. This gap widened in urban areas between 2014 and 2019, while narrowing in rural areas. Men also out-earn women, whether in wage employment, business revenues, or crop sales. In 2019, women’s wage earnings were 82 percent lower than men’s—driven by the large share of women working unpaid. Women’s business revenues are, on average, 61 percent lower than those of their male peers. In agriculture, women earn 62 percent less than men in crop sales.

Between 2014 and 2019, the overall gender gap in wage earnings has increased, but stayed the same for business revenues. The widening gender gap in wage earnings has particularly affected young adults (Figure 6.3). Considering only paid labor, the gap in 2019 was about 30 percent. The gender gap in business revenues remained stable between 2014 and 2019, with female entrepreneurs generating about 60 percent lower business revenues than their male counterparts. There are also high levels of occupational segregation (Figure 6.1). Men and women work in different industries, with male-dominated industries being more lucrative: in 2018/19 average earnings in the male-dominated construction sector were CFAF 1,390,000, while those in the female-dominated food sector were a fifth of that, at CFAF 262,000. As of 2019, the revenue gap was highest in the services sector (e.g., commercial enterprise, doctors or engineers with their own practices, taxi owners) at 68 percent (Figure 6.3).
FIGURE 6.2
The gender gap persists in both paid and unpaid labor force participation
A - Gender gap in paid labor force participation (LFP), 2019
B - Gender gap in paid and unpaid labor force participation across urban/rural, 2014 and 2019

Source: 2018/19 EHCVM.

FIGURE 6.3
The gender gap is widening for wage earnings but is stable for business revenues
A - Gender gap in wage earnings by age group, 2014 and 2019
B - Gender gap in business revenues by sector, 2014 and 2019

Source: 2014 LSMS and 2018/19 EHCVM.
In agriculture, gender gaps in farmers’ harvest value increased, while gender gaps in crop sales have been large and stable over time but vary strongly across regions. Gender gaps in the agricultural sector are similar to those of business revenues. The average harvest value for a female farmer is about 61 percent lower than for a male farmer, an increase in the gender gap of 5 percentage points since 2014 (Figure 6.4). The gaps are not significantly different across age groups and are not driven by gender differences in the likelihood of selling crops: the gender gap in the value of crop sales is the same as for harvest value. The harvest value gap is persistent across all parts of Burkina Faso, with the highest gap in 2019 found in the west. The crop sales gender gap has narrowed significantly in the north since 2014 but increased in the west (Figure 6.4).

**FIGURE 6.4**

Agricultural gender gaps in harvest values and crop sales are also wide

A - Gender gap in harvest value by age group, 2014 and 2019

B - Gender gap in crop sales by age group, 2014 and 2019

C - Gender gap in harvest value by geographical area, 2014 and 2019

D - Gender gap in crop sales by geographical area, 2014 and 2019

Source: 2014 LSMS and 2018/19 EHCVM.
The most important drivers of gender gaps across sectors are women’s lack of capital and low use of male labor, lack of control over income, and lower economic benefits from marriage.

The gender gap in labor force participation is not due to differences in characteristics between men and women. Detailed decomposition analyses show that none of the difference in labor force participation between men and women can be explained by gender differences in endowments. Notably, neither education levels nor household wealth are associated with the gender gap in labor force participation. Virtually all of the 20-percentage point difference between men and women in labor force participation is due to differences in returns to characteristics (that is, the “unexplained” component that is due to discrimination, social and gender norms, or institutional constraints). Only among the 30–64-year-old age group and in urban areas, do endowments such as having a financial account, or a vehicle contribute about 10–15 percent to the gender gap in labor force participation. For example, in the central region (where the capital is located), owning a vehicle or having a financial account increases the labor force participation among men. Tackling social norms that hold women back and providing childcare or time-saving technologies may therefore be more effective at reducing gender inequality in the likelihood of working, compared to policy solutions such as increasing educational attainment among girls.

A large portion of the gender wage gap is due to men being more likely to work outside agriculture, have higher-skilled jobs, and work in managerial positions than women. Almost all (86 percent) of wage-earning women work in the lower-productivity agriculture sector, with far fewer working in manufacturing (2 percent) or services (12 percent). A large portion of women who work do so in the family business or farm and earn no wages. As a result, the difference in wages between men and women is very large. The other main underlying drivers of the gender gap in wage earnings are differences in endowments and characteristics. About 15 percent of men have secondary education or more versus 4 percent of women, as gender parity in education is a more recent development in Burkina Faso. Ten percent of men are managers versus 3 percent of women, while 7 percent of men work in skilled jobs versus 2 percent of women. The last Demographic and Health Survey reveals that women have limited agency over key economic decisions for themselves and within the household. Women’s wage earnings are substantially affected once they form a family: they face lower economic benefits from marriage, and equalizing these returns could reduce the gender wage gap by 30 percent among 15–29-year-olds, and about 22 percent among 30–64-year-olds. Differences in endowments, mainly employment in the agricultural sector, have a greater impact on the 30–64 age group. Addressing both horizontal and vertical occupational segregation should be the central priority for reducing gender gaps in wage earnings in Burkina Faso.

Women’s low use of male household labor, access to electricity, and financial account ownership are driving the gender gap in business revenues. Much of the gender gap in business revenues is due to differences in the characteristics of male and female entrepreneurs and their businesses. The most important driver is female entrepreneurs’ limited use of male household labor. Over the course of a year, male entrepreneurs use 254 days of male household labor, while female entrepreneurs only use 6 days. Encouraging more men to work for women business owners could substantially help reduce the gender gap in business revenues. Access to utilities—14 percent of male-owned businesses have electricity versus 3 percent of female-owned businesses—further increases the revenue gap in favor of men. If there was gender parity in access to electricity in urban areas, this would close about 30 percent of the total gender gap in business revenues. Similarly, financial account ownership is also correlated with gender gaps in business revenues—63 percent of male entrepreneurs in the country have a financial account, versus 27 percent of female entrepreneurs. Interestingly, there is no significant difference in business revenues between men and women in the central region (which includes the capital Ouagadougou), which could be a result of both parity in endowments and different social norms in the capital city compared to other parts of the country.

Much of the gender gap in agriculture is being driven by lower use of farming technology (machinery, fertilizer, and pesticides) among women farmers and by their choice of crops. Gender gaps in agriculture are explained by differences in both endowments and returns. The largest driver of the gender gap in agricultural harvest value is female farmers’ concentration in lower-value crops, as opposed to cash crops like cotton or cashews. The next largest is the fact that men in the household tend not to work on female-managed plots. Women farmers are less likely to use fertilizers (26 percent of plots managed by women versus 47 percent managed by men), pesticides (31 percent versus 54 percent respectively) and farming equipment/machinery (33 percent versus 59 percent respectively). These variables are the largest driver of the gender gap in the value of crop sales. Achieving parity in the use of fertilizers, pesticides, and agricultural equipment between male and female farmers could help reduce about 22 percent of the gender gap in harvest value and about 30 percent of the gender gap in crop sales—substantially increasing female farmers’ revenues. Equipping women with the means to grow higher-value crops, such as export crops like cotton, could further help to increase farm revenues.
Policy options are available to strengthen women’s engagement in higher-value sectors, improve their access to productive inputs, and increase their physical security and household agency.

There are different levels of evidence for policy options to consider: credible, emerging, and frontier. There are three priority areas to tackle the gender gaps described above: (i) increasing women’s engagement in higher-value sectors and reducing occupational segregation; (ii) increasing women’s access to productive inputs; and (iii) increasing their physical security and agency. To achieve these ends, there are a range of policy options with different degrees of evidence for their effectiveness. Credible policy options are those that have shown positive results in more than one rigorous impact evaluation in Sub-Saharan Africa. Emerging policy options have shown promising results in at least one rigorous impact evaluation. Finally, policy options at the research frontier are promising ideas that are yet to be tested.

Policy Priority 6.1: Increase women’s engagement in higher-value sectors by improving their skills and involvement in management, and reducing occupational segregation. There are at least three credible policy options for improving women’s skill levels: (i) adolescent girls’ empowerment programs, (ii) skills-based livelihood training, and (iii) entrepreneurial mindset/personal initiative training. Self-efficacy training is an emerging option, while establishing quotas for female managers is an emerging option for tackling the low numbers of women in management. Other options, such as gender norms training on female leadership and role-modeling campaigns showcasing female managerial success stories could be considered but they are still at frontier stage. Skills-based training and apprenticeships for women are a credible option for tackling occupational segregation. In addition, there are three emerging options: (i) providing information on earnings across sectors, (ii) introducing gender-egalitarian messaging and protocols at critical junctures of public service provision and government programs, and (iii) engaging men to change norms around gendered occupations and crops. Providing male mentors to women is a further policy option at the research frontier.

Policy Priority 6.2: Increase women’s access to productive inputs through improving financial inclusion and business capital, use of and returns to labor, use of modern agricultural inputs, and returns to land. To tackle women’s low financial inclusion and business capital, two credible policy options are available: (i) village savings and loans, and (ii) secure savings mechanisms (including through digital and mobile technology). The use of alternative methods to evaluate creditworthiness (e.g., psychometrics) is an emerging option. Cashflow-based loans for procuring machinery and other productive inputs, and issuing national IDs to women are both frontier policy options. Cash transfers are a credible option for tackling the low use of, and returns to, labor, while mechanization to reduce farm labor is an emerging option, and gender norms training so men are comfortable working under a woman is a frontier option. To tackle low use of modern agricultural inputs, the use of digital technology for agricultural extension services is a credible option, while female extension workers and extension services targeting couples are emerging options. To tackle low returns to land, a credible policy option is a land regularization program, an emerging option is conditionally subsidized land registration, and a frontier option is to increase women’s inheritance rights through issuing official birth and marriage certificates.

Policy Priority 6.3: Increase women’s physical security and household agency by improving knowledge of rights and laws, increasing their reproductive agency, and reducing the burden of care. Shifting social norms and behaviors through couples-based discussions is a credible policy option for tackling the lack of knowledge of rights and laws. There are also two emerging options: (i) reducing bribery and gender-based violence by increasing women’s understanding of legal rights and procedures regarding policy/public agents; and (ii) equipping NGOs with training and materials to inform women, men, and communities about the law. A frontier option is to reform the remaining gender-regressive laws (on credit, mobility and work in “dangerous” jobs). There are two credible options available to improve women’s reproductive agency: (i) increase their ability to make decisions about their fertility through life skills training; and (ii) encourage school enrollment and reduce marriage and birth rates among adolescent girls, including through unconditional and conditional cash transfers in relevant cases. New research from the region indicates that economic empowerment of women by itself may not reduce fertility, highlighting the need for a comprehensive approach that also focuses on improving access to sexual and reproductive health services. Policies targeting women’s reproductive agency are also relevant given the benefits to maternal mortality of reducing fertility rates, especially among adolescents. Finally, two credible policy options can tackle the high burden of care: (i) providing public and private childcare services, including expanding centers provided through the Sahel Women’s Empowerment and Demographic Dividend project and (ii) increasing men’s participation in household and childcare responsibilities through role modelling and couple’s training.
CHAPTER 7

Growth in Burkina Faso: Looking Forward*

*This chapter is based on the World Bank’s Burkina Faso Climate-Informed Macro-Fiscal Structural Model (BFAccMFMod) and the following background research paper: Ki, Y. “Public Finance Sustainability, Human Capital, and Economic Growth: What Policy Options for Burkina Faso?”
This chapter examines the prospects for Burkina Faso under three illustrative growth scenarios: (i) a medium growth scenario, reflecting historical patterns; (ii) a low and fragile growth scenario; and (iii) a high growth scenario, reflecting the impact of implementing the policy priorities outlined in the preceding chapters (Table 7.1). The chapter also accounts for climate change by modeling its impact on macro-fiscal and poverty aggregates along two climate scenarios: a Hot/Dry scenario and a Wet/Warm scenario, showing respectively, the upper and lower bounds of the aggregate impacts.16

<table>
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<tr>
<th>Scenario</th>
<th>Policy context</th>
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| Medium growth  | • Reforms to public finances—especially relating to domestic revenue mobilization and the wage bill—and those aimed at export diversification, industrialization, and creation of local value chains will continue to be implemented, although at a slow pace and relatively lacking in both scope and ambition.  
• The political context in this scenario is one of continued fragility, conflict, and violence, factors that are not conducive to ambitious governance, regulatory, and economic reforms. | • Low public and private investment levels.  
• Public investments are used as a fiscal adjustment variable rather than a proactive growth-enabling vehicle.  
• Moderate growth in private investment, including through public-private partnerships.  
• Most of the government budget goes to cover the wage bill, debt servicing, and recurrent current expenditure (subsidies, humanitarian spending).  
• Limited progress on phasing out fuel subsidies and improving the targeting of social programs. |
| Low growth     | • Reforms to public finances—especially relating to domestic revenue mobilization and the wage bill—and those aimed at export diversification and industrialization will continue to be implemented, but at a much slower pace, scope, and ambition compared to the medium growth scenario.  
• The political context in this scenario is characterized by further deterioration of fragility, security, and humanitarian needs. | • Lower public investment compared to the medium growth scenario.  
• Higher fuel subsidies and ballooning humanitarian and social spending in line with the heightened fragility.  
• Higher political instability, higher humanitarian spending, and higher cost of financing.  
• No progress on phasing out fuel subsidies and improving the targeting of social programs. |
| High growth    | • Reforms to public finances—especially relating to domestic revenue mobilization and the wage bill—and those aimed at export diversification, industrialization, and creation of local value chains continue to be implemented at a faster pace, with wider scope and renewed ambition compared to the medium growth scenario.  
• The political context is characterized by lower fragility, improved security and less humanitarian needs; a push to strengthen institutions; and a strong structural reform agenda aimed at accelerated, more resilient, and more inclusive growth. | • Agriculture is becoming a stronger and less volatile driver of economic growth given improvements in agricultural productivity thanks to the implementation of policy options under policy priorities #3.1, #3.2, and #3.3.  
• Private sector growth is enhanced through technological modernization of firms as policy options under policy priorities #4.1, #4.2, and #4.3 are implemented.  
• The economy is becoming more efficient as resource allocation and productivity are gradually improving through better transport (implementation of policy options under policy priorities #5.1, #5.2, and #5.3).  
• Growth is becoming more efficient and equitable as gender parity is improving thanks to the implementation of policy options under policy priorities #6.1, #6.2, and #6.3. |

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16 In the G5 Sahel CCDR report, the Hot/Dry climate scenario is referred to as the Hot/Pessimistic climate scenario, whereas the Wet/Warm climate scenario is referred to as the Wet/Optimistic climate scenario. The latter also yields negative combined impacts across all growth scenarios, though not as high as in the Dry/Hot (or Dry/Pessimistic) scenario.
A medium growth scenario. With per capita GDP only 50 percent higher by 2050, Burkina Faso will remain a low-income country and see the poverty rate decline only very modestly.

This medium growth scenario is marked by a slow structural transformation, a fragile socio-political situation, and a failure to undertake significant structural reforms. The medium growth scenario models a continuation of past trends, with no major improvement in key macroeconomic variables (Figure 7.1). In this scenario, the per capita GDP growth of the last three decades (1990–2019) will generally apply for the next three decades. Headline GDP growth will remain relatively strong, with an annual average growth of 4.3 percent (equivalent to more than a tripling—times 3.3—of GDP between 2022 and 2050). But with the population projected to continue to grow rapidly (at 2.3 percent annually), GDP per capita will only increase by an average of 1.4 percent each year—increasing by only 50 percent over the period. In this scenario, Burkina Faso will remain a low-income country (LIC), and the poverty rate (based on US$2.15 per day, 2017 PPP) will decline only slightly from 32 to 29 percent of the total population by 2050. On the demand side, the contribution of private consumption to GDP growth will fall from 65 to 57 percent during 2022–2050 but is projected to remain the main contributor to GDP growth, with a yearly average of 2.1 percentage points (ppts). Net exports will become the second highest contributor, driving 18 percent of GDP growth in 2050, compared to a negative contribution of 3.1 percent in 2022, owing primarily to growing mining and agro-business activities over the long run.

Investment, in particular private investment, will be a declining contributor to GDP growth. The joint contribution of public and private investment to GDP will fall substantially over the period, from 26 percent in 2022 to 12 percent in 2050. Public investment will continue to grow at a moderate annual average rate of 3.7 percent (driven by security spending and built-up assets), but no substantial efficiency gain is to be expected as investment in growth-enabling infrastructure (e.g., roads, bridges, broadband, power plants) will remain insufficient. Private investment growth will average 1.5 percent annually over the period, mainly supported by foreign direct investment in the mining sector. Finally, public consumption will grow at an average of 3.3 percent per year, driven by social expenditures (subsidies and humanitarian spending) and the public wage bill; its contribution to GDP growth will remain substantial, declining only slightly from 17 ppts in 2022 to 13 ppts in 2050.

Given the low productivity gains, sectoral structural changes will be slow. Total factor productivity (TFP) growth will keep pace with historical trends (+0.6 percent annually), driven by continued weak human capital accumulation, the slow adoption and diffusion of new technologies, and modest returns to education investment. TFP will contribute, on average, 15 percent to GDP growth over the period, doubling from 11.7 to 23.4 percent between 2022 and 2050. Although capital stock accumulation will decrease sharply from 52 to 30 percent of GDP growth over the period, it will remain the main contributor to GDP growth (44 percent on average over the period). Labor’s contribution will increase from 36 to 45 percent of GDP growth, in line with the high population growth. As a result, no major change will occur in the sectoral distribution of the economy. The share of the agriculture sector will continue to decline (from 24.9 to 21 percent) to the benefit of the industrial sector (increasing from 28.7 to 33.7 percent), while services will experience a slight decline (from 46.4 to 45.3 percent).

Accounting for climate change with no adaptation, annual GDP could be reduced by 3.5 percent by 2050 under the Wet/Warm scenario and 6.8 percent under the Hot/Dry climate scenario. TFP and labor will drive most of the economic losses induced by climate change (Figure 7.1). Under the Wet/Warm climate scenario, the largest negative impacts come via the heat-stress labor productivity channel, causing an annual GDP loss of 2.8 percent by 2050, and then the roads and bridges channel, with an annual GDP loss of 1.2 percent by 2050 (see Annex 2 for more detail about how climate change models translate into economic impact). There are small positive impacts via the livestock and rainfed crop yield channels. The poverty rate will remain broadly stable, declining by only 1.7 percentage points by 2050 to 30.7 percent. Under the Hot/Dry assumptions, all channels except inland flooding (which sees no impact) yield negative impacts, with the largest from the heat-labor productivity channel (annual GDP loss of 3.7 percent by 2050), followed by the roads and bridges channel (annual GDP loss of 1.3 percent by 2050), and then the rainfed crop yields channel (annual GDP loss of 1.1 percent by 2050). In this scenario, the poverty rate will deteriorate to reach 34.2 percent of the population in 2050.
CHAPTER 7 Growth in Burkina Faso: Looking Forward

**FIGURE 7.1**

**Medium growth scenario**

A - Given high population growth, labor will overtake capital as the main contributor to growth by 2042 while TFP growth will remain stable in alignment with historic trends.

B - Annual GDP growth will slow down after 2030 across all climate scenarios as GDP per capita will be diminished by continuously high population growth.

C - The contribution of total consumption and investment to GDP growth will fall, as the contribution of net exports rises.

D - Modest per capita growth across climate scenarios will fail to lift Burkina Faso out of the LIC group.

E - Climate scenarios determine the relative contributions of agriculture and industry to GVA, but services are unaffected.

F - Poverty will remain relatively stable in the long run, only increasing slightly in the Hot/Dry climate change scenario.

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Source: BFA-ccMFMod (World Bank).

Notes: TFP = total factor productivity, CAGR = compound annual growth rate, LIC = low-income country, GVA = gross value added.
A low and fragile growth scenario. With stagnating per capita GDP, Burkina Faso will remain in the group of low-income countries and the poverty rate will rise substantially.

This scenario is marked by worsening fragility, a challenging socio-political situation, and a failure to undertake pro-growth reforms, hampering the country’s transition from agriculture to services and industries. The low and fragile scenario assumes that past trends will not be sustained but rather deteriorate, with a major downgrade to the economic outlook (Figure 7.2). Headline GDP growth will slow down markedly, settling into a low growth equilibrium over the projection period, at an annual average rate of 3.3 percent. Combined with rapid population growth of 2.3 percent per year, GDP per capita will rise just 10 percent between 2022 and 2050, or 0.4 percent on average annually. From 2035 onward, GDP per capita growth will even turn negative, with an average rate of -0.7 percent per year. In this scenario, Burkina Faso is set to remain firmly in the group of low-income countries (LICs) over the period considered, with widespread poverty—projected to reach 44.7 percent of the total population in 2050.

On the demand side, private consumption will remain the main driver of GDP growth over the period, while the contribution of trade will increase strongly, and investment will play a minor role. The contribution of private consumption to GDP growth will fall from two-thirds to 57 percent between 2022 and 2050. Despite this decline, it will remain the main contributor to GDP growth, at a yearly average of 2 percentage points. Net exports will become the second contributor to GDP growth, explaining 23 percent of GDP growth in 2050, compared to a negative contribution of 31 percent in 2022. This will be due to exports rising from 44.8 to 47.5 percent of GDP, while imports fall substantially from 45.5 to 23.9 percent. Public investment will grow below historical rates, at 2.0 percent annually over 2022–2050. Current reforms aimed at improving the efficiency of public investment will barely be implemented, while any new reforms in this area will lack ambition. Public investment’s contribution to GDP growth will decline from 5.9 to 2.6 percent. Private investment will also grow below historical averages, decelerating at an annual rate of -1.4 percent, as foreign direct investments decline, even in mining, in the face of growing security challenges. The contribution of private consumption will hence fall to a third of its current level, from 14.9 to 4.3 percent of GDP growth. Finally, public consumption’s contribution to GDP growth will also fall over the period, from 0.8 to 0.2 percentage points.

In the absence of productivity gains, Burkina Faso will not experience sectoral structural changes. Total factor productivity growth will be well below the historical trends—almost flat at 0.2 percent annually compared to 0.6 percent in the medium growth scenario. This trend will be driven by (i) worsening quality of vocational training and higher education; (ii) a post-COVID-19 deceleration in the adoption and diffusion of technology; and (iii) diminishing returns to human capital investment. As a result, no significant change will occur in the sectoral distribution of the economy. The share of the agriculture sector will fall slightly (from 25.4 to 22.2 percent) to the benefit of services (rising from 49.3 to 52.2 percent), while industry will barely rise from 25.4 to 25.6 percent (Figure 7.2).

Accounting for climate change, annual GDP could be reduced by 3.1 percent by 2050 under the Wet/Warm climate scenario and 6.6 percent under the Hot/Dry scenario. As with the medium growth scenario, under the Wet/Warm climate scenario the greatest negative impacts come via the heat-labor productivity channel (annual GDP loss of 2.6 percent by 2050) and then the roads and bridges channel (annual GDP loss of 1.2 percent by 2050). There are small positive impacts via the livestock and rainfed crop yields channels. The poverty rate will rise to 45.8 percent of the population, compared to 30.7 percent under medium growth. Under the Hot/Dry climate scenario, again similarly to medium growth, all channels but inland flooding (which sees no impact) yield negative impacts, with the largest from the heat-labor productivity channel (annual GDP loss of 3.4 percent by 2050), followed by the roads and bridges channel (annual GDP loss of 1.3 percent), and then the rainfed crops yields channel (annual GDP loss of 1.2 percent). The poverty rate will reach 49.3 percent of the total population compared to 34.2 percent under medium growth (Figure 7.2). The total annual GDP loss due to climate change would be lower under this low growth scenario than for the medium one: 31 percent (rather than 3.5 percent) under Wet/Warm climate scenario, and 6.6 percent (compared to 6.8 percent) under Hot/Dry. Although these are smaller relative losses than for the medium growth scenario, they are from a lower base.
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FIGURE 7.2

**Low and fragile growth scenario**

A - Decreased productivity growth hinders output growth massively, eventually contributing negatively to growth

B - Low GDP growth rates are exceeded by population growth by the early 2030s causing GDP per capita to fall

C - Despite declining, private consumption will remain the strongest contributor to GDP growth

D - Only slightly increased GDP per capita by 2050 means Burkina Faso remains in the group of LICs

E - Sectoral transformation is accelerated in the Hot/Dry climate change scenario

F - The poverty rate will increase significantly for all climate scenarios

**Source:** BFA-ccMFMMod (World Bank).

**Notes:** TFP = total factor productivity, CAGR = compound annual growth rate, LIC = low-income country.
A high, sustainable, and inclusive growth scenario. With per capita GDP tripling by 2050, Burkina Faso could be upgraded to the group of lower middle-income countries (LMICs) by 2040 and remain in the group thereafter.

This growth scenario is marked by a more decisive structural transformation, an improved socio-political situation, and a strong commitment to structural reforms, leading to a substantial reduction in poverty. The high, inclusive, and sustainable scenario implies breakthroughs compared to past trends, with major improvements in key macroeconomic variables. In this scenario, headline GDP growth will increase, by an average of 5.5 percent per year, more than keeping pace with population growth. Despite the same rapid population growth rate of 2.3 percent as the other scenarios, this strong growth means GDP per capita will increase by an average of 2.7 percent per year, approximately tripling between 2022 and 2050. This will reduce poverty by 17.8 ppts by 2050, to 14.6 percent of the total population. It could also enable Burkina Faso to graduate from the group of low-income countries within the projection period (Figure 7.3).

On the demand side, private consumption will remain the main driver of GDP growth while the contribution of net exports grows, and investment, mainly public, remains relatively stable. The contribution of private consumption to GDP growth will decrease from two-thirds to 57 percent of GDP growth between 2022 and 2050. Despite this decline, it will remain the main contributor to GDP growth, averaging 3.2 percentage points per year. Net exports will become the second largest contributor, accounting for 13 percent of GDP growth by 2050 as exports increase slightly from 44.8 to 47.5 percent of GDP, and imports fall from 45.6 to 32.4 percent of GDP. Public investment will grow above historical rates, at 6.2 percent annually over 2022–2050. The efficiency of public investment will be improved through a series of reforms targeted at improving effectiveness and prioritization mechanisms. The contribution of public investment to GDP growth will therefore grow from 6 to 7.2 percent. Private investment will also grow above historical averages at 4.4 percent annually, supported by foreign direct investments in both mining and non-mining sectors, and a more active local private sector. However, its contribution to GDP growth will decline from 15 to 11 percent. Almost identically, public consumption’s contribution to GDP growth will also decrease over the period with the same order of magnitude (Figure 7.3).

The structural transformation of the economy will accelerate, driven by higher total factor productivity. Total factor productivity will grow above the historical trend (1.2 percent annually), driven by (i) improved human capital accumulation through impactful higher and vocational education reforms; (ii) accelerated adoption and diffusion of new technologies and ambitious reforms in the areas of digitalization and local content; and (iii) better returns to human capital investment, driven by higher wages stemming from the economic take-off. As a result, the sectoral distribution of the economy will change substantially. The importance of the agriculture sector will continue to decline (from 24.5 to 19.5 percent of gross value added) to the benefit of both industry (from 28.8 to 39.9 percent).

Accounting for climate change, annual GDP under a high-growth scenario could be reduced by 3.7 percent by 2050 under the Wet/Warm climate scenario and 6.7 percent under the Hot/Dry climate scenario. As with the other two growth scenarios, the largest negative impacts from the Wet/Warm climate change scenario come via the heat-labor productivity channel (annual GDP loss of 2.9 percent by 2050) and then the roads and bridges channel (annual GDP loss of 1.2 percent). There are small positive impacts via the livestock and rainfed crop yields channels, and the poverty rate will fall slightly less than without climate change, to 14.6 percent of the total population. Under the Hot/Dry climate scenario, again in line with the other growth scenarios, all channels but inland flooding (which sees no impact) yield negative impacts. The largest of these comes via the heat-labor productivity channel (annual GDP loss of 3.8 percent by 2050), followed by the roads and bridges channel (annual GDP loss of 1.2 percent), and then the rainfed crops yields channel (annual GDP loss of 1 percent). Despite the negative impacts of climate change, higher growth will still mean a significantly lower poverty rate (18.1 percent compared to 32.4 percent under the medium growth scenario). The total impact on GDP for the Wet/Warm climate scenario would be an annual loss of 3.7 percent, more than under medium growth (3.5 percent), but from a higher base. However, as the high growth scenario would see the economy shift away from agriculture, the total impact under the Hot/Dry scenario would be less: 6.7 percent compared to 6.8 percent under medium growth.
CHAPTER 7 Growth in Burkina Faso: Looking Forward

**FIGURE 7.3** High, sustainable, and inclusive growth scenario

A - Increased productivity growth will allow for high output growth in the future with capital remaining the main contributor to growth

B - Despite growth slowing down in the 2030s and 40s its elevated level allows for robust per capita growth throughout the projection period

C - While overall consumption declines, total investment will remain relatively stable and net exports will contribute positively to growth

D - Steady per capita growth allows Burkina Faso to be upgraded to the group of lower middle-income countries by 2040

E - Productivity gains in the high growth scenario fuel the significant increase in GVA of the secondary and tertiary sector

F - Across climate scenarios, poverty will fall continuously throughout the projection period given strong and more equitable economic growth

Source: BFA-ccMMFMod (World Bank).

Notes: TFP = total factor productivity, CAGR = compound annual growth rate, GVA = gross value added.
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### TABLE A.1

**Mapping the Synthesis Report Chapters to all Background Papers**

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<thead>
<tr>
<th>Foundation</th>
<th>Synthesis Report Chapters</th>
<th>Hook to Growth</th>
<th>World Bank Staff Papers</th>
<th>Papers of Burkinabè Researchers</th>
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<td>Konfe, B. “Financial Inclusion and Income Inequality in Burkina Faso: The Role of Human Capital.”</td>
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Annex #2

Economic Damages Induced by Climate Change through Six Impact Channels

To address climate uncertainty in the future, we considered the results from numerous general circulation model (GCM)17 climate scenarios18 and shortlisted those that fell within the 10th and 90th percentile of mean precipitation and mean temperature changes. For each impact channel, the worst climate scenario (associated with the highest magnitude in economic damages) and least pessimistic climate scenario (associated with the lowest magnitude in economic damages) were identified. For the combined impacts (i.e., the aggregate impact sourcing from the combined six channels), Chapter 7 highlights two climate scenarios: a “Hot/Dry” scenario and a “Wet/Warm” scenario, showing respectively, the upper and lower bounds of the aggregate impacts.

Impact Channel Details

1. Rainfed crop yields
Impact modeling: The effects of water availability and temperature changes for each of the GCM-SSP combinations are analyzed using crop yield models and combined for 6-8 representative crops (including sorghum, millet, maize, cowpeas, cotton, and groundnuts) for each country, selected based on their relevance in terms of harvested area, production, and export value. Crop-specific temperature thresholds are calibrated to the climatic conditions of each country. This means that when temperatures exceed those thresholds, yields fall based on a damage function.

The resulting shocks to crop yield by crops are aggregated to a single shock to agriculture revenues based on the share of the total value of agricultural production that each crop represents. The spatial disaggregation of the crop production analysis corresponds to ¼ degree x ¼ degree grid cells, which is the resolution of the climate data available. The baseline annual crop yield is calculated by putting into the crop yield model the average historical temperature and precipitation to calculate the annual crop yield for each of the crops. The temperature and precipitation for each year for each of the climate scenarios are then used in the crop yield model to calculate the annual crop yield for each of the crops. The difference in total crop value from the baseline is the shock, expressed in percentage terms.

2. Heat stress and labor productivity
Impact modeling: Impacts are based on a method/model that quantifies the percentage of a typical working hour that a person can work based on wet bulb globe temperatures (WBGT), which measures heat stress from temperature and humidity. The impacts intensify for outdoor labor types and with more intense physical work. Workers are split into indoor and outdoor workers, and it is assumed that those who work indoors are not affected by heat. This likely underestimates the impacts of heat stress as some indoor workers—especially those not in temperature-controlled environments—may be affected.

The baseline annual labor productivity is calculated by putting into the WBGT model the average historical temperature and precipitation to calculate the annual labor productivity for each of the three sectors. The temperature for each year for each of the climate scenarios is then used in the model to calculate labor productivity. The difference in labor productivity from the baseline is the shock, expressed in percentage terms. This approach is consistent with the recently released study by Purdue University: Saeed, Wajiha, Thomas Hertel, Qin Qin Kong, and Matthew Huber. 2022. “Heat Stress in Human Labor and Poverty: The Case of West Africa.”

3. Heat-related human health shocks
Impact modeling: The effects are estimated using a statistical model that relates temperature increases to increased morbidity due to vector-borne diseases (malaria, dengue, diarrhea, and respiratory and cardiovascular heat-related diseases). The resulting output corresponds to country-scale annual impacts on total labor productivity for each climate scenario. Changes in morbidity are calculated using country-specific years-of-life lost data gathered from the Institute of Health Metrics and Evaluation global health dataset.

The baseline annual labor productivity for the whole economy is calculated by using the average historical temperature and precipitation to calculate the annual labor productivity for the whole economy. The temperature for each year for each of the climate scenarios is then used in the model to calculate labor productivity. The difference in labor productivity from the baseline is the shock, expressed in percentage terms. The approach follows the method outlined in Roson, Roberto, and Martina Sartori. 2016. “Estimation of Climate Change Damage Functions for 140 Regions in the GTAP 9 Database.” Journal of Global Economic Analysis 1 (2): 38.

17 A General Circulation Model (GCM) is a type of mathematical global climate model that covers physical processes of the atmosphere and ocean to simulate future climate changes as a result of increasing greenhouse gas emissions.

18 Climate scenarios consider different combinations of SSP (Shared Socioeconomic Pathways) and RCP (Representative Concentration Pathways). The RCPs set pathways for greenhouse gas concentrations and, effectively, the amount of warming that could occur by the end of the century while the SSPs consider whether reductions in emissions will or will not be achieved.
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4. Livestock yields
Impact modeling: The effects under each climate scenario are analyzed using a grass yield model to impact feed availability, which affects the main ruminants (cattle, goats, and sheep), and animal-specific temperature-humidity thresholds to impact the productivity of ruminants, chicken, and swine. The effect on feed availability introduces a great deal of variability in this shock—baseline livestock productivity is low, so it has considerable room to increase during wetter years when pasture productivity is high. The resulting shocks to livestock yield by species are aggregated to a single shock to agriculture revenues based on the share of the total value of livestock production that each species represents. The spatial disaggregation of the analysis corresponds to ½ degree x ½ degree grid cells, which is the resolution of the climate data available.

The baseline annual livestock yield is calculated by putting into the livestock yield model the average historical temperature and precipitation to calculate the annual livestock yield for each of the animals. The temperature and precipitation for each year for each of the climate scenarios are then used in the livestock yield model to calculate the annual livestock yield for each of the animals. The difference in total livestock revenue value from the baseline is the shock, expressed in percentage terms.

5. Inland flooding
Impact modeling: The analysis relies on projected changes in the return interval of precipitation events from the Climate Change Knowledge Portal (CCKP) between current conditions and future projections, which are translated to runoff using a flooding model. CCKP provided gridded changes in precipitation recurrence intervals for four periods (2010–2039, 2020–2049, 2036–2065, and 2071–2100) and under two emissions scenarios in the CMIP5 climate model ensemble: RCP4.5 and RCP8.5. The two sets of changes from the CCKP are developed from the full ensemble of GCMs within each emissions scenario, so the flooding results reflect the broad trend across climate models at each emissions level. The methodology considers shocks to three types of assets: built-up capital (i.e., any hard piece of infrastructure such as roads, bridges, and buildings), agricultural capital, and agricultural land. The approach to generating these shocks distributes capital in two stages—first using 9-km gridded GDP data and then to a finer scale using 100-meter gridded land cover data. Although these finer-scale land cover data allowed us to identify capital within the floodplain, those data do not provide information on the productivity of that capital (i.e., whether the grid cell includes a residential home or factory). Because the flood plain is likely to contain lower productivity capital, we dampen the shocks by 50 percent as inputs to BFA-ccMFMod. This factor produces a conservative estimate of inland flooding impacts.

The baseline flooding impacts use baseline recurrence intervals to calculate damages to capital and agricultural land. The recurrence interval changes (i.e., events becoming more/less frequent) from CCKP for each period and under each of the two RCPs are then used in the model to calculate flood impacts. The difference in flood impacts from the baseline is the shock, expressed in percentage terms.

6. Roads and bridges
Impact modeling: The effects under each climate scenario are analyzed using the Infrastructure Planning Support System, also used in the World Bank study Enhancing the Climate Resilience of Africa’s Infrastructure. This model analyzes impacts on paved, gravel, and dirt roads; culverts; and bridges based on stressor-response functions that relate temperature and precipitation changes to repair and reconstruction costs and traffic delays resulting from road and bridge disruption.

This channel assumes that no proactive, anticipatory measures are taken to protect the roads and bridges network; it is assumed that no additional maintenance is done, so that the impact translates into a reduction in the capital stock of roads and bridges, which then affects economic output. A factor of 0.5 is used to translate maintenance costs to a reduction in capital stock to recognize that in the absence of maintenance, the infrastructure may still be partially usable. This factor produces a conservative estimate of damages.

REFERENCES
REFERENCES


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