

# Burkina Faso

## Poverty, Vulnerability, and Income Source

June 2016



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## *Poverty, Vulnerability, and Income Source*

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# Abbreviations and Acronyms

AAP	Africa Adaptation Program
CFAF	CFA franc
EICVM	Integral Survey on Household Living Conditions ( <i>Enquête Intégrale sur les Conditions de Vie des Ménages</i> )
EMC	Continuous Multisector Survey ( <i>Enquête Multisectorielle continue</i> )
FAO	Food and Agriculture Organization of the United Nations
FGT	Foster-Greer-Thorbecke
FIES	Food Insecurity Experience Scale
GDP	Gross Domestic Product
GNI	Gross National Income
INSD	National Institute of Statistics and Demography ( <i>Institut National de la Statistique et de la Démographie</i> )
PPP	Purchasing Power Parity ( <i>Parité du pouvoir d'achat</i> )
QUIBB	Questionnaire on Basic and Well-being Indicators ( <i>Questionnaire sur les Indicateurs de Base et de Bien-être</i> )
SCADD	Accelerated Growth and Sustainable Development Strategy ( <i>Strategy de Croissance Accélérée et de Développement Durable</i> )
SDG	Sustainable Development Goal
WDI	World Development Indicators



# Executive Summary

Burkina Faso is a West African Sahelian landlocked country covering 274,200 km<sup>2</sup>. In January 2015, the population was estimated at just over 17.9 million. The capital city is Ouagadougou. The country has a tropical climate with two very distinct seasons: dry and rainy. In the rainy season, which lasts from May/June to September, the country receives between 600 mm and 900 mm of rainfall in the south, but less than 600 mm in the Sahel in the north. Despite the hard climate, the country has agricultural and livestock-breeding potential that represents around a quarter of gross domestic product (GDP) (2010–2014) and provides a living for more than 80 percent of the population. Burkina Faso is the top cotton producer in Africa. The principal subsistence crops are sorghum, millet, corn, and rice. The secondary sector accounts for one-fifth of GDP, and mining, in particular, plays an important role in the Burkina Faso economy. The tertiary sector, comprising many microenterprises, accounts for 45 percent of GDP. While Burkina Faso has been successful in reducing poverty, this phenomenon is still high in the country. The objective of this report is to review the state of knowledge of the profile and dynamics of poverty and to assess the tangible achievements of Burkina Faso in the fight against poverty over the past decade, highlighting the major issues and obstacles in the march toward the twin goals.

## **A substantial drop in poverty, but an increase in the number of poor . . .**

**Burkina Faso has enjoyed real economic progress during the last 15 years.** Except in 2014 and 2015, the country has been politically stable and GDP has grown at an average annual rate of 6 percent owing to the boost in mining, particularly gold, and the cotton sector.

**The solid economic growth translated into a substantial drop in poverty between 2003 and 2014. Despite this sharp decline in poverty, the number of poor has not decreased.** The

percentage of people living below the poverty line declined from 52.7 percent in 2003 to 40.1 percent in 2014, a drop of 13 percentage points over 11 years. In addition, the poverty gap and the squared poverty gap declined as well, confirming the robustness of this trend. However, Burkina Faso is a country with high demographic growth, 3.1 percent per year. This strong population growth is the consequence of high fertility (six children per woman in 2010), while mortality is declining. The decline in poverty was not strong enough to stop the increase in the number of poor which rose from 7,012,000 to 7,473,000 between 2003 and 2009 and then slightly dropped in 2014 to 7,171,000, which is still above its 2003 level.

**The trend in nonmonetary indicators mirrors the trend in poverty.** Health indicators have improved substantially with the decrease in infant mortality and maternal mortality. There is also an improvement in education indicators, with girls catching up with boys. In 2003, one-third of children ages 7 to 12 were enrolled in school and it was 55 percent in 2010. The ratio between the enrollment rate of girls to boys has increased from 0.77 to 0.99. And the living conditions of the population are also better, even though the country is lagging in many dimensions. In 2014, half of the population lived in a house with an improved floor (cement or tile) against one-third in 2003; 80 percent had access to safe water, but only 20 percent used electricity as a source of lighting and 5 percent used a clean source of energy (electricity or gas) for cooking.

## **. . . explained by growth, less inequality, and labor market mobility**

**Changes in poverty come from solid performances in economic growth and less inequality. Over 2003–2014, the 13-point decline in poverty incidence was due 50:50 to economic growth and a decline in inequality.** Burkina Faso has recorded strong growth (based on GDP)

over the past 15 years, with an annual average rate of 6 percent. The performance of the primary sector, which employs most of the labor force, is modest compared to the others. Agriculture is organized around small family farms and is highly dependent on weather conditions. The capital accumulation is low because agriculture is not mechanized and farmers have limited access to fertilizers and modern input. For these reasons, productivity measured by yield are modest. However, the secondary and tertiary sectors got better results. In the mining sector, the boom in the production of gold and other mineral resources resulted in excellent performances of extractive industries. In addition to mining, the construction industry which benefits from increased investments from households, as well as energy, also showed good performance during the past decade. With regard to the tertiary sector, the most dynamic branches are communication and finance. As in other African countries, the communications branch benefits from the penetration of mobile phones even in remote areas.

**These good results led to job creation and consequently to poverty reduction.** In nonagricultural sectors, the most prolific branches in the number of new jobs are services other than real estate and business services, trade, or manufacturing industries. Communications, construction, and mining, which are dynamic sectors in growth, also created jobs. However, in absolute terms the number of jobs created in these branches is relatively modest, as is their share in the labor market. While jobs in business services and trade sectors show higher productivity than agricultural jobs, they are paid less than in the finance and telecommunications sectors. Indeed, new jobs in the trade sector and in other services and in manufacturing offer relatively low productivity as they are created in urban informal sector microenterprises. Half of the workers in nonagricultural sectors are self-employed. Thus, even in nonagricultural sectors, the majority of jobs offer modest pay. Although these jobs have helped improve people's living conditions, they

have not improved much to achieve the goal of strong poverty reduction.

**Another important factor underlying poverty trends is the decline of inequality.** It is interesting to note that the various inequality indicators move in the same direction. The Gini index, which is most often used, varies between 0 and 1, and the closer it is to one, the more inequality is high. This index decreased by 7 percentage points between 2003 and 2014. Similarly, the ratio of the consumption share of the richest 20 percent of the population to that of the bottom 20 percent of the population declined significantly from 7.8 to 5.3. The drop in inequality can be explained either by structural factors or by the result of short-term economic policies. Among the structural factors is education, which can help poor children move to the middle class when they become adults and gain better opportunities to access physical capital (credit, land, and so on). Assessing how those factors have affected inequality in the past decade is beyond the scope of this report. However, in the short term, the fact that growth has been pro-poor is consistent with policies in favor of the poorest of the population.

**The drop in poverty is also partly explained by migration and labor market mobility.** The evolution of the structure of the Burkina Faso population shows a growing trend of rural migration. The proportion of rural population decreased from 84 percent in 2003 to 78 percent in 2014. While the urbanization rate in the country is lower than in other African countries, it is nevertheless growing. This urbanization benefits the largest cities, including the capital, whose population represented 9 percent in 2003 and 14 percent in 2014. One of the consequences of migration is the shift in the labor market structure. During the past 15 years, rural migration resulted in a decline in the share of population living in households whose head is a farmer, in favor of households where the head works in trade or construction in urban areas. The result of the breakdown shows that migration and the labor market mobility that accompanies it

account for 3 points of the 13-point drop recorded in poverty between 2003 and 2014, or one-quarter of the decline.

### **Despite the progress, it is a real challenge for Burkina Faso to achieve the Sustainable Development Goal (SDG) of eradicating poverty**

**The developing countries have committed to achieve the SDGs, and one of these goals is to eradicate extreme poverty by 2030. In the case of Burkina Faso, this goal will be difficult to achieve.** Poverty projections have been made using a number of assumptions about economic growth, transmission of this growth with regard to poverty reduction, and population growth. The key finding is that even with the most optimistic scenario of high economic growth and high poverty/growth elasticity, Burkina Faso is far from reaching the goal of eliminating poverty by 2030. In the best scenario there is still 15 percent of the population living below the poverty line while the objective is less than 3 percent. In any case, the simulations highlight the efforts that Burkina Faso needs to make to significantly reduce poverty and reverse the trend in the number of poor people. Indeed, it would be necessary to fulfill two conditions, one of which was not fulfilled during the past decade. First, there is a need for strong and sustained growth. The country is on the right path in this regard. Second, it is important that growth be more pro-poor.

**While poverty has declined, it is still widespread in the country.** Remember that 40 percent of Burkinabé still live below the poverty line. Poverty incidence in rural areas is 3.5 times higher than in urban areas. Poverty is also very high in 4 of the 13 regions (Nord, Boucle du Mouhoun, Centre-Ouest, and Est), where at least half of the population lives below the poverty line, with this proportion increasing to seven out of ten people in the Nord region. Poverty also varies with the socio-demographic characteristics of the household and its head. The profile of the poor household in Burkina Faso is classic.

The poor live in large households in rural areas, particularly in one of these regions: Nord, Boucle du Mouhoun, Est, Plateau-Central, and Centre-Nord. The head of the household works in agriculture, has no education, and is a man in his 50s or older. This profile is robust when using alternative monetary poverty measures.

### **Food insecurity is also another dimension of poverty**

According to the Food and Agriculture Organization of the United Nations (FAO), food security is assured when all people, at all times, have economic, social, and physical access to sufficient, safe, and nutritious food that meets their dietary needs, as well as their preferences, and allows them to maintain a healthy and active life. If even one of these conditions is not met, people suffer food insecurity. This, therefore, involves many factors. The food must physically exist. People must be able to physically reach it and afford to buy it. The food must be nutritious to maintain a healthy and active life, must offer a balanced diet, and must be continually available. The first of these issues—supply and shortages—can usually be gleaned from annual agricultural surveys.

**The FAO uses the Food Insecurity Experience Scale (FIES) approach to measure food insecurity relative to a limited access to food, and in 2014, this form of food insecurity affected nearly 38 percent of individuals.** Individuals experiencing food insecurity, according to this approach, are either in a moderate situation, insofar as they were led to reduce the amounts normally consumed by skipping meals, or in a severe situation, that is, facing famine. More than 15 percent, that is one person out of seven, is affected by a severe form and faces a virtual lack of food at certain times. This form of food insecurity is higher in the eastern regions (Est and Sahel) and in rural areas.

**The second approach assesses food insecurity based on the household's calorie intake, and under this definition, 43 percent of the people were food insecure in Burkina Faso in 2014, with one-fourth of the urban and nearly**

**half of the rural population.** This is, hence, a nutritional approach that determines how well needs are being met based on the number of calories drawn from the consumption of food products. A household experiences food insecurity if consumption is below 2,283 kcal per adult equivalent and per day. Anyone living in a food-insecure household is also in this situation. This form of food insecurity has a positive correlation with poverty. Food insecurity decreases with the household's standard of living (measured by the household's consumption per capita). It affects almost all of the poorest households in the first quintile, nearly three-quarters of those in the second quintile, and is virtually nonexistent among the well-off households in the fifth quintile. Moreover, among the subpopulation that has not reached the minimum calorie level, seven out of ten people are poor. Furthermore, because rural areas are more affected by this than urban areas, and most of the population is rural, nearly nine out of ten people suffering from a calorie deficit live in a rural area.

**The third approach of food insecurity is a dynamic one using the same definition as the previous one. Food insecurity is characterized by strong seasonal variations that most often translate into a worsening of the households' situation.** Some households are vulnerable in the sense that they may be affected by food insecurity at certain times of the year. For example, farmers have an excess of provisions right after harvest, and the situation may become difficult as time passes. One-third of people live in a situation of food insecurity in the first quarter. This figure rises to 45 percent in the second quarter, nearly 42 percent in the third, and nearly 47 percent in the last quarter. In fact, a significant proportion of households undergo a change in status. Between the first two quarters, more than one-fourth live in households that have undergone a change in status; 18 percent of those experiencing food security in the first round find their situation changing for the worse, and just 7 percent find their situation improving. These changes in situations occur in all periods, thus revealing the level of vulnerability of Burkinabé households.

**Food insecurity is more of a transient rather than a chronic phenomenon.** The 2014 results show that only one-third of these people do not experience food insecurity at any given time of the year. For the two-thirds who experience this difficulty, 18 percent are in this situation chronically, and nearly half transitorily (that is, once, twice, or thrice during the year). The chronic nature of this phenomenon is the result of extreme poverty. Of those living with chronic food insecurity, 80 percent are in the fifth quintile, most of whom come from the poorest households. On the other hand, the transitory nature of the phenomenon has the result of a combination of multiple factors. As noted earlier, agricultural production does not always meet the needs of these populations. Furthermore, price variations during the year explain the variations in real income, which may decline at certain times of the year and cause temporary food insecurity.

#### **Food insecurity is correlated with shocks, making households more vulnerable**

**The impact of shocks is very significant and affects poor populations the most.** Burkinabé households are often hit by idiosyncratic and covariant shocks. Idiosyncratic shocks are those affecting a household (loss of job, divorce, crime, separation, and so on) in particular. Covariant shocks affect a group of households (price variations, drought, flooding, and so on), for example a village, region, or even the entire country. More than two-thirds of households reported that they had suffered at least one shock, most frequently of natural origin (43 percent of households), caused by price fluctuations (25 percent), or by the death or serious illness of a member of the household (17 percent). Other shocks are less frequent and affect less than 5 percent of households. Shocks affect rural populations more than urban populations. Rural households suffer more from problems associated with weather and plant diseases, resulting in poor harvests. There are also events associated with price fluctuations that can be correlated with natural shocks. Because these rural households live mainly from agriculture, they are more exposed to shocks of this



kind. Moreover, because the health system is poorly developed in rural areas, incidence of shocks relating to a serious illness or death of a household member is greater there. On the other hand, events associated with the loss of a nonagricultural job or income, naturally affects city households more.

**Shocks have a generally negative impact on all forms of food security.** Price shocks have the most negative impact on household food security. The price effect lowers the calorie intake per adult-equivalent by more than 19 percent in cities and 18 percent in the countryside. In urban areas, where consumption comes from the market, an increase in food prices contributes to a reduction in real income that forces households to reduce the amount of food consumed. In rural areas, on the other hand, some households are net producers, and for them a price increase can be beneficial, but others are net consumers, and for them the situation is like that of urban residents. In any case, the weakness of the country's agricultural production makes rural households dependent on the market, because they produce little in the way of surplus. The other type of shock that has a negative impact on a household's food security relates to issues affecting the household, such as divorce, separation, or the end of transfers sent home by a family member. Shocks of this kind have an impact mainly in urban areas where they cause consumption to drop by 18 percent.

**Better income can improve the well-being of the rural population, but productivity of most activities is too low**

**Agriculture is the most important income source. It represents nearly 61 percent of the total rural household income.** Less than half of a percentage point of this income comes from wages, so the total agricultural income is from farming. In Burkina Faso, farms are small and the production is for self-consumption, so the biggest part of this income is not so much cash, except for those who grow cash crops. Nonagricultural activities account for 36 percent of income, two-thirds of this income is derived

from self enterprises. The low level of wage income (less than 7 percent) reflects the rarity of wage earners in the countryside. Other income represents just 3 percent of total income, most of it from private transfers. In particular, it is interesting to note the scarcity of public transfers in a country where households are vulnerable to many hazards (climate, shocks, and so on). Just for comparison, the distribution of income at the national level shows that 41 percent of total national income comes from agriculture and 53 percent from nonagricultural activities.

**Low productivity in agriculture is explained by weak access to capital and low human capital.** Agriculture is a high risk activity in Burkina Faso because of adverse weather conditions and other multiple shocks. In addition, rural households face several poverty traps which hamper their ability to improve productivity. First, agriculture is not mechanized, and equipment has a real impact on productivity. And the imperfection of the credit market makes it difficult to borrow and acquire equipment. Only 11 percent of households have a bank account and the poorest households are more penalized. The second poverty trap is the low use of fertilizer and pesticides, which also has a negative impact on agricultural productivity. Access to labor input is better, but even that is not optimally used by households. The third point is the specialization in households. Most of the areas cultivated are mainly used for dry cereals, crops with a negative impact on productivity. Cotton, rice, and tubers have a better impact on productivity and are probably a pathway to improving it; of course it can be worth exploring other potential high-productivity crops like fruit and vegetables. Finally, households have limited access to a market. Half of the households have to walk more than an hour to find transportation and 38 percent are more than an hour from the nearest road. In such conditions, even if farmers were able to produce a surplus, they would have difficulty getting it to the market and selling it at a fair price.

**Productivity in rural nonfarm enterprises is also low, because of the small size of the firms.** While productivity is positively correlated with

the size of the firm, nonfarm enterprises also operate at a small level, and working conditions are precarious. The main place of business is outdoors, either a specific spot by the side of the road or a marketplace or as a street vendor. One-third of the enterprises operate at home and only 7 percent own a specific business premises. In addition to the absence of a business premises and basic commodities, the start-up capital of the average enterprise is CFAF 80,000 (less than US\$150) and consists essentially of tools and basic equipment. Less than 3 percent of enterprises have machines, less than 6 percent have motorbikes and automobiles, and less than 1 percent have furniture. At this low level of business, it is difficult to achieve good productivity and a decent income.

**Burkina Faso faces multiple challenges to reduce poverty.** Poverty projections show that, with the current trend, the country will not be able to reach one of the twin goals, which is eradicating poverty by the year 2030. The first challenge in poverty reduction is in demography. Burkina Faso has very rapid population growth, around 3 percent a year. High fertility rates are a real challenge for growth and poverty reduction, and getting a better understanding of the determinants of fertility and the channels by which it

can be reduced is a path for better results on poverty reduction. The second challenge is education. Education improves human capital and has a positive impact on income and on poverty reduction. Education, in particular women's education, has a positive impact on many other phenomena, including the use of contraceptives and fertility, undernutrition, and so on. The third challenge for poverty reduction in Burkina Faso is improving productivity, in agriculture in particular. This sector is the main income source for the vast majority of the population. But performance in the sector is poor. The whole challenge is how to reach the poorest farmers who are usually in remote areas and are even less productive. Improving productivity might mean to improve irrigation, improve access to credit, implement modern agricultural techniques, diversify crops toward value-added ones, improve access to market, and invest in research. The fourth challenge is to increase the resilience of the population by implementing safety nets. In the absence of social security mechanisms, households rely on their own resources to cope with adverse situations. A system of safety nets would prevent people from falling into deep poverty and help people keep their dignity.

## Chapter 1

# Country Context

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The purpose of this report is to review the state and trends of poverty and vulnerability in Burkina Faso and evaluate the possible effects of development strategy policies and the Accelerated Growth and Sustainable Development Strategy (*Strategy de Croissance Accélérée et de Développement Durable*, SCADD) on poverty and social development. This Poverty Review provides detailed analyses of the ‘micro’ environment of poor households in Burkina Faso and how they are affected by specific economic policies. The report has two complementary objectives: (a) review the state of knowledge of the profile and dynamics of poverty in Burkina Faso and (b) assess the tangible achievements of Burkina Faso in the fight against poverty over the past decade, highlighting the major issues and obstacles in the march toward the twin goals. This will inform the authorities of the potential benefits of specific policies and how to improve the targeting of some others. The report will also provide inputs to the ongoing Systematic Country Diagnostic.

Burkina Faso is a West African Sahelian country covering 274,200 km<sup>2</sup>. It is bordered by Mali in the north, Niger in the east, Benin in the southeast, Togo and Ghana in the south, and Côte d’Ivoire in the southwest. The country is diverse with many national languages being spoken, including Moore, Dioula and Foulfouldé, but French is the official language. The capital city is Ouagadougou. In January 2015, the population was estimated at just over 17.9 million. Three climate zones can be defined, the Sahel in the north, the Sudan-Sahel in the middle, and the Sudan-Guinea in the south. The country has a tropical climate with two very distinct seasons: dry and rainy. In the rainy season which lasts from May/June to September, the country receives between 600 mm and 900 mm of rainfall in the south, but

less than 600 mm in the Sahel in the north. Burkina Faso is part of the West African Economic and Monetary Union and has adopted the CFA Franc.

Politically, Burkina Faso has just ended a difficult period of transition and a new President, Roch Christian Kaboré, has been elected. The country was ruled by President Blaise Compaoré from 1987 to 2014. During the 27 years of his rule, elections were regularly organized and the President was reelected. Even though the results of the elections were somewhat disputed, the country enjoyed stability and economic progress. Because of his desire to amend the constitution and seek reelection, the President was ousted from power by a popular youth uprising on October 31, 2014, and Michel Kafando was appointed Acting President for a transitional period. Presidential and parliamentary elections were organized at the end of this period and the new President took office on the eve of 2016.

Despite the hard climate, the country has agricultural and livestock breeding potential that represents around a quarter of GDP (2010–2014) and provides a living for more than 80 percent of the population. Agriculture is essentially rain fed, with irrigation representing less than 0.5 percent of the 3.3 million ha of cultivated land. Burkina Faso is the largest cotton producer in Africa. The principal subsistence crops are sorghum, millet, corn, and rice. The secondary sector accounts for one-fifth of GDP, and mining, in particular, plays an important role in the Burkina Faso economy. The country’s natural resources include manganese, limestone, marble, phosphates, and gold. Gold production increased from 23 tons in 2010 to 32 tons in 2011, making Burkina Faso the fourth-largest gold producer in Africa, after South Africa, Mali, and Ghana. The tertiary sector, comprising many microenterprises, accounts

for 45 percent of GDP. This sector consists mainly of trade, telecommunications, transport, and some other services.

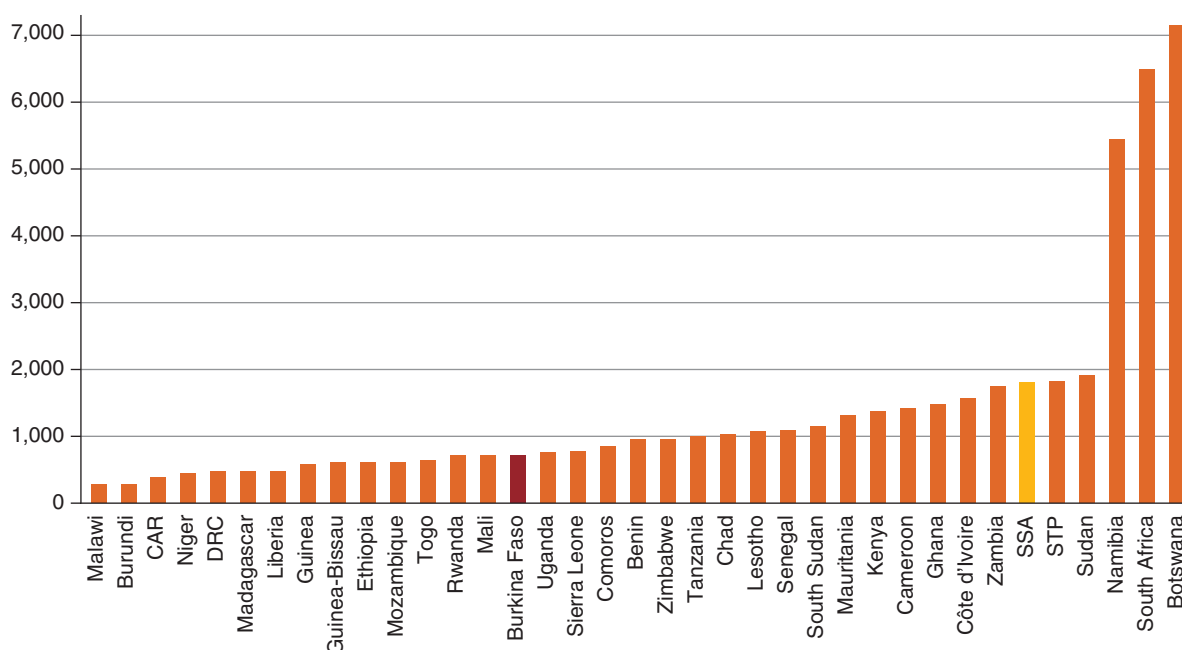
However, the Burkina Faso economy suffers from two major constraints. First, the country is landlocked and is far from any seaport. The capital city, Ouagadougou is 930 km from Tema in Ghana, 960 km from Lome in Togo, 1,040 km from Cotonou in Benin, and 1,130 km from Abidjan in Côte d'Ivoire. Transaction costs are high and they naturally affect prices, particularly prices of inputs. Second, the climate is dry and the country is poorly watered, making agriculture, the principal activity of the population, difficult.

The poor performance of agriculture, which feeds the vast majority of the population, makes Burkina Faso a poor country. In 2014, per capita GDP was US\$690.4 in Purchasing Power Parity (PPP), making it one of the poorest countries in the world when using this indicator. The poverty rate, using the international poverty line of US\$1.90 (in 2011 PPP), was 45.4 percent in 2014. The country's population lacks basic commodities like electricity. Even though social indicators have improved during the last decade, they are

still not good. This low level of welfare negatively impacts social outcomes, the life expectancy at birth being less than 57 years. To make the situation worse, the country is subject to multiple shocks, including climate disasters. According to the Africa Adaptation Program (AAP), as a low-income, landlocked country with limited natural resources, Burkina Faso will experience some of the worst impacts of climate change. It faces very challenging changes in temperature, rainfall, storms, and extreme weather events, which will compound the low agricultural productivity that continues to constrain the country's growth. This negative impact on growth primarily affects the poorest segment of the population making them more vulnerable in a country with no social protection mechanisms.

The report is structured as follows. Section 2 presents the state of poverty, the trend in 2003–2014, and the poverty profile and determinants in 2014. Section 3 provides an analysis of food security and vulnerability. Section 4 discusses the correlation between income diversification and poverty. The last section provides the conclusion.

**FIGURE 1.1 GDP per Capita in Selected African Countries in 2014**



Source: World Development Indicators (WDI) Data Base.

## Chapter 2

# Progress in Poverty Reduction in Burkina Faso

## 2.1 Poverty Trends

### 2.1.1 Poverty Trends 2003–2014

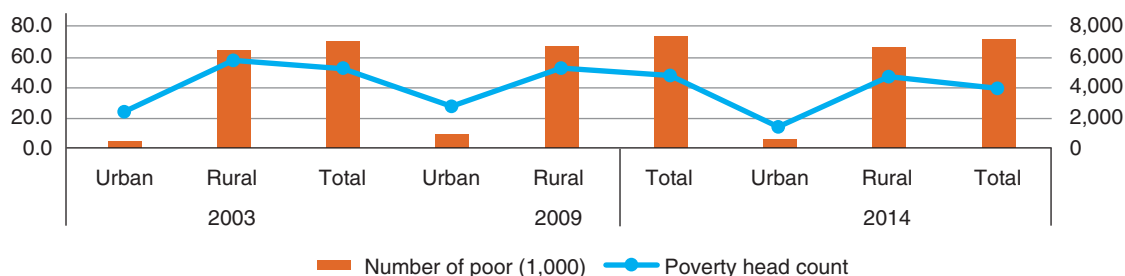
**Burkina Faso has enjoyed real economic progress during the last 15 years.** Except in 2014 and 2015, the country has been politically stable and the GDP has grown at an average annual rate of 6 percent owing to the boost in mining, particularly gold, and the cotton sector.

**Between 2003 and 2014, the solid economic growth translated into a substantial drop in poverty.** The percentage of people living below the poverty line declined from 52.7 percent in 2003 to 48 percent in 2009 and 40.1 percent in 2014. This corresponds to a drop of 13 percentage points over 11 years. The poverty head count alone does not show the whole poverty picture and the poverty situation is better presented when adding other indicators. These indicators are the poverty gap (which measures the difference between the average consumption of the poor and the poverty line) and the squared poverty gap (which measures the degree of inequality among the poor) and are used to supplement the

analysis of poverty trends. These indicators are consistent with the poverty head count, which shows that the decline in poverty in Burkina Faso has been robust over the period. Moreover, because the poverty gap and the squared poverty gap place more weight on the very poor, their decrease at the national level indicates that to some extent the poor have benefited from the well-being improvement.

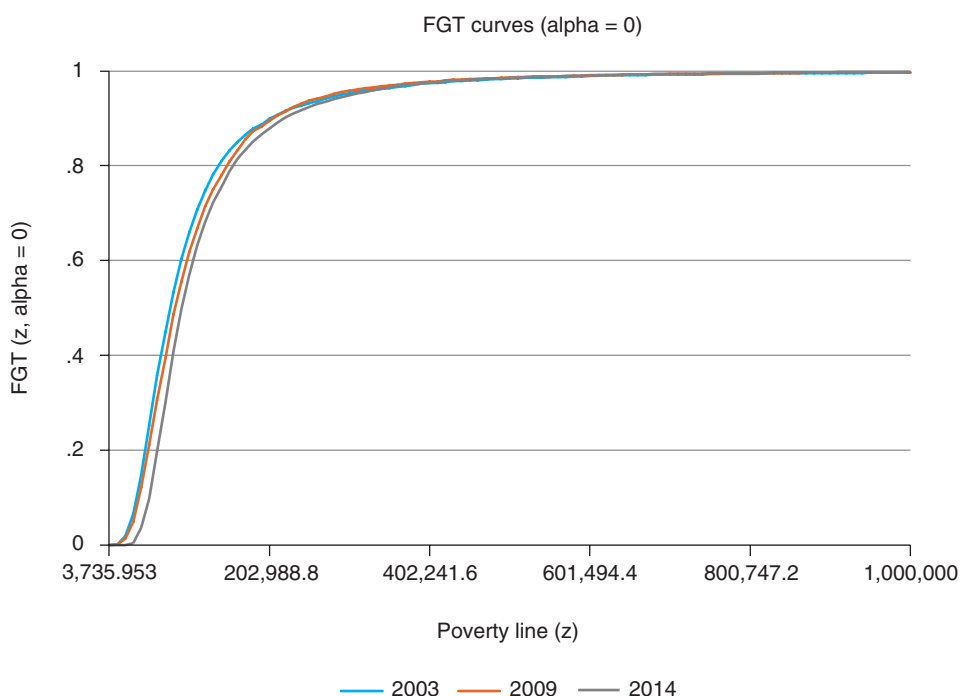
Despite this sharp decline in poverty, the number of poor has not decreased. Burkina Faso is a country with high demographic growth (3.1 percent according to the 1996 and 2006 population census). This strong growth is mainly due to high fertility and has been steady for 40 years (with six children per woman in 2010, Burkina Faso's fertility rate is one of the highest in the world), while mortality is declining (Bonkougou et al., 2011). The decline in poverty was not strong enough to stop the increase in the number of poor which rose from 7,012,000 to 7,473,000 between 2003 and 2009 and then slightly dropped in 2014 to 7,171,000, which is still above its 2003 level.

**FIGURE 2.1** Poverty Head Count and Number of Poor per Year and Area of Residence



*Source:* Author's calculations using the National Institute of Statistics and Demography (*Institut National de la Statistique et de la Démographie*, INSD) surveys, Questionnaire on Basic and Well-being Indicators (*Questionnaire sur les Indicateurs de Base et de Bien-être*, QUIBB) 2003, Integral Survey on Household Living Conditions (*Enquête Intégrale sur les Conditions de Vie des Ménages*, EICVM) 2009, and Continuous Multisector Survey (*Enquête Multisectorielle continue*, EMC) 2014.

**FIGURE 2.2 First-Order Dominance Curves by Survey Year**



Source: Author's calculations using INSD surveys. QUIBB 2003, EICVM 2009, and the EMC 2014.

**The use of an alternative approach to assess poverty trends confirms the decline in poverty.**

Poverty comparisons are done using different assumptions when constructing poverty lines. The dominance approach provides more robust results because the comparison is valid regardless of the poverty line. The application of this technique to the 2003, 2009, and 2014 surveys confirms the decline in poverty. The graph of the first-order dominance shows that the curve relating to 2014 is below that of 2009 which is below that of 2003. This means that the poverty level for 2003 is the highest and that of 2014<sup>1</sup> is the lowest. Furthermore, for all other Foster-Greer-Thorbecke (FGT) poverty indicators, there was a decline between 2003 and 2014.

**The trend in nonmonetary indicators mirrors the trend in poverty.** Health indicators have

improved substantially. Using the most recent Demographic and Health Surveys for 2003 and 2010, infant mortality has decreased from 91 per 1,000 to 65 per 1,000 and mortality of children less than five from 168 per 1,000 to 125 per 1,000. Maternal mortality follows the same trend, from a level of 440 for 100,000 births in 1998 to 341 for 100,000 in 2010. These trends are somehow linked with better access to health services. For example, the vaccination rate of children between 12 and 23 months has improved from a low 39 percent in 2003 to 81 percent in 2010.

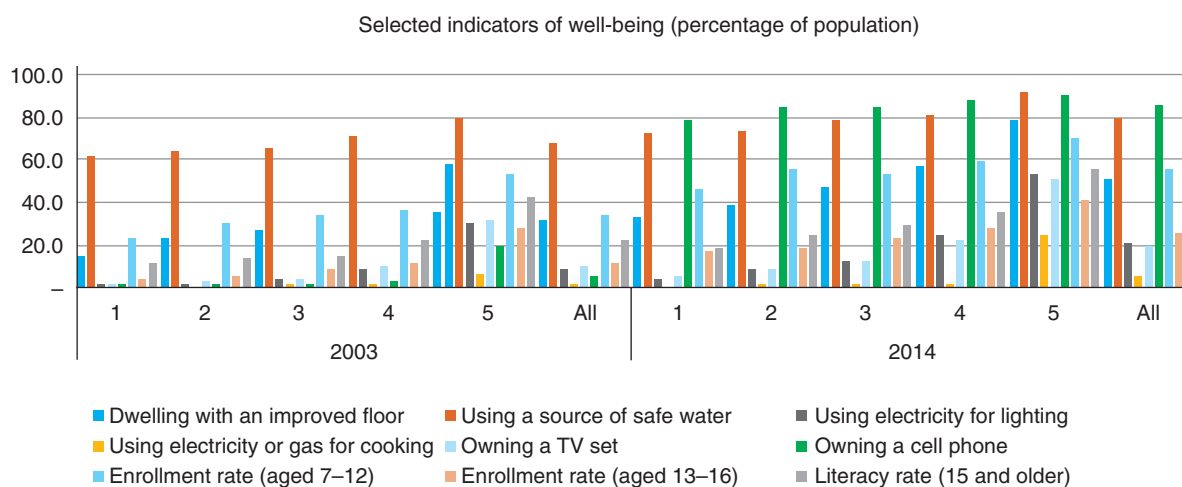
**There is also an improvement in education indicators, with girls catching up with boys.**

In 2003, one-third of children ages 7 to 12 were enrolled in school and it was 55 percent in 2010. The ratio between the enrollment rate of girls to boys has increased from 0.77 to 0.99. The literacy rate of the adult population (ages 15 and higher) has increased from one-fifth to one-third during the same period, due to better achievement of the young generation. However, the probability of being at school after the completion of primary school is still low. Only a quarter of the 13- to

<sup>1</sup> A first-order dominance implies that whichever additively separable poverty indicator is considered, poverty measured with this indicator declines. Thus, poverty does not decline only according to incidence, but also according to the other FGT indicators, such as the poverty gap and the squared poverty gap.



**FIGURE 2.3 Percentage of Population Benefiting from the Service**



Source: Author's calculations using INSD surveys, QUIBB 2003, and the EMC 2014.

16-year olds are still enrolled at school and only 5 percent of those children between ages 17 and 19; the school life expectancy is still less than six years. This low level of achievement is a real constraint to improving human capital. Most of the children who drop out of school before the age of 16 will barely acquire the necessary skills to compete in the labor market.

**The living conditions of the population is also better, even though the country is lagging in many dimensions.** In 2014, half of the population lived in a house with an improved floor (cement or tile) against one-third in 2003; 80 percent had access to safe water, but only 20 percent used electricity as a source of lighting and 5 percent used a clean source of energy (electricity or gas) for cooking. One-fifth of the individuals lived in a household where a television set was present in 2014 against one-tenth in 2003; half of the individuals lived in a household where there was a motorbike against one-fourth in 2003, but less than 3 percent lived in a household where there was a car.

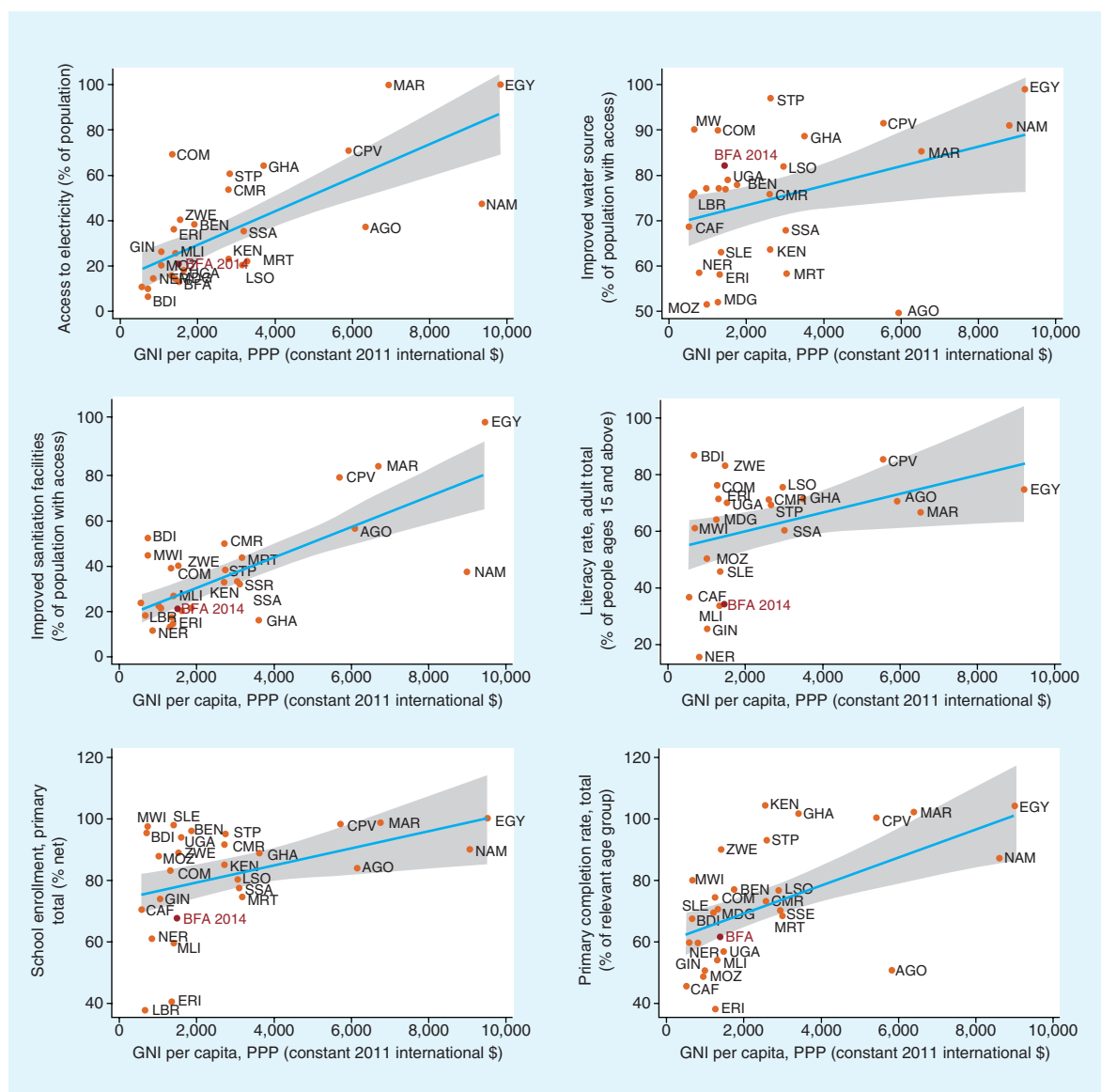
**Although there is improvement in the non-monetary dimension of well-being, the country still faces widespread deprivation as can be seen by comparison with other countries.** Data from the World Development Indicators (WDI) and appropriate charts are used for this comparison (Figure 2.4). Each of the graphs shows the

level of the indicator function of the Gross National Income (GNI). Of the six dimensions of well-being considered, it was found that access to safe water Burkina Faso is less efficient than it should be according to its GNI. Access to electricity, improved sanitation, and literacy are among the lowest in Africa, far behind the regional average. Regarding education, 60 percent of the current generation is enrolled in primary school and, among them, 60 percent completed it, meaning that only one-third of a generation completed primary school. The combination of high monetary poverty and non-monetary poverty makes life very difficult for the Burkinabé population.

**However, the improvement in many dimensions of living conditions benefits both the poor and non-poor, reinforcing the quality of the progress achieved so far in the country.** For example, while 15 percent of the poorest (20 percent) lived in a house with an improved floor at the beginning of this century, this percentage has doubled. In 2014, 7 percent of the poorest (20 percent) lived in a household with electricity against 1 percent 11 years earlier. Also 5 percent of the poorest (20 percent) live in a household with a TV set, whereas 11 years back none in this category of the population were able to afford this commodity. It is however important to note that the gap between the poorest and the



**FIGURE 2.4 Comparison between Burkina Faso and African Countries on Selected Indicators**



Source: Author's calculations using WDI database.

wealthiest is still very important and as stated earlier, the country and particularly the poor are lagging in many dimensions of living conditions. The low access to services might come from the absence of the service (lack of supply), the high prices or other regulations preventing households to use a service even if it exists (lack of demand), or a combination of both factors. In the case of Burkina Faso, rural households do not

have access to many services like electricity and tap water, pointing out the weakness of supply. The situation is the same in the education sector with secondary schools being located far from many villages. In this situation, a child without a family member in the neighboring city, where the school is located, might drop out even if he has the potential to continue. That being said, even in urban areas where some of those services are

available, they are not always affordable for the poorest, showing that the demand is also a concern.<sup>2</sup>

**Besides, the amount of resources needed to eradicate poverty, measured as a percentage of GDP is declining sharply.** The calculation of the resources needed to eradicate poverty is interesting by itself because it produces a benchmark to assess the efforts made in this regard. The results show that in 2003, an average CFAF 30,408 was needed to lift a poor person out of poverty. This amount was CFAF 42,575 in 2009 and CFAF 37,053 in 2014.<sup>3</sup> Given the number of poor in 2014, the amount of extra resources required to free Burkina Faso of poverty was CFAF 265.7 billion, or 14.5 percent of the national budget. The required effort, if measured as a percentage of GDP, decreased by half between 2003 and 2014, from more than 8 percent to less than 4 percent. This significant decline was not due to a decrease in the number of poor, but due to economic growth. In a very poor country like Burkina Faso, social safety nets are one of the channels which can be used to improve the well-being of the poorest, and this benchmark provides some food for thought in this regard. Spending for social safety is low in Burkina Faso. Public transfers come usually to mitigate a specific shock, in particular weather shocks, or, more recently, to address refugees' issues. There is a couple of recent social safety net programs, but they target only 40,000 households, less than 2 percent of the population. Poverty can be partly reduced by allocating some funds to intelligent targeted social safety net programs.

**Poverty trends highlight a dichotomy between urban and rural areas, with a steady decline in rural areas and contrasting trends in**

<sup>2</sup> See for example Komives et al., 2005. In this study, the authors show that bringing infrastructures to the poor goes beyond simple access; without a clear demand policy, infrastructures might exist, but the poor will not use them because they are not affordable.

<sup>3</sup> Calculations are made in current CFA Francs.

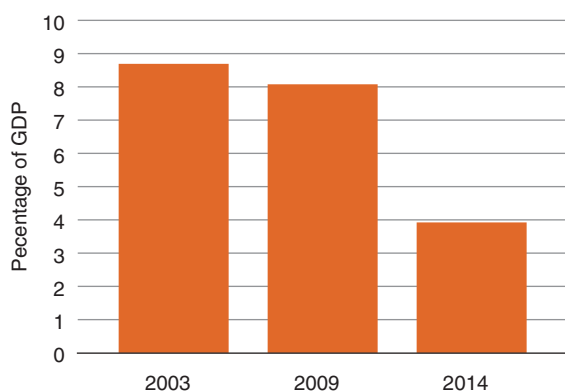
## **BOX 2.1 Data for Poverty Analysis**

Three household surveys are used for this study: the 2003 QUIBB, the 2009 EICVM, and the 2014 EMC. The surveys were conducted by the INSD with the objective of producing sound data for poverty analyses. The sample size of each of the surveys (8,500 households in 2003, 8,404 in 2009, and 10,511 in 2014) are representative at the regional level. Concepts and definitions are very similar across all the surveys, making most of the indicators comparable. However, consumption data (the main ingredient of welfare) collection methods were somewhat different, making it difficult to compare poverty indicators over time.<sup>4</sup> Statistical techniques were used to obtain better comparability. Nevertheless, there are still problems, especially with trends at the regional level. Based on these three surveys, a person is poor if he/she lives in a poor household. A household is poor if the annual per capita consumption is below CFAF 87,837.3 in 2003, CFAF 130,735.3 in 2009, and CFAF 153,530 in 2014. In per capita consumption per day, the values are CFAF 241, CFAF 358, and CFAF 421, respectively.

**urban areas.** In cities, poverty indicators increased somewhat between 2003 and 2009 before significantly declining between 2009 and 2014. For example, the incidence of poverty increased by three percentage points in 2009 (compared to 2003) to 27.9 percent, before declining by half in 2014 to 13.7 percent. This

<sup>4</sup> Consumption (food and nonfood) is the main ingredient in constructing a welfare aggregate for poverty measurement. Consumption data in the three surveys have been collected in different periods of the year, with different numbers of visits to households (one for the first two and four for the last one), and different recall periods (usually a month for the first, a three-day recall for the second, and a seven-day recall for the third); each one of these issues has an impact on consumption measurement.

**FIGURE 2.5 Resources to Eradicate Poverty, in Percentage of GDP**



Source: Author's calculations using INSD surveys QUIBB 2003, EICVM 2009, and the EMC 2014.

decline in poverty should nevertheless be read cautiously, given the differences in survey methodologies as noted earlier. However, in rural areas, the poverty incidence showed a monotonic decrease from 57.9 percent to 47.5 percent over 2003–2014. The combination of a sharp decline in poverty in urban areas and a low urbanization rate results in a higher concentration of poor people in rural areas. In 2014, nearly 80 percent of the population was still rural, with more than 90 percent of the poor living in rural areas. Thus, the potential for poverty reduction in the country relies on rural-oriented policies.

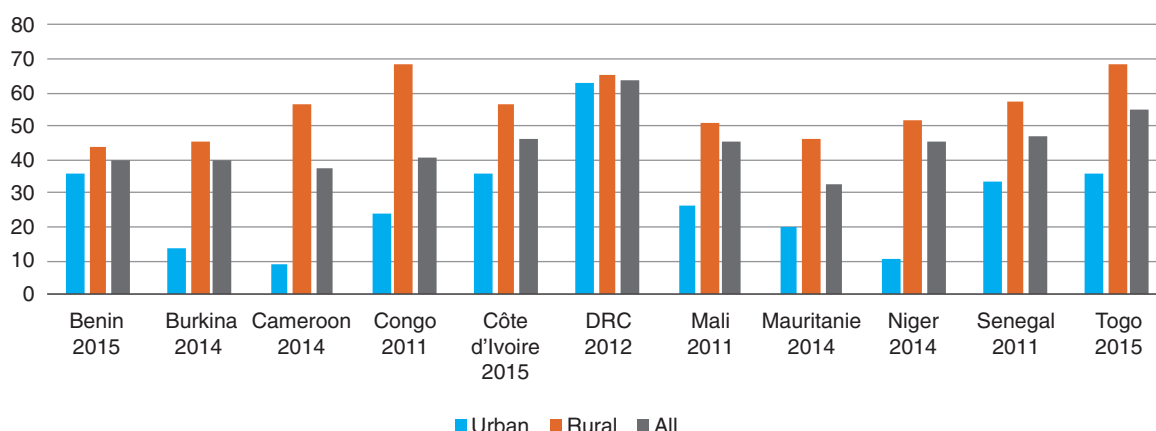
The low level of poverty in urban areas is questionable, because of problems of comparability between the surveys. Poverty in urban areas is three times less than in rural areas and it is unusual in the Africa region. In a sample of 11 countries, this happens only in Cameroon, Niger, and to a lesser extent in Mauritania and the Republic of Congo. In Benin and the Democratic Republic of Congo, poverty numbers in urban and rural areas are very close. In Mali, Senegal, and Togo, poverty is higher in the countryside but the difference with urban areas is of a magnitude of one to two. To show how low the level of poverty in urban Burkina Faso is, one can, for example, compare it with urban Côte d'Ivoire where the poverty head count is twice as high. In fact, the comparison between countries is difficult, because of differences in measurement tools (survey methodology, welfare aggregate, or poverty line). However, even without comparing with other countries, a couple of specific factors can explain the low level of poverty in urban Burkina Faso, namely the survey design, the construction of the consumption aggregate, and that of the poverty line. A number of studies have shown that the survey design can have a large impact on poverty numbers (Beegle et al., 2010). The survey design includes sampling technique, questionnaire design, in particular the list

**TABLE 2.1 Poverty Indicators by Area of Residence**

	Poverty head count	Poverty gap	Squared poverty gap	Percentage population	Percentage poor
<b>2003</b>					
Urban	24.6	6.7	2.6	15.5	7.2
Rural	57.9	20.4	9.5	84.2	92.8
Total	52.7	18.3	8.4	100.0	100.0
<b>2009</b>					
Urban	27.9	7.8	3.2	18.7	10.9
Rural	52.6	17.4	7.8	81.4	89.1
Total	48.0	15.6	7.0	100.0	100.0
<b>2014</b>					
Urban	13.7	2.9	0.9	21.8	7.5
Rural	47.5	11.6	4.0	78.2	92.5
Total	40.1	9.7	3.3	100.0	100.0

Source: Author's calculations using INSD surveys, QUIBB 2003, EICVM 2009, and the EMC 2014.

**FIGURE 2.6 Poverty Head Count by Area of Residence in Selected African Countries**



Source: Poverty reports of different countries.

of consumption items, method of data capture (diary or recall), period of the year the data are collected, and so on. Work has been done to improve sampling resulting in a light revision of 2003 and 2009 poverty numbers. The other issue might be a low poverty line and the team will explore that.

**Alternative poverty lines are used to assess the sensitivity of urban poverty numbers.** In addition to the original poverty line for each of the years (2003, 2009, and 2014), two alternatives are considered. The first one is the original poverty line scaled up by 10 percent. Because the 2014 Burkina Faso poverty line is very close to the World Bank extreme poverty line (US\$1.9 a day in 2011 PPP), increasing this line by 10 percent seems a reasonable hypothesis. The second poverty line is chosen to be equal to the Niger poverty line. In 2014, the Niger poverty line was 23 percent higher than the one in Burkina Faso; however, the Niger GDP per capita is lower. In general, poverty lines are correlated with the level of income in the country, so the second alternative is to use the Niger national poverty line in Burkina Faso in 2014. On this second alternative, the lines of the two other years (2003 and 2009) are adjusted accordingly, by 23 percent. The poverty lines are in Table 2.2.

**Using these new poverty lines provides higher poverty indicators, but the differences between urban and rural areas remain**

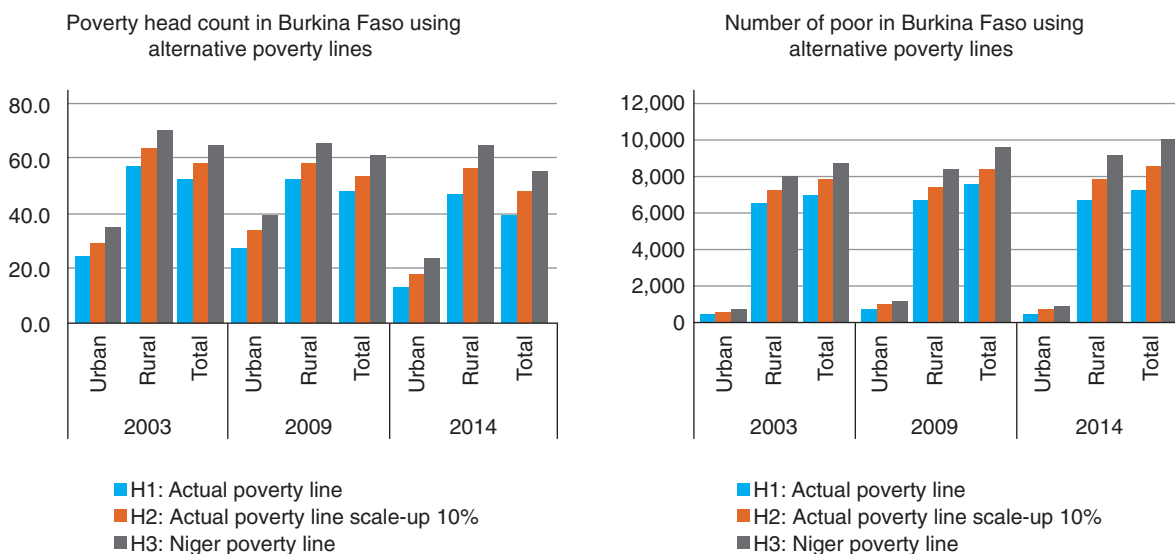
**TABLE 2.2 Actual and Alternative Poverty Lines**

	Hypothesis 1: Actual poverty line	Hypothesis 2: Actual scaled up 10%	Hypothesis 3: Niger poverty line
2003	87,837	96,621	108,130
2009	130,735	143,809	160,939
2014	153,530	168,883	189,000

Source: Author's calculations.

**important.** When using the first alternative, the decrease in poverty is 11 percentage points between 2003 and 2014, compared to the original 13 percentage points. However, the decrease in urban poverty is still substantial, 16 percentage points between 2003 and 2014 (but starting at a higher poverty level in urban areas). As for the third alternative, it provides similar results with a higher poverty head count particularly in urban areas, 24 percent. With this last hypothesis when the poverty line is adjusted to be equal to the one of Niger, the number of poor exceeds 10 million, with nearly 1 million in urban areas. This analysis helps draw two conclusions. First, the Burkina Faso poverty line is somehow low and further work needs to be done to fix this problem. Second, the fact that poverty numbers increase nearly in the same proportion nationally and in urban areas shows that the welfare distribution is very similar around these different poverty lines in urban and rural areas. The problem of the high

**FIGURE 2.7 Poverty Head Count and Number of Poor in Burkina Faso Using Alternative Poverty Lines**



Source: Author's calculations using INSD surveys, QUIBB 2003, EICVM 2009, and the EMC 2014.

drop of poverty between 2009 and 2014 might also come from the design of the survey. The 2003 survey used the usual month approach to capture data, the 2009 survey used the diary (one-day recall) and the 2014 survey used the seven-day recall (Backiny-Yetna et al., 2014). It has been shown that the diary is less comparable to the two other approaches, and this can also explain why 2009 seems so especial. To keep at least a minimum consistency, the comparison is done more between 2003 and 2014.

## 2.1.2 Understanding Poverty Trends

### 2.1.2.1 Growth and Inequality

**Changes in poverty come from two sources: growth and inequality.** Growth is the consequence of wealth creation, either through new investment or gains in the productivity of existing production factors. Inequality is the result of redistribution policies (tax and subsidies, transfers, and so on). Any one of these elements can contribute to a decrease or an increase in poverty, where inclusive growth with a decrease in inequality stands out as the best combination to reduce poverty.

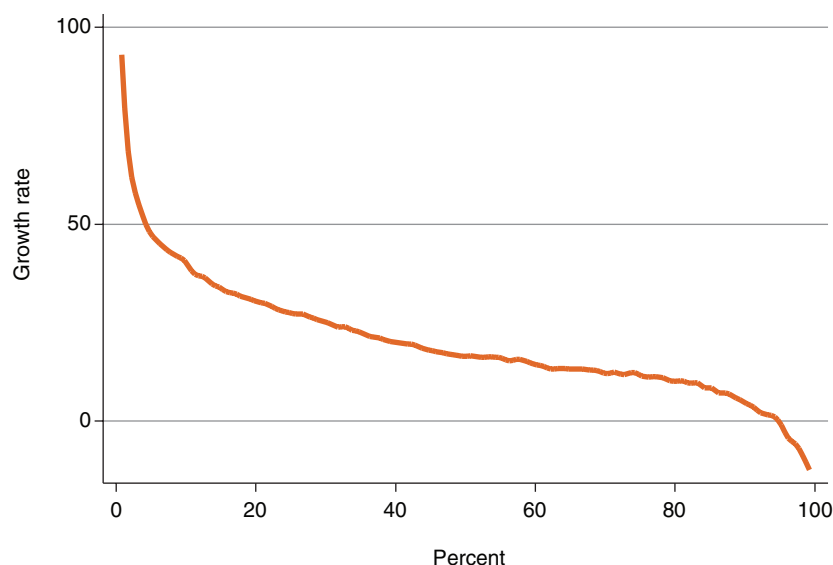
Over 2003–2014, the 13-point decline in poverty incidence was due 50:50 to economic

**growth and a decline in inequality.** Table A1 (in the annex) shows the contribution of each of the two components to the evolution of poverty for each sub-period, 2003–2009 and 2009–2014, and the entire 2003–2014 period. Growth and inequality follow the same trend and contribute to the decline in poverty. The contribution of growth to poverty reduction is graphically illustrated by the growth incidence curves. The 2003–2014 curve shows that the growth rate of annual per capita consumption is positive at all points in the distribution. Furthermore, this growth is progressive insofar as growth rate is a monotonically decreasing function of welfare (again measured as annual per capita consumption).

**Understanding the contribution of growth and inequality can be refined when the place of residence is considered.** In both urban and rural areas, growth has contributed to poverty reduction. The profile of rural areas is the same as the national profile, as growth and inequality equally contribute to poverty reduction. However, in cities, the decline in poverty is dominated by inequality, with growth playing a smaller role.

**The question as to how growth leads to poverty reduction is important for public policy. The idea is to identify pro-poor policies.**

**FIGURE 2.8 Growth Incidence Curve 2003–2014—National**



Source: Author's calculations using INSD surveys, QUIBB 2003, EICVM 2009, and the EMC 2014.

However, growth, as measured by national accounts, does not always coincide with that of household surveys. At least two factors explain the discrepancies between these two sources. First, the concept of household consumption does not correspond to the same reality in both cases (for example, durable goods are not treated similarly).<sup>5</sup> Second, there are measurement errors in national accounts (issues related to coverage of the informal sector just to cite an example), as well as in household surveys (sampling and data collection errors, and so on). That is why it is important to first examine the consistency of growth from the two sources.

**Burkina Faso has recorded strong growth (based on GDP) over the past 15 years, with an annual average rate of 6 percent.** This rate was 5.4 percent for the subperiod 2003–2009 and 6.4 percent for the subperiod 2009–2014. Private consumption (as defined in national accounts) growth is not as high as GDP growth. The average annual growth rate of private consumption was 4.4 percent over the period; that is, 1.3 percent growth per capita. The growth of per capita

**TABLE 2.3 Comparison of National Accounts and Household Survey Growth Rates**

	2003/2014
<b>Average annual growth rate using national accounts</b>	
GDP	5.85
GDP per capita	2.75
Private consumption	4.41
Private per capita consumption	1.31
<b>Average annual growth rate using household surveys</b>	
Total household consumption	2.17
Per capita household consumption	0.74

Source: Author's calculations using INSD data.

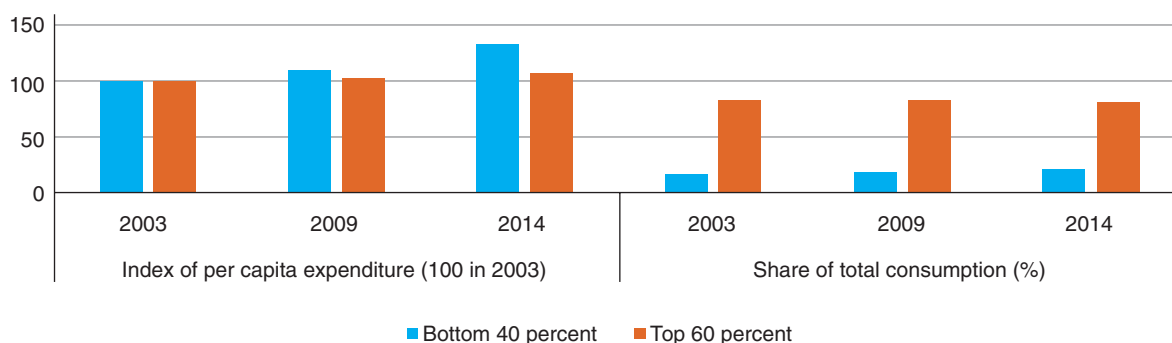
consumption as measured by household surveys is lower (0.7 percent annual on average between 2003 and 2014). Despite this difference, the national accounts and surveys reflect the same reality: the situation of households improved in 2003–2014, but not by the same magnitude.

**The growth recorded in Burkina Faso during this period improved shared prosperity.** The per capita consumption of the bottom 40 percent of the population increased in real terms by 32 percent between 2003 and 2014 (on average 2.5 percent a year), from CFAF 47,000 to CFAF 63,000. This increase has been for both urban and rural populations, but was even more

<sup>5</sup> For national accounts, the purchase of a durable good (like a car) is considered consumption, while surveys treat it as an investment.

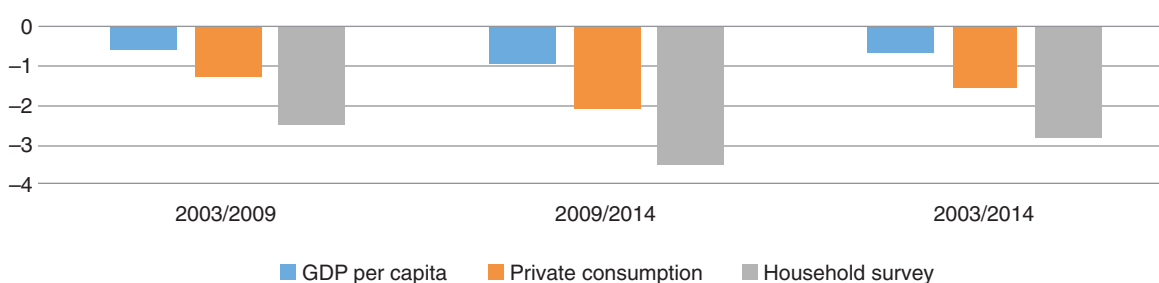


**FIGURE 2.9 Index of per Capita Expenditure and Share of Total Consumption**



Source: Author's calculations using INSD surveys and the EMC 2014.

**FIGURE 2.10 Growth Poverty Elasticity Using Alternative Growth Measures**



Source: Author's calculations.

important in rural areas. Also consumption grew faster among the bottom 40 percent than in the rest of the population, resulting in a catch-up effect in the distribution. The consumption share of the bottom 40 percent was 17 percent in 2003 and 20 percent in 2014.

**Furthermore, poverty/growth elasticity confirms the positive impact of growth on poverty.** However, this effect varies significantly depending on how growth is measured. If using GDP, the average elasticity for the period 2003/2014 is -0.7; which means that 1 percent growth helps reduce poverty by 0.6 percent. This elasticity is around -1.6 if growth is measured by national private consumption accounts, and is close to -3 if consumption from household surveys is considered. In the first case, poverty responds positively to growth to a rather modest extent, while in the latter case, poverty is very sensitive to growth. This reflects a statistical difficulty that can only be resolved with more comparable surveys.

**The economic growth recorded between 2003 and 2014 was mainly driven by the tertiary and secondary sectors.** The tertiary sector accounted for less than 40 percent of GDP before the 2000s, and for the recent decade this sector accounts for 45 percent of the wealth created in the country. The weight of the secondary sector is stable, around one-fifth, and the recomposition of the GDP structure was done at the expense of the primary sector, which accounted for more than 30 percent before 2000, but has been reduced to a quarter in recent years.

**The performance of the primary sector, which employs most of the labor force, is modest, making it difficult for the country to get better results in poverty reduction.** Agriculture is organized around small family farms and is highly dependent on weather conditions. The capital accumulation is low because agriculture is not mechanized and farmers have limited access to fertilizers and modern input. In addition, human capital is low and most farmers use rudimentary techniques. Burkina Faso's agriculture is



**TABLE 2.4 Average GDP Growth Rates**

	2003–2009	2009–2014	2003–2014
<b>Primary sector</b>	<b>2.39</b>	<b>5.76</b>	<b>3.91</b>
Subsistence farming	0.73	3.92	2.17
Commercial agriculture	0.01	6.27	2.80
Livestock breeding	4.08	1.18	2.75
Forestry, fishing and hunting	6.27	19.51	12.10
<b>Secondary sector</b>	<b>4.25</b>	<b>6.10</b>	<b>5.09</b>
Extractive industries	35.81	20.92	28.82
Textile industries	–1.19	9.70	3.62
Other manufacturing	–0.19	–0.92	–0.52
Energy (electricity, gas, water)	8.58	2.55	5.79
Building and civil industry	6.23	8.49	7.25
<b>Tertiary sector</b>	<b>7.22</b>	<b>6.66</b>	<b>6.96</b>
Transport network	–0.16	10.93	4.74
Post and telecommunications	16.62	22.81	19.39
Trade	9.52	1.31	5.71
Banks and insurance	8.85	12.24	10.38
Other market services	8.18	–3.68	2.62
Government and NPIs	5.39	5.79	5.57
Other nonmarket services	3.08	5.12	4.00
FISIM	<b>10.54</b>	<b>14.07</b>	<b>12.13</b>
Duties and taxes	<b>9.30</b>	<b>12.36</b>	<b>10.68</b>
GDP	<b>5.36</b>	<b>6.44</b>	<b>5.85</b>

*Source:* Author's calculations using INSD data.

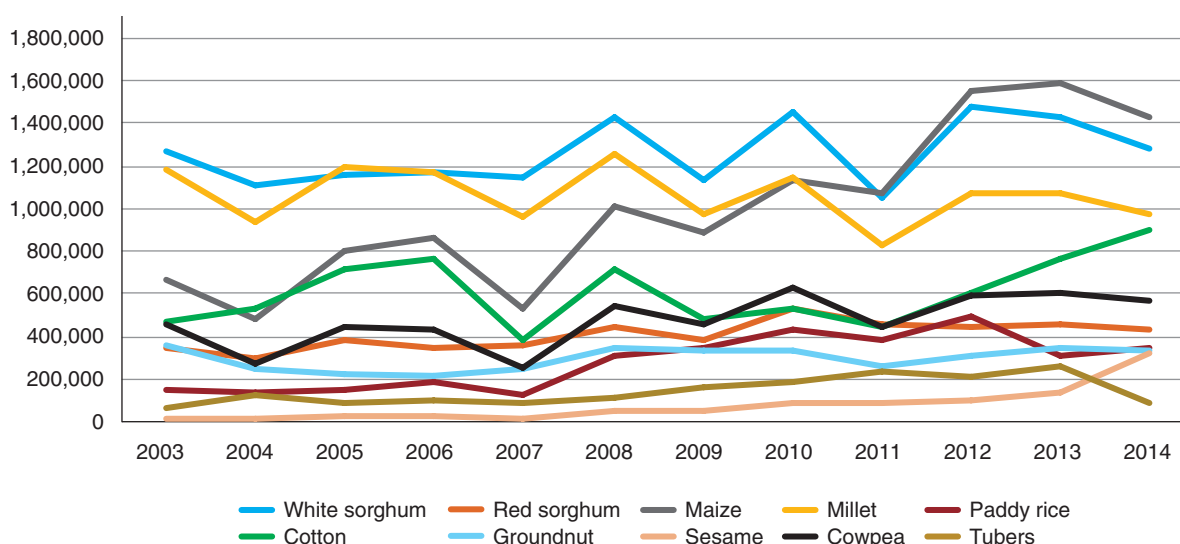
mainly food-crop oriented, including sorghum, maize, millet, cowpeas, rice, and peanuts. However, cotton and, more recently sesame, are relatively important cash crops. While sesame and maize have shown good performance, the production of other crops is somewhat stagnant in the best case. For example, Burkina Faso ranks among the world's top cotton producers and is the leading African producer, with production peaks exceeding 700,000 tons in 2006 or 2014. However, the production also happened to fall below 300,000 tons in 2010 with producers turning to alternative crops because of low prices. As high levels of production do not always correspond to high prices in the global market, the sector struggles to maintain high performance in the long term.

**The performance of agriculture depends highly on the weather.** This can be seen in

Figure 2.12 describing weather trends for years like 2003 and 2014, which were good. The average number of rainy days and rainfall are high. On the contrary, 2009 was a year of bad weather. These weather patterns are in parallel with the performance of the agriculture sector. The production was relatively low in 2009 but high in 2003 and 2014. For example, cotton production increased by more than 40 percent between 2009 and 2014, and this is not due only to the extension of cultivated areas. Cereal production (particularly maize) shows a similar trend during this period. Part of the decrease in poverty during this period is explained by this trend, with 2009 being a year of low production and thus low income, and 2003 and 2014 being better years in this regard.

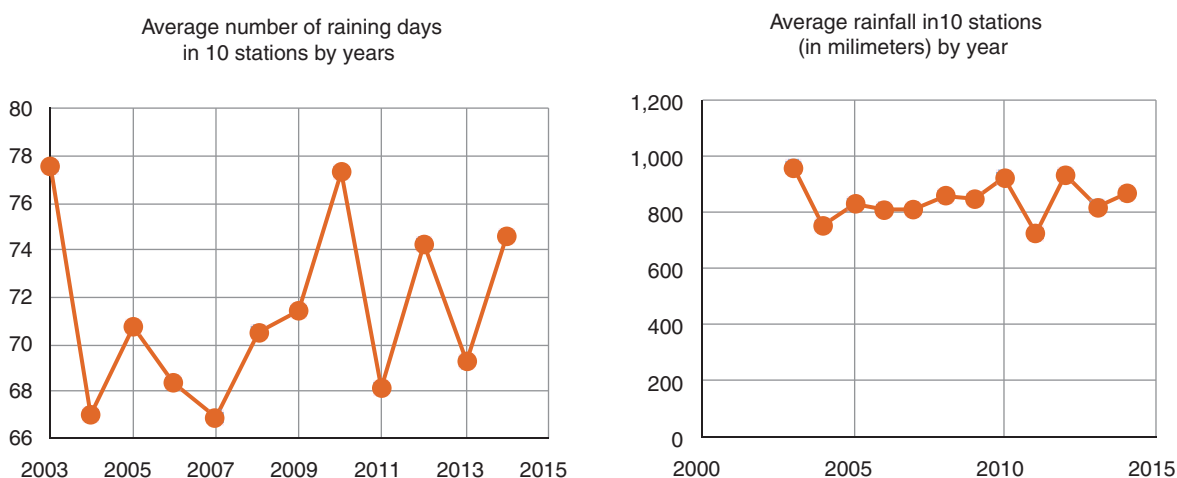
**The mixed performance of agriculture in Burkina Faso and its inability to play a key role**

**FIGURE 2.11 Agricultural Production for Main Crops (tons) 2003–2014**



Source: Authors calculations using the 2012 'Agricultural Statistical Yearbook' and the 2014 Annual Survey report.

**FIGURE 2.12 Evolution of Some Weather Characteristics in Burkina Faso**



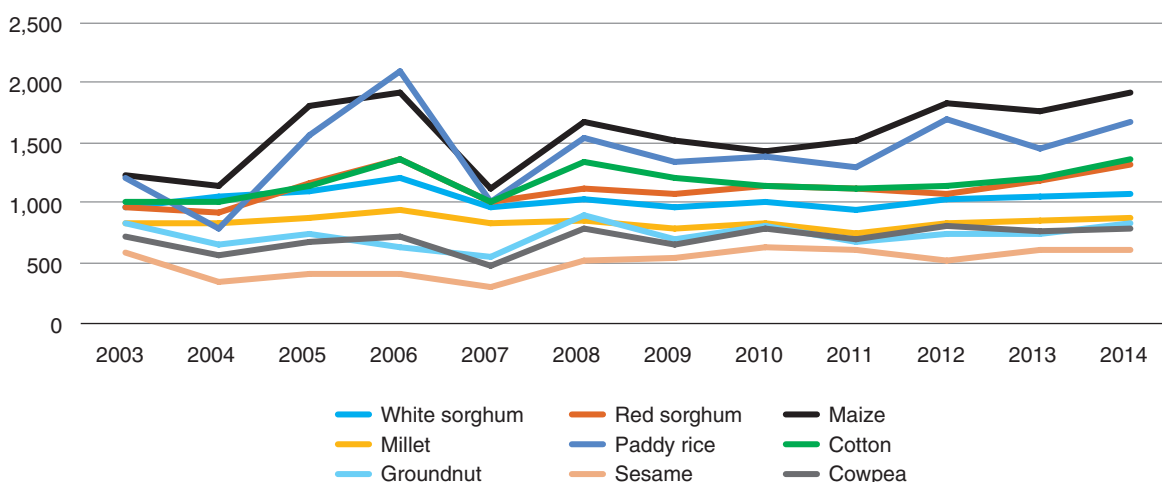
Source: Authors calculations using the 2012 'Agricultural Statistical Yearbook' and the 2014 Annual Survey report.

**in reducing poverty and improving households' living conditions can be viewed in parallel with productivity trends.** The level of agricultural yields highlights the low dynamism of the agricultural sector. Figure 2.13 shows that changes in the yields of major crops are mixed, with good years, such as 2006, 2008, and 2014 and less good years such as 2003, 2007, and 2011. In the absence of productivity gains, increase in agricultural production is driven either by population growth or by more areas being cultivated. The absence of productivity gains in agriculture

results in a low increase in per capita income and therefore a relatively lesser decline in poverty than in rural areas.

**The significant poverty reduction in urban areas can also be viewed in parallel with the strong economic performance of the secondary and tertiary sectors.** In the mining sector, the boom in the production of gold and other mineral resources resulted in excellent performances of extractive industries. Gold production, which was virtually nonexistent before 2008, exceeded 10,000 tons in 2009, 20,000 tons in 2010, and

**FIGURE 2.13 Main Crop Yields (kilograms per hectare) 2003–2014**



Source: Author's calculations using the 2012 'Agricultural Statistical Yearbook' and the 2014 Annual Survey report.

30,000 tons since 2011. Besides, world prices were more favorable. Between 2009 and 2012, world prices increased by 50 percent, resulting in improved export revenues for the country. In addition to mining, the construction industry which benefits from increased investments from households, as well as energy, also showed good performance during the past decade. With regard to the tertiary sector, the most dynamic branches are communication and finance (banking and insurance). As in other African countries, the communications branch benefits from the penetration of mobile phones even in remote areas. In Burkina Faso, more than four-fifths of households reported having a mobile phone in 2014. Public services and the distribution sector also showed good performance.

**These good results led to job creation and consequently to poverty reduction.** In nonagricultural sectors, the most prolific branches, in number of new jobs, are services other than real estate and business services, trade, and manufacturing industries. Communications, construction, and mining, which are dynamic sectors in terms of growth, also created jobs. However, in absolute terms the number of jobs created in these branches is relatively modest, as is their share in the labor market. While jobs in business services and trade sectors show higher productivity than agricultural jobs, they are paid less

than in the finance and telecommunications sectors. Indeed, new jobs in the trade sector and in other services and in manufacturing offer relatively low productivity as they are created in urban informal sector microenterprises. Half of the workers in nonagricultural sectors are self employed. Thus, even in nonagricultural sectors, the majority of jobs offer modest pay. Although these jobs have helped improve people's living conditions, they have not improved enough to achieve the goal of strong poverty reduction.

**Another important factor underlying poverty trends is the evolution of inequality.** This phenomenon is measured by various indicators. The reason is that inequality indicators have different properties. Some of them, such as the Gini index, are sensitive to changes that occur in the middle of the distribution (that is to say, households with a living standard around the average), while other indicators, such as Theil indices tend to be much more driven by changes among the poorest and the richest. Four inequality indices are considered: Gini, Theil (0), Theil (1), and the ratio of the consumption share of the wealthiest 20 percent of the population to that of the poorest 20 percent of the population. This set of indicators can reveal robust results about the evolution of inequality.

**Inequality is declining, confirming the previous results that half of the drop in poverty is**

**TABLE 2.5 Primary Employment by Year and Type of Industry**

	2003		2009		2014	
	Number	%	Number	%	Number	%
<b>Primary sector</b>	<b>1,539,316</b>	<b>70.2</b>	<b>2,311,838</b>	<b>66.8</b>	<b>2,154,911</b>	<b>58.7</b>
Agriculture, hunting, and forestry	1,537,213	70.1	2,307,832	66.7	2,153,459	58.7
Fishing and aquaculture	2103	0.1	4,006	0.1	1,452	0.0
<b>Secondary sector</b>	<b>157,106</b>	<b>7.2</b>	<b>304,838</b>	<b>8.8</b>	<b>353,138</b>	<b>9.6</b>
Mining and quarrying	21,904	1.0	23,277	0.7	41,637	1.1
Manufacturing	88,560	4.0	215,332	6.2	211,781	5.8
Electricity, gas, and water	14,354	0.7	8,479	0.2	5,154	0.1
Construction	32,288	1.5	57,750	1.7	94,567	2.6
<b>Tertiary</b>	<b>497,437</b>	<b>22.7</b>	<b>842,960</b>	<b>24.4</b>	<b>1,160,790</b>	<b>31.6</b>
Trade and repairs	281,561	12.8	436,821	12.6	581,574	15.9
Hotels and restaurants	15,134	0.7	52,205	1.5	85,831	2.3
Transport and communications	29,490	1.3	44,769	1.3	75,515	2.1
Financial activities	10,485	0.5	11,526	0.3	12,905	0.4
Real estate and business services	7,146	0.3	19,474	0.6	22,926	0.6
Public administration and other services	153,622	7.0	278,166	8.0	382,040	10.4
<b>Total</b>	<b>2,193,859</b>	<b>100.0</b>	<b>3,459,636</b>	<b>100.0</b>	<b>3,668,839</b>	<b>100.0</b>

Source: Author's calculations using INSD data.

**TABLE 2.6 Inequality Indicators by Area of Residence**

	2003			2009			2014		
	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
Gini	46.2	36.3	42.3	43.6	35.0	39.8	38.4	27.3	35.3
Theil (0)	35.7	22.0	29.8	31.9	20.3	26.3	24.1	12.0	20.2
Theil (1)	41.2	26.0	36.9	37.3	22.7	31.5	26.2	13.4	24.2
Q5/Q1	9.7	6.0	7.8	8.5	5.7	7.0	6.7	3.8	5.3

Source: Author's calculations using INSD surveys, QUIBB 2003, EICVM 2009, and the EMC 2014.

**due to a better redistribution of wealth.** It is interesting to note that the various indicators move in the same direction. The Gini index, which is the most often used, varies between 0 and 1, and the closer it is to 1, the more inequality is high. This index decreased by 7 percentage points between 2003 and 2014. Similarly, the ratio of the consumption share of the richest 20 percent of the population to that of the bottom 20 percent of the population declined significantly from 7.8 to 5.3. The drop in inequality can be explained either by structural factors or by the result of short-term economic policies. Among the structural factors there is education, which can help poor children move to the middle class

when they become adults, and gain better opportunities to access physical capital (credit, land, and so on). Assessing how those factors have affected inequality in the past decade is beyond the scope of this report. However, in the short term, the fact that growth has been pro-poor is consistent with policies in favor of the poorest of the population.

#### **2.1.2.2 Migration and Labor Market Mobility**

**Migration is one of the strategies adopted by individuals and households to improve their living conditions.** People who live in communities with few opportunities, especially with regard to jobs, will tend to migrate to places where more

opportunities exist. However, migration has a cost, at least two, in fact. On one hand there are direct costs (transportation, basic needs costs before getting a job, and so on) and on the other hand opportunity costs related to leaving an existing job or activities.

**The evolution of the structure of Burkina Faso's population shows a growing trend of rural migration, as everywhere else in Africa.**

The proportion of rural population decreased from 84 percent in 2003 to 78 percent in 2014. While the urbanization rate in the country is lower than in other African countries, it is nevertheless growing. This urbanization benefits the largest cities, including the capital, whose population represented 9 percent in 2003, but 14 percent in 2014. One of the consequences of migration is the shift in the labor market structure. The analysis which follows is based on eight categories, four in the urban areas and four in the rural areas. In each of the areas, individuals are considered with regard to whether the household head (a) is a farmer, (b) works in the manufacturing or construction industry, (c) works in the trade or service sector, and (d) is unemployed.

**During the past 15 years, rural migration resulted in a decline in the share of population living in households whose head was a farmer.**

In rural areas this share declined from 78 percent in 2003 to 67 percent in 2014, while the urban agricultural population increased slightly from 3.7 percent to 4.4 percent over the same period. While the percentage of people living in agricultural households remains very high, this trend contributes mainly to increasing the percentage of people living in a household where the head works in trade or construction in urban areas; and as a rather negative signal, also people living in households with unemployed heads in rural areas.

**In general, migration from rural areas to urban areas is from high poverty areas to low poverty areas; and the consequence is a decrease in poverty.** A breakdown can be done to identify the contribution of each of the two following factors in the change in poverty: the intrasectoral effect resulting from the poverty decline in the

sector of activity where people are involved; and the decline resulting from migration to other sectors. The result of the breakdown shows that migration and the labor market mobility that accompanies it account for 3 percentage points of the 13-point drop recorded in poverty between 2003 and 2014, or one-quarter of the decline. The comparison of the labor market structure, in this time period, shows that the labor force has moved from agriculture to the tertiary, mainly small trade activities and other services. While those activities are not necessarily highly productive either, they are better than the small, rural agriculture for some populations, in particular those that lack land to cultivate.

### 2.1.3 Poverty Projections (2016–2030)

**The SDGs cover 2015–2030 and one of these goals is to eradicate extreme poverty by 2030.**

A person is considered to be in extreme poverty when he/she lives on less than US\$1.90 a day.<sup>6</sup> The assessment of this goal requires adequate poverty monitoring. For each country, an obvious question is whether or not this goal can be achieved. In cases where the goal can be achieved with the growth projections considered, it is necessary to maintain efforts to this end. In cases where the objective would be hard to achieve, it is necessary to identify constraints impeding growth and address them. An interesting feature of the Burkina Faso 2014 poverty line is that it is very close to the international poverty line. So assessing this goal using the national poverty line is the same as assessing this SDG goal. The following exercise deals with poverty projections. These projections are based on a number of assumptions about economic growth, transmission of this growth in terms of poverty reduction, and population growth.

**Three simulations are proposed, based on the EMC 2014 data.** The population growth rates of the last three census are used in the three

<sup>6</sup> Strictly speaking, it should be US\$1.90 a day in 2011 PPP.

**TABLE 2.7 GDP per Sector (2009–2014) and Projections (2015–2017)**

	Average 2009–2014	2015	2016	2017	Average 2015–2017
Primary	3.0	4.8	4.8	5.6	5.0
Secondary	6.8	7.4	10.7	10.2	9.3
Tertiary	6.6	4.3	6.5	6.0	5.5
All	5.8	5.3	6.9	7.1	6.4

Source: INSD.

simulations (1985, 1996, and 2006).<sup>7</sup> According to the results of the three census, the population is growing at an average rate of 2.73 percent per year, 5.61 percent in the urban areas and 2.13 percent in the rural areas. Based on these assumptions, one-quarter of the population will be urban in 2020, and this proportion will increase to one-third in 2030, indicating that the majority of the Burkina Faso population will still be rural. Economic growth assumptions are applied to each household. Four household categories are considered, based on the sector of activity of the household head (primary, secondary, tertiary, and unemployed). For households with an unemployed household head, the average growth rate of GDP is applied.

**With regard to the other assumptions, for the first simulation it is assumed that GDP grows at the same annual average rate as in 2009–2014.** The growth rate is 5.8 percent annually or around 3.1 percent per capita GDP. This growth rate is applied each year from 2016 to 2030. Because growth as measured by national accounts does not always match growth as measured by household surveys, it is assumed that only half of this growth is translated into poverty reduction. This first assumption has the lowest growth rate and the lowest pass-through between growth and poverty, so it is the less optimistic assumption.

**For the second simulation, the growth assumptions are based on INSD projections for 2015–2017.** As in the previous simulation, this average growth rate is applied over the whole

2016–2030 period. The projected growth for this period is stronger, especially in primary and secondary sectors, though the tertiary sector declined somewhat. With regard to the relationship between economic growth and poverty, the same assumption as above is adopted, which is that half of this growth translates into poverty reduction. Because the growth is stronger and the growth/poverty elasticity is applied, this is an intermediate assumption.

**The third simulation uses the same growth assumption as the previous one, but adopts a more favorable assumption that 80 percent of the growth is translated into poverty reduction.** This is the more optimistic assumption. The results of the simulations are presented in Table 2.8. The simulations are done for the years 2016–2030. The table also exhibits the baseline situation, the year 2014.

**According to the first simulation, poverty will decline steadily, but slightly, between 2014 and 2030.** The poverty head count is expected to be 37 percent in 2020, 34 percent in 2026, and 32 percent by 2030. Thus, one-third of the population will still live below the poverty line in 2030. The decline in poverty is constrained by two factors. The first factor, which is common for the three simulations is that despite solid demographic urban growth, most people will still live in poor rural areas by 2030. As long as this part of the country offers few opportunities, it would be difficult to significantly reduce poverty. The other factor, which is specific to this simulation, is the low poverty/growth elasticity which results in growth translating (relatively) little into poverty reduction. With this simulation Burkina Faso is far from reaching the SDG of eradicating extreme poverty by 2030. Furthermore, the

<sup>7</sup> The long-term population growth over the last 20 years is preferred, rather than that of the last 10 years. The former seems more robust as it is based on three census.



**TABLE 2.8 Poverty Projections for 2016–2030**

	Population (thousands)	Hypothesis 1: Average GDP growth rate 2009–2014, pass-through of 0.5			Hypothesis 2: Forecast average GDP Rate 2015– 2017, pass-through of 0.5			Hypothesis 3: Forecast average GDP rate 2015–2017, pass-through of 0.8		
		Poverty head count	# Poor (1,000)	% GDP to eradicate	Poverty head count	# Poor (1,000)	% GDP to eradicate	Poverty head count	# Poor (1,000)	% GDP to eradicate
<b>2014</b>	17,900	40.1	7,171	4.3	40.1	7,171	4.3	40.1	7,171	4.3
<b>2016</b>	18,900	39.0	7,391	3.9	37.6	7,113	3.6	36.2	6,861	3.5
<b>2018</b>	20,100	38.0	7,617	3.6	34.9	6,998	3.1	32.8	6,577	2.8
<b>2020</b>	21,300	37.0	7,868	3.3	32.7	6,968	2.6	28.9	6,143	2.2
<b>2022</b>	22,600	36.1	8,154	3.0	30.1	6,802	2.2	25.7	5,815	1.8
<b>2024</b>	24,000	35.1	8,415	2.8	27.7	6,658	1.9	22.5	5,401	1.4
<b>2026</b>	25,500	34.1	8,691	2.5	25.6	6,532	1.6	19.4	4,951	1.1
<b>2028</b>	27,200	33.2	9,026	2.3	23.4	6,356	1.3	16.9	4,604	0.9
<b>2030</b>	28,900	32.3	9,336	2.1	21.5	6,212	1.1	14.6	4,216	0.7

Source: Author's calculations using INSD survey and the EMC 2014.

number of poor will continue to increase, to exceed 8 million in 2022 and 9 million people in 2028. However, given the dynamic economic situation, the resources to eradicate poverty (when measured as a percentage of GDP and not in absolute terms) are in continuous decline.

As for the second simulation, the poverty drop is more significant because of higher economic growth in general and, in particular, better results for the primary sector which provide livelihoods for most poor households. One-third of the people would be poor in 2020 and one-fourth would still be in this situation in 2030. Based on this simulation, the number of poor people would decline steadily to 6 million people in 2030. So the growth differential between the two assumptions (keeping the same poverty/growth elasticity) would result in 3 million fewer poor, showing the importance of strong growth in poverty reduction.

**The third simulation provides better results for poverty reduction.** Remember that this simulation uses the same GDP growth rate as the previous one, but a high percentage of growth translates into poverty reduction, 80 percent, which is clearly more pro-poor. For this last simulation, a quarter of the population would still be poor in 2022 and less than 15 percent in 2030. The number of poor people would then be 4 million,

that is, 2 million less than in the previous simulation. Furthermore, it would only take 0.7 percent of GDP in 2030 to eradicate poverty.

**Some interesting findings emerge from this exercise. Even with the most optimistic scenario of high economic growth and high poverty/growth elasticity, Burkina Faso is far from reaching the goal of eliminating poverty by 2030.** In the best scenario there is still 15 percent of the population living below the poverty line while the objective is less than 3 percent. In any case the simulations highlight the efforts that Burkina Faso needs to make to significantly reduce poverty and reverse the trend in number of poor people. Indeed, it would be necessary to fulfill two conditions, one of which was not fulfilled during the past decade. First, there is a need for strong and sustained growth. The country is on the right path in this regard. Second, it is important that growth be more pro-poor. The difference between the first and the second simulations lies in growth; a stronger growth results in poverty reduction and a reduction in the number of poor people. The difference between the second and the third simulations lies in how growth benefits the poor; it refers to the quality of growth. As poor people live in the rural areas, support for small-scale agriculture and diversification of activities in rural areas is a route to explore.



## 2.2 Poverty Profile and Determinants in 2014

In this section we try to answer two questions: what are the characteristics of poor households and why are they poor. As noted in previous sections, a household is poor if its annual per capita consumption is below CFAF 153,530 or CFAF 421 per day. Every individual living in a poor household is poor.

### 2.2.1 Basic Poverty Profile

**Poverty is, first, a geographic issue. As noted previously, poverty incidence in rural areas is 3.5 times higher than in urban areas.** The high level of poverty in rural areas is correlated with low incomes in the agricultural sector, the main economic activity. The geography of poverty in Burkina Faso is complex. In some countries, there is a correlation between the poverty level of regions and their distance to the capital city. Demand, particularly in food products, is strong in big cities which are potential markets for the surrounding rural areas. This does not seem to be the case in Burkina Faso where the areas surrounding the capital are not necessarily less poor.

**The regions of Burkina Faso can be grouped into four broad categories based on their 2014 poverty level.** Poverty is very high in 4 of the 13 regions (Nord, Boucle du Mouhoun, Centre-Ouest, and Est), where at least half of the population lives below the poverty line, with this proportion even increasing to seven out of ten people in the Nord region. These four regions share one-third of the population of the country, but half of the poor population. They represent two poles of concentration of high poverty: one in the east with the Est region and the other in the west, with the other three regions. The second category has three regions (Centre-Nord, Plateau-Central, and Sud-Ouest) with moderately high poverty. The poverty head count is above the national average. The two regions of Centre-Est (which lie in the southeast of the country and have borders with Togo and Ghana)

and Hauts-Bassins in the west (region which includes Bobo-Dioulasso, the second city) have low moderate poverty incidence at around 35 percent. The last group of three regions (Cascades, Sahel, and Centre) has relatively low poverty levels. The Centre region includes the capital city (Ouagadougou), which has the lowest poverty incidence (below 10 percent).

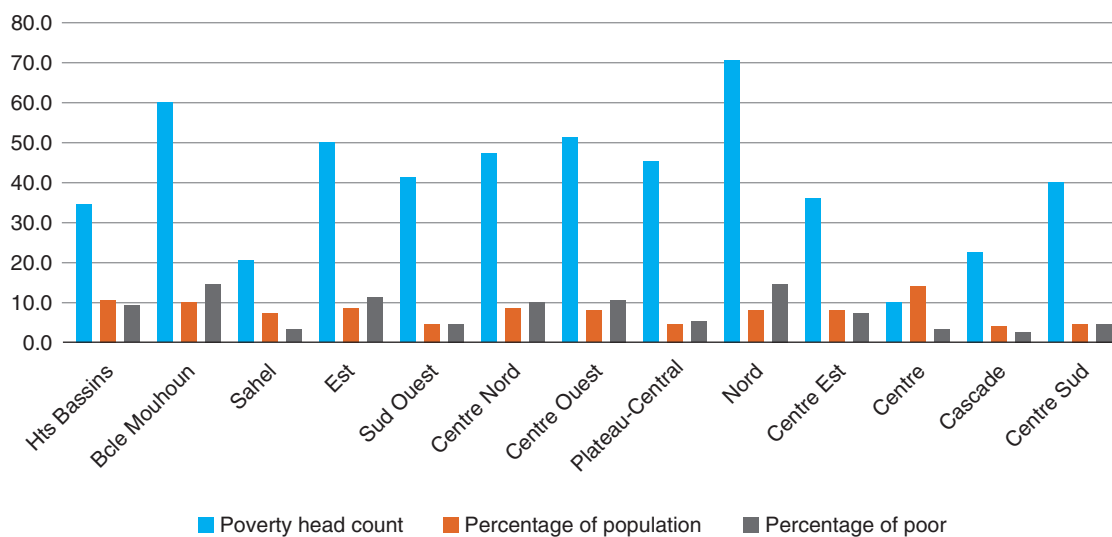
**An interesting aspect of regional poverty is the correlation between the degree of urbanization of a region and its level of poverty.** In fact, the urbanization rate is too low in Burkina Faso. While the Centre region, where Ouagadougou the capital city is located, is more than 80 percent urban, only two other regions have urbanization rates above 20 percent: the Cascades and Hauts-Bassins regions. These regions are part of low or moderate poverty regions. It can be presumed for other regions, although this requires further analyses, that the level of urbanization is too low for small cities to play a catalytic role in poverty reduction in the regions, including providing opportunities for the rural population.

**Households are vulnerable in Burkina Faso in the sense that there is a high concentration of individuals around the basic needs threshold.** The Burkina Faso 2014 poverty line is very close to the international extreme poverty line which is US\$1.90 a day in 2011 PPP;<sup>8</sup> so this national poverty line can be considered as an extreme poverty line. For instance, a 10 percent increase in the poverty line would lead to an 8-percentage point increase in the poverty head count and would add 1.3 million (200,000 in urban areas and 1.1 million in rural areas) more people living in poverty. The significant number

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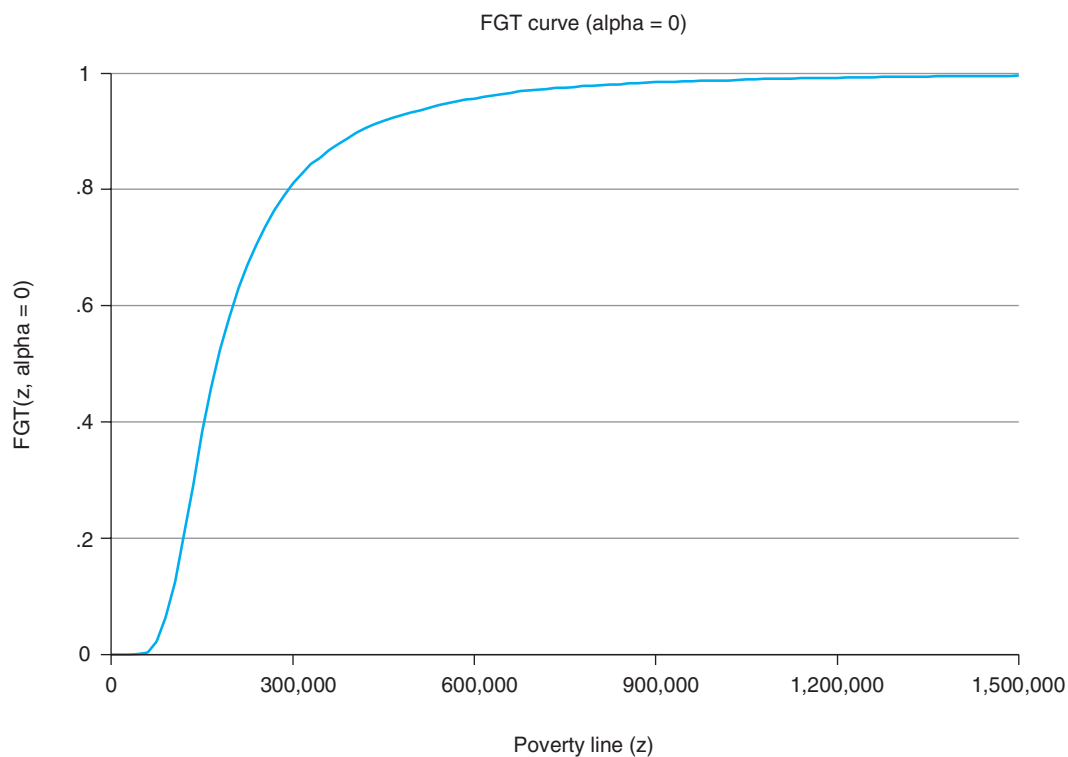
<sup>8</sup> The most recent Burkina Faso national poverty line in 2014 was CFAF 153,530 per capita per year or CFAF 421 per capita per day. This poverty line is very close to the international poverty line which is US\$1.90 per day in 2011 PPP. Indeed, using the 2011 PPP and the inflation between 2011 and 2014, the international poverty line corresponds to CFAF 426.8 FCFA per capita per day in Burkina Faso; and the US\$3.1 per day per capita corresponds to CFAF 626.3 per capita per day in Burkina Faso in 2014.

**FIGURE 2.14** Poverty Head Count, Percentage of the Population, and Percentage of Poor per Region



Source: Author's calculations using INSD surveys, QUIBB 2003, EICVM 2009, and the EMC 2014.

**FIGURE 2.15** Per Capita Consumption in 2014 by Percentile



Source: Author's calculations using the EMC 2014.

of people clustering around the poverty line suggests that an important proportion of moderately poor people are positioned to move out of poverty, but also that an important proportion of non-poor people are vulnerable to falling into poverty.

**Poverty also varies with the socio-demographic characteristics of the household and its head.** The poverty incidence is higher in households that are headed by a man. Poverty head count is 41 percent in these households against 30 percent in female-headed households.

**TABLE 2.9 Basic Poverty Indicators by Household Characteristic**

	Poverty head count	Poverty gap	Squared poverty gap	% population	% poor
<b>Gender of head</b>					
Male	41.0	9.9	3.4	91.6	93.8
Female	30.4	7.5	2.6	8.2	6.2
Total	40.1	9.7	3.3	100.0	100.0
<b>Age of head</b>					
Less than 30	25.9	5.4	1.6	8.0	5.2
30–39	31.9	7.2	2.3	21.1	16.8
40–49	40.9	9.9	3.3	24.0	24.5
50–59	41.7	10.6	3.8	22.1	23.0
60+	49.6	12.2	4.2	24.7	30.6
<b>Total</b>	40.1	9.7	3.3	100.0	100.0
<b>Education</b>					
None	45.3	11.0	3.8	81.0	91.8
Primary	26.1	5.6	1.8	10.6	6.9
Lower secondary	10.7	2.5	0.8	4.1	1.1
Upper secondary	3.2	0.6	0.1	2.4	0.2
University	0.1	0.0	0.0	1.6	0.0
<b>Type of industry</b>					
Agriculture	48.2	11.6	4.0	71.5	86.2
Industry	13.7	2.4	0.7	3.3	1.1
Construction	6.7	1.5	0.4	1.6	0.3
Commerce	14.9	2.9	0.9	5.4	2.0
Restaurant/hotel	2.6	0.3	0.0	0.6	0.0
Transport	5.6	1.1	0.3	1.2	0.2
Education/health	1.7	0.4	0.1	1.2	0.1
Other services	6.2	1.3	0.4	5.0	0.8
No job	37.5	9.8	3.4	10.1	9.4
<b>Employer</b>					
Public administration	3.6	0.7	0.2	2.7	0.2
Public enterprise	1.8	0.2	0.0	0.4	0.0
Private enterprise	6.0	1.3	0.4	1.9	0.3
Individual enterprise	42.6	10.2	3.5	84.4	89.9
Household	17.9	4.3	1.3	0.3	0.2
No job	37.5	9.8	3.4	10.1	9.4
<b>Total</b>	40.1	9.7	3.3	100.0	100.0

Source: Author's calculations using INSD surveys, QUIBB 2003, EICVM 2009, and the EMC 2014.

As a result, 94 percent of the poor live in a male-headed household because of higher poverty rates in these households and also the fact that male-headed households are by far more significant in number. The key factor behind this result is the household size. Female-headed households are smaller on average, almost half the size of male-headed households. The poverty incidence is also an increasing function of the age of the head of household: 26 percent for households whose head is between ages 15 and 29 years to nearly 50 percent for those whose head is 60 years or more. As previously stated, household size largely explains the difference in poverty incidence because there is a positive correlation between the age of the head of the household and household size. Household size for heads under 30 years (4.6 people) is half that of heads 60 years or above (8.6 people). Households with heads older than 50 years account for 47 percent of the population, but they have 54 percent of the poor. The fact that poverty becomes higher when the head of the household is older can make households with older heads more vulnerable, most of them being forced to continue working at an age that they would expect to retire.

**Unlike age, the level of education of the head of the household is negatively correlated with the level of poverty.** While half of the population that lives in a household with a head having no education is poor, only 3 percent of those in households whose head has reached upper secondary level education are in the same situation. Households whose head has no education account for more than 9 poor people out of 10. The economic sector of the head of the household is also a discriminating factor of poverty. When the main economic activity of the head is agriculture, half of the population is poor; and agricultural households account for 9 poor out of 10. Compared to agriculture, the other economic sectors have relatively low levels of poverty. The poverty profile in Burkina Faso is rather classic. The poor live in large households in rural areas, particularly in some regions (Nord, Boucle du Mouhoun, Est, Plateau-Central, and Centre-Nord). The head of the household works in

agriculture, has no education, and is a man in his 50s or older.

## 2.2.2 Assessing the Robustness of the Poverty Profile

**It is important to get the poverty profile right for the poor to be targeted effectively.** Three ingredients are needed for poverty comparisons: (a) a welfare indicator, (a) a poverty line, and (c) poverty indices, the best known being the FGT indices used in the previous sections. Because the targeting can change depending on the indicator used, in this section alternative poverty indicators are used to test the robustness of the poverty profile.

**For this purpose, five other monetary welfare indicators are calculated.** The welfare indicator used so far is the per capita household consumption, that is, the total household consumption divided by the household size. Alternative indicators use different definitions of adult-equivalent instead of the household size. There are at least two reasons to use an alternative to the household size. First, individual needs depend on age, sex, and other biological factors. The needs of a five-year-old child are not the same as those of a thirty-year-old adult. Therefore, instead of dividing household consumption by its size, it is divided by a number of adult-equivalents, a quantity that takes into account not only the size of the household but also its composition. Second, there are economies of scale in a household. For example, a two-person household does not need twice as many refrigerators as a one-person household. One of the ways to account for economies of scale is to apply a factor between 0 and 1 to the household size or the number of adult-equivalents. The five alternative indicators incorporate some of these assumptions. The first indicator introduces the concept of economies of scale in the basic indicator, applying a factor of 0.9 to household size. The second welfare indicator uses the Oxford scale to calculate the number of equivalent adults. The third and fourth use the Recommended Dietary Allowances scale and the FAO scale, respectively.

**TABLE 2.10 Poverty Indicators Using Alternative Poverty Measures**

	Urban			Rural			All		
	Poverty head count	% population	% poor	Poverty head count	% population	% poor	Poverty head count	% population	% poor
PC0	13.7	21.8	7.5	47.5	78.2	92.5	40.1	100.0	100.0
PC1	6.1	21.9	6.3	25.3	78.1	93.7	21.1	100.0	100.0
PC2	3.3	21.9	6.0	14.5	78.1	94.0	12.0	100.0	100.0
PC3	5.1	21.9	7.0	18.9	78.1	93.0	15.8	100.0	100.0
PC4	8.7	21.9	7.6	29.7	78.1	92.4	25.1	100.0	100.0
PC5	13.3	21.9	8.6	39.6	78.1	91.4	33.8	100.0	100.0

*Source:* Author's calculations using INSD surveys and the EMC 2014.

The fifth uses the FAO scale and applies a factor of 0.9 economies of scale.

**There is a strong positive correlation between the six indicators.** The original welfare indicator is called PC0 and the others are named PC1 to PC5. Poverty head counts calculated with the indicators are very different. On the one hand, PC0 classifies two-fifths of the population as poor and at the other extreme PC2 classifies just one-tenth of the population as poor. However, there is a strong positive correlation between the six indicators, the linear correlation coefficient ranging from 0.97 to 0.99. The fact that there is a strong positive correlation between the six indicators means that households are broadly ranked in the same way regardless of the indicator and that the poverty profiles derived from these indicators will be closed.

**For regions, which are an important dimension of the poverty profile, the six indicators provide a consistent ranking.** Poverty comparison between regions is important because many projects use geographical targeting to start, even if this type of targeting is combined with others. The ranking of regions using the six poverty indicators shows that the four wealthiest regions (Centre, Sahel, Cascades, and Hauts-Bassins) are always the same as are the two poorest regions (Boucle du Mouhoun and Nord). Three other regions, Centre-Sud, Centre-Ouest, and Est, have close rankings with the different indicators. So 9 of the 13 regions have similar rankings and only 4 have a greater variability in their rankings.

Overall, a poverty profile developed using any of the five alternative welfare indicators is identical to the one developed with per capita consumption. When socio-demographic characteristics are considered, it is noted that male-headed households have higher poverty rates than female-headed households; the poverty head count increases with the age of the household head; it decreases with the educational level of the household head and is higher for households whose head works in agriculture.

### 2.2.3 Poverty Correlates

**The problem with a poverty profile is that while it gives information on who are the poor, it cannot be used to assess, with any precision, what are the determinants of poverty.** For example, the fact that households in some regions have a lower probability of being poor than households in other regions may have nothing to do with the characteristics of the regions in which the household lives. The differences in poverty rates between regions may be due to differences in the characteristics of the households living in the various regions, rather than to differences in the characteristics of the regions themselves. To sort out the determinants of poverty and the impact of various variables on the probability of being poor while controlling for other variables, regressions are needed.

**The analysis is done using the 2014 data. The dependent variable is the logarithm of per**

**capita annual expenditure divided by the poverty line.** The explanatory variables fall into six broad categories: (a) socio-demographic (household composition, gender of household head, handicap, and so on); (b) human capital (education of the head and the spouse, experience of the head and the spouse, and so on); (c) labor market (institutional sector, type of industry, and so on); (d) productive and social capital (land ownership, membership of an association, and so on); (e) access to infrastructure (time to the nearest road, time to nearest market, and so on); and (f) geographic (area and region of residence).

**The results show that socio-demographic characteristics have a significant impact on household welfare.** In particular, household size is negatively correlated with per capita consumption. Having a new member in the household, regardless of gender or age, contributes to reducing it; for example, an additional teenager reduces per capita consumption by 14 percent in urban areas and 11 percent in rural areas. This result confirms that demography is important for poverty alleviation policies. Population growth in the country is extremely high, more than 3 percent per year, mainly because of high fertility, with more than six children per woman. The issue might be sensitive, but it deserves to at least be discussed. Compared to a male-headed household, a female-headed household has a per capita consumption 36 percent lower in urban areas and 14 percent lower in rural areas. This result is consistent with the fact that, on average, women have a lower human capital and have less opportunities (land, credit, and so on). The result also clarifies two interesting points. First, contrary to what appears in simply descriptive statistics, female-headed households actually have a lower welfare than their male counterparts when all other factors are controlled. Second, the welfare gap between male- and female-headed households is even greater in urban areas than in rural areas. Other socio-demographic characteristics, such as a household having a disabled head and non-national from Burkina Faso, have a negative impact on household welfare.

**Human capital variables, including work experience and level of education, are also correlated with welfare.** Age is a proxy of labor market experience. If experience is valued in the labor market, poverty would be expected to decline with higher age. In fact, the age of the head of the household has a positive impact on per capita consumption on urban households, not for rural ones. The fact that age does not have a positive impact on welfare in rural areas may be due to the fact that the majority of the population is in traditional agriculture where experience is not valued enough. However, the experience of the household head's spouse is rather negatively correlated with welfare. In other words, the spouse (who is very often a woman) is more productive at a young age, and becomes less productive as she becomes older, maybe because of maternity. The household head's education level and that of his/her spouse contributes to significantly improving household welfare. In urban areas, the fact that a household head has a primary level education improves per capita consumption by 13 percent compared to a household whose head has never been to school. This figure increases to 84 percent for households whose head has a tertiary level education; and these effects are also important in rural areas. So education attracts a premium in the labor market, and giving as many young people as possible the opportunity to study is a path to reducing poverty for the next generation.

**With regard to labor market characteristics, the type of industry and the institutional sector are also key determinants of poverty.** There is a discount for a household whose head is working in his own individual enterprise compared to other institutional sectors (public administration, public enterprises, and formal private enterprises). As for the type of industry, the results of the model confirm that there is a positive effect for households whose head is working in any branch of activity compared to those working in agriculture.

**The study also identifies production assets and social capital as correlates of household**



**welfare.** Ownership of a hectare of land helps improve the level of per capita consumption by 0.3 percent. Similarly, the fact that a household has at least one member affiliated with any association helps improve its level of per capita consumption by 8 percent as compared to a household that has no member affiliated with any association. Indeed, associations play an important role in improving access to credit to finance income-generating activities. They also play an insurance role in case of negative shocks (illness, death, and so on).

**As for infrastructure, the results of the model indicate that the time necessary to reach the nearest basic infrastructure has an impact on household welfare.** The longer the time to the nearest grocery market, pharmacy, or police station, the lower the household welfare. When infrastructure is close, transaction costs are lower

and this has a positive impact on household welfare.

**The study also shows regional differences, which can mirror the unobserved potential of the regions.** The Nord region, which has the highest poverty rate, is considered the reference region for the econometric model. The results show no difference between this region and the Boucle du Mouhoun region, confirming that these two regions are the poorest and that the situation of the poor in those regions comes, in part, from the low potential they offer. When all other characteristics are controlled, the region with the highest potential is the Sahel region, a region offering opportunities for livestock breeding. Living in this region increases welfare by 44 percent compared to the poorest Nord region. The other regions with good potential are Centre-Nord, Centre, Cascades, and Centre-Est.



## Chapter 3

# Food Insecurity in Burkina Faso

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Food insecurity is one aspect of poverty. According to the FAO (FAO 1996), food security is assured when all people, at all times, have economic, social, and physical access to sufficient, safe, and nutritious food that meets their dietary needs, as well as their preferences and allows them to maintain a healthy and active life. If even one of these conditions is not met, people suffer food insecurity. This, therefore, involves many factors. The food must physically exist. People must be able to physically reach it and afford to buy it. The food must be nutritious to maintain a healthy and active life, must offer a balanced diet, and must be continually available. The first of these issues—supply and shortages—can usually be gleaned from annual agricultural surveys. This section addresses the other three aspects.

### 3.1 Characteristics of Food Insecurity

#### 3.1.1 Food Insecurity According to the Food Access Approach

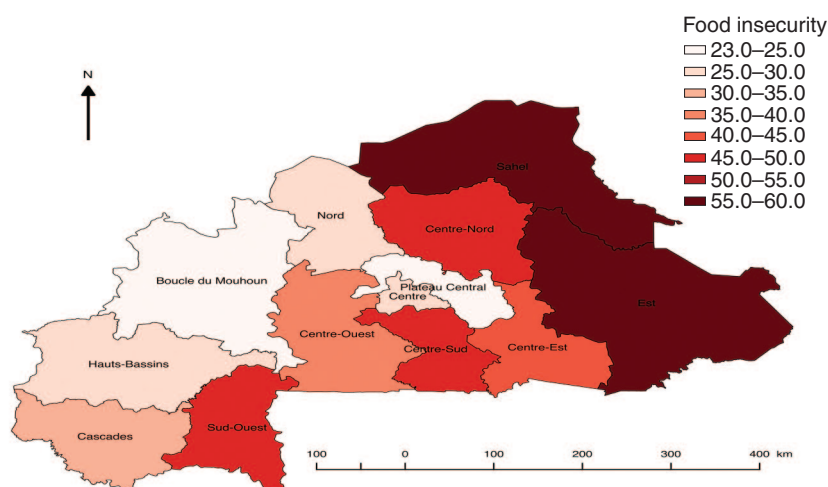
The FAO uses the FIES approach to measure food insecurity relative to limited access to food (Ballard et al., 2013). The approach consists of calculating an indicator using a series of eight questions asked to an adult member of the household. The questions explore various situations: (a) has the household had to worry about not being able to meet its food needs, (b) has the household had to reduce the quality or variety of its food, (c) has the household had to reduce the amounts consumed by skipping meals, and (d) has the household had to deal with famine. The indicator, calculated using the Rasch approach, starts with the observation that situations (a) to (d) reveal the seriousness of the food

insecurity. A household dealing with the first situation is experiencing moderate food insecurity and the closer one comes to point (d) the worse the situation becomes.

**In 2014, this form of food insecurity affected nearly 38 percent of individuals.** According to this approach, individuals experiencing food insecurity are either in a moderate situation, insofar as they were led to reduce the amounts normally consumed by skipping meals, or in a severe situation, that is, facing famine. More than 15 percent, that is, one person out of seven, is affected by a severe form and faces a virtual lack of food at certain times.

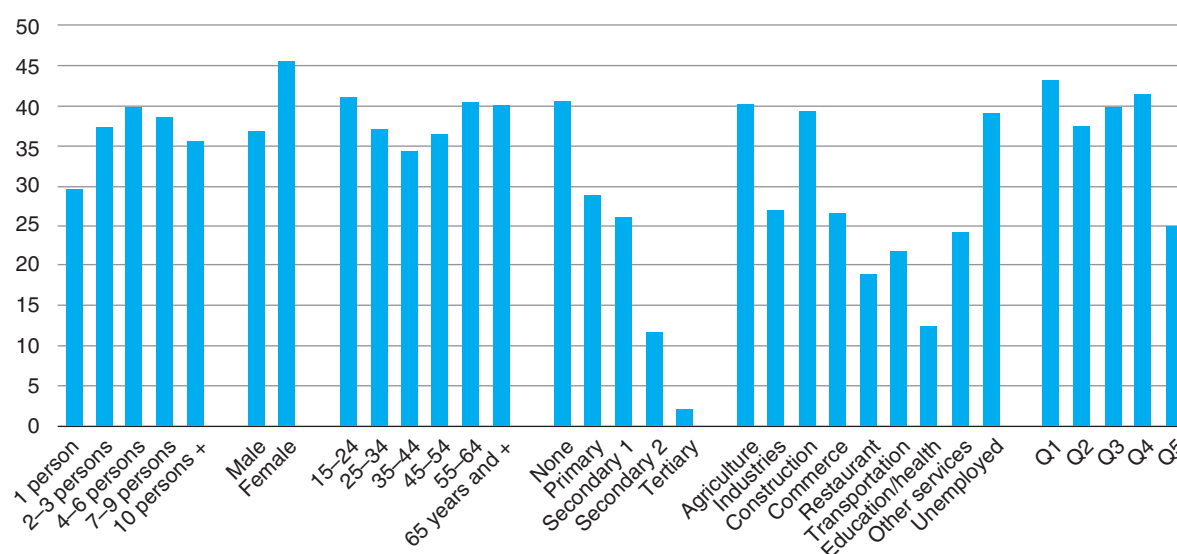
**Food insecurity is characterized by geographic disparity, particularly the area of residence and the region.** While agriculture is the main activity in rural areas, this first form of food insecurity affects the countryside one-and-a-half times more than urban areas. In rural areas, two out of every five people experience food insecurity (severe or moderate), and only one person in five really experiences genuine food security. The others (also two out of five people) are in an intermediate situation, neither experiencing genuine food security nor food insecurity. Therefore, rural areas are vulnerable with regard to access to food. The reality is that agricultural productivity is rather inadequate and agricultural operators do not produce enough to meet their needs. Also, because their incomes are low, they have difficulty accessing products, perhaps because of the combination of distance to markets and low purchasing power. In urban areas, most consumption comes from the market, and when there are resources, there are generally opportunities to find provisions. At the regional level, this form of food insecurity worsens as one moves from west to east in the country. Indeed, it is very strong in

**FIGURE 3.1 Geographic Map of Food Insecurity (FIES approach)**



Source: Author's, using FAO and INSD calculation from the EMC 2014.

**FIGURE 3.2 Food Insecurity Incidence (FIES approach) by Household Characteristics**



Source: FAO and INSD calculation using the EMC 2014.

the East and in the Sahel (nearly 60 percent); and it is also high in the Sud-Ouest, Centre-Sud, Centre-Nord, and Centre-Est. Interestingly, this regional food insecurity map does not overlap the income poverty map. The Nord and the Boucle du Mouhoun, two regions where income poverty is the highest, are instead spared from this form of food insecurity. Nonetheless, some regions have high levels of income poverty and food insecurity, as is the case in Est, Centre-Sud, and Centre-Nord.

**The incidence of this form of food insecurity varies somewhat with the household's socioeconomic characteristics, particularly the household head's gender and his or her educational level, but it is independent of their standard of living.** The incidence of food insecurity forms an inverted U according to the household's size, relatively low for single-person households, a maximum for average households with around five people, and dropping for the largest households, but not to the level of one-person

**TABLE 3.1 Average Annual Cereals Production for the Last 20 Years<sup>a</sup>**

	1996–2000	2001–2005	2006–2010	2011–2014
Rice	97,523	92,497	172,392	303,285
Maize	386,075	641,081	892,436	1,412,893
Millet	811,762	1,064,374	1,103,013	989,556
Sorghum	1,118,862	1,461,474	1,681,935	1,754,357
Fonio	13,423	9,360	17,261	15,902
Total production	2,427,645	3,268,786	3,867,037	4,475,993
Potential production available	2,024,489	2,741,469	3,218,025	3,683,280
Population (annual average)	10,979,729	12,667,258	14,721,026	16,842,854
Production available per capita	184	216	219	219

*Source:* FAO and author's calculation.

*Note:* a. Cereal production is in tons, except production per capita which is in kilograms.

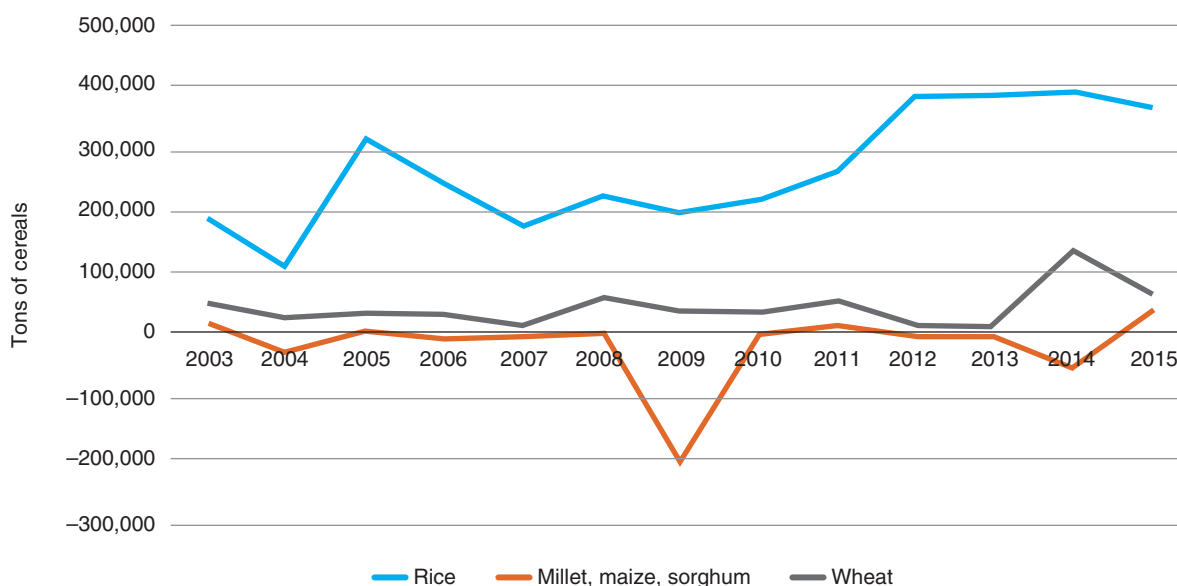
households. Conversely, the incidence of this phenomenon is U-shaped in relation to the age household's head, with the minimum being reached for households whose head is around age 40 years. It is also found that female-headed households are more food insecure than those headed by a man. The variable with the greatest impact on food insecurity is the household head's educational level. The incidence rises to over 40 percent for households whose head has not received schooling, as against just 2 percent for those whose head has received higher education. It is also worthwhile noting that this form of food insecurity does not seem to be correlated with income poverty, which would be the case if the incidence of food insecurity decreased with the household's standard of living. In fact, only households in the fifth quintile really stand out from the others, with the lowest incidence.

**This last result shows up in the level of food consumption; when this is analyzed as a function of the level of food security, this consumption does not differ among the various categories of households.** Because food insecurity is measured by the fact of having more or less access to food products, it is natural to compare food consumption among households according to their level of expenditure. The various categories of households fall within CFAF 72,000 to CFAF 76,000 per person, per capita and per year. Households experiencing food insecurity do not consume less than the others, at least in terms of annual value.

**Food security is ensured first, when food-stuffs are available and second when they are accessible to the populations and, in the case of supply, it is structurally weak in Burkina Faso.** Cereals form the main food consumption item in the country. Cereal production, which was 2.5 million tons 20 years ago, has become 4.5 million tons in recent years. This production increased faster than the population, which led to an improvement in the overall supply of food products. Available production was 184 kg of cereals per person between 1996 and 2000 and was 219 kg per person between 2011 and 2014.<sup>9</sup> One person's needs are assessed at 203 kg per year, so in theory the country has a slight surplus. However, this weak surplus does not leave much room for maneuvering. First, there is a problem with the spatial distribution of this supply. The western provinces are regularly in a surplus situation, while those in the northeast experience shortfalls. For example, for the most recent harvest (2015–2016), the authorities estimated that of the country's 45 provinces, one-third of them are experiencing a food deficit. In 2011/12, 16 of the 45 provinces were in this situation. Plus, when surpluses are inadequate, there are major opportunities for speculation. Indeed,

<sup>9</sup> The available production is calculated by subtracting requirements for seeds and other losses from gross production (15 percent for all cereals except rice, where 45 percent is subtracted), final results of the 2011/12 farming season, Ministry of Agriculture.

**FIGURE 3.3 Balance of International Cereals Transactions<sup>a</sup>**



Source: Author's calculation using 2014 Statistical Year Book.

Note: a. The balance is equal to the sum of food imports and aid minus exports.

when neighboring countries experience a drop in supply, for example, farmers are tempted to sell outside the country, and this intensifies the shortfall at the national level.

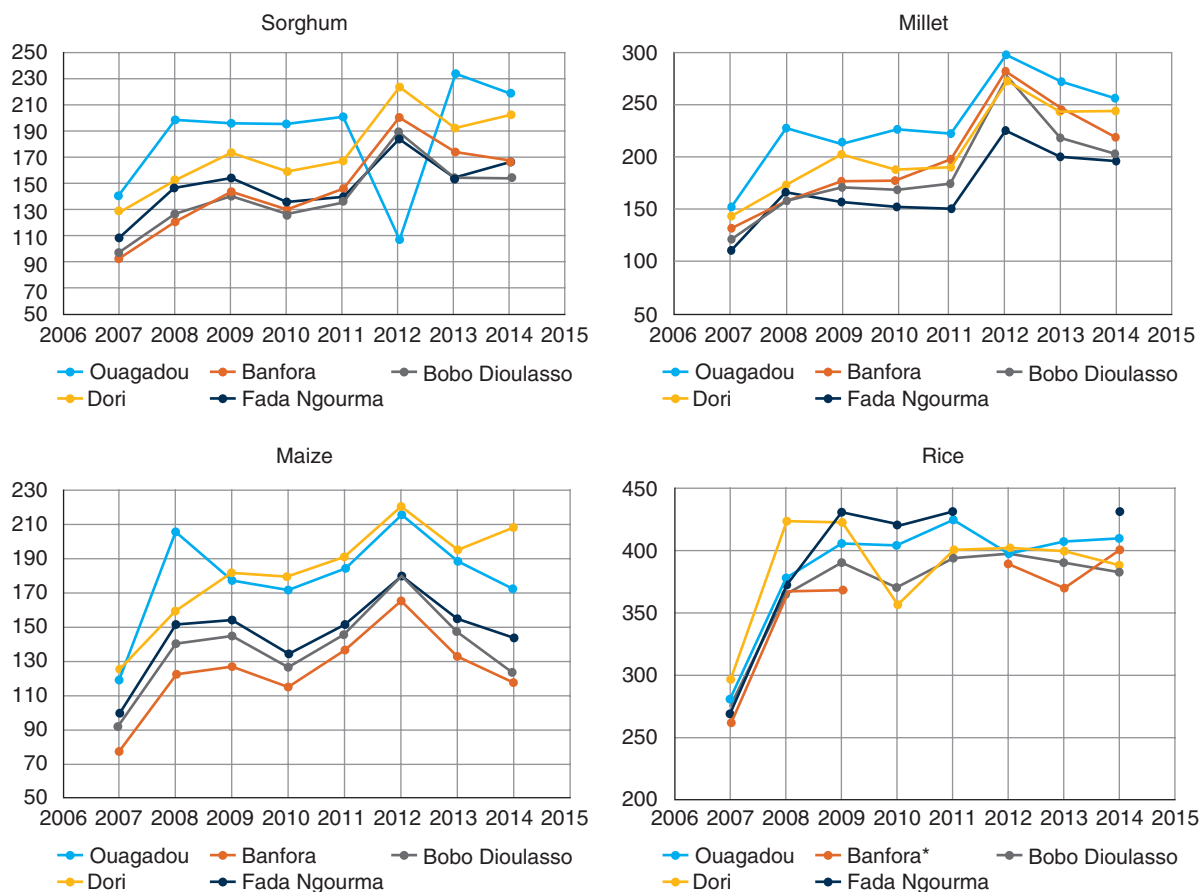
**The fact that the country is a net importer of cereals confirms the fact that it is not entirely self-sufficient in this area.** While the country manages to meet its needs for dry cereals (millet, sorghum, and so on), its needs for rice and wheat are met mostly by importers and, to a lesser extent, food aid, which once again highlights the insufficiency of the domestic production. Wheat imports are nearly 50,000 tons annually but reached 100,000 tons in 2014. As for rice, since 2012, imports and aid, net of exports (which are virtually nonexistent), have exceeded 400,000 tons. This means that more than 10 percent of consumption comes from outside the country, most of that being rice consumption, which is eaten more in urban areas than in the countryside.

**Moreover, road conditions do not facilitate the circulation of goods to resolve problems of physical access to provisions.** Roads are far from being the main mode of transport in this country: there is no road transport and no maritime transport; planes serve only a few large

population centers and are not well suited to transport goods. However, road density is low, with 5.6 km of roads per 100 km<sup>2</sup>, as opposed to an average of 6.84 km for Africa, 12 km for Latin America, and 18 km for Asia. In addition, these roads are not always well maintained. The limited road network and the poor condition of the roads lead to high transaction costs that affect prices on food products for the final consumer.

**In addition to physical availability, economic availability is also impeded by the major price differences from one region to another.** For the four centers used to check cereal prices, the difference between the price extremes is regularly in the order of 50 percent, while no surveys have been conducted in the countryside where prices are still lower. The city of Banfora, in western Comoe province, posts low prices. At the other extreme, Ouagadougou, the country's capital, and Dori, the Sahel region capital where agricultural production is less significant, post high prices. These price differences negatively impact the purchasing power of poor households in cities where the prices are high, particularly those in the capital, Ouagadougou, and heighten food insecurity in those regions.

**FIGURE 3.4 Annual Average Cereal Prices (CFAF per kilogram) in Some Main Cities in Burkina Faso**



\*No data for 2011 and 2012.

Source: Author's calculation using Statistical Year Book.

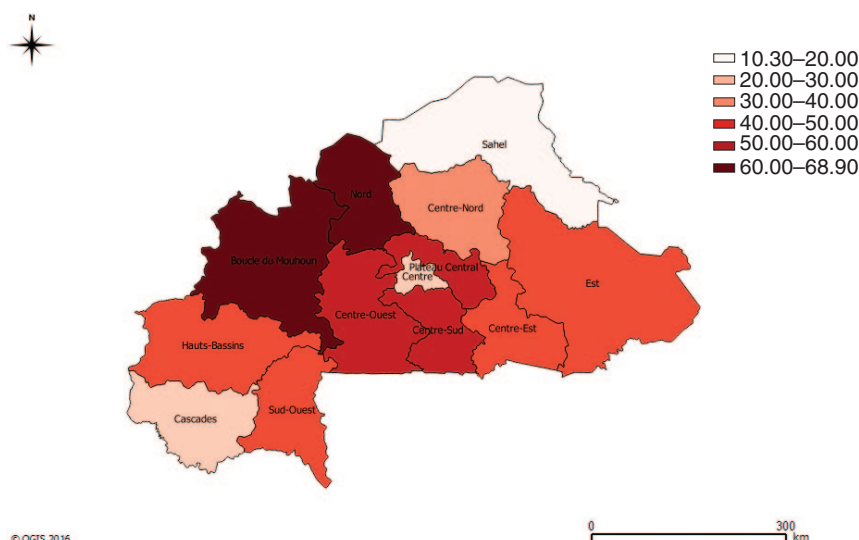
### 3.1.2 Food Insecurity Based on Calorie Intake

**The second approach assesses food insecurity based on the household's calorie intake.** This is, hence, a nutritional approach that determines how well needs are being met based on the number of calories drawn from the consumption of food products. A household is experiencing food insecurity if consumption is below 2,283 kcal per adult equivalent and per day. Anyone living in a food-insecure household is also in this situation.

**Under this definition, 43 percent of the people were food insecure in Burkina Faso in 2014, with one-fourth of the urban and nearly half of the rural population.** The level of food insecurity is very close to that of income poverty, and the two approaches (food insecurity according to

calorie intake and income poverty) directly measure household consumption; it is legitimate to wonder to what extent there is a correlation between these two aspects of poverty. Food insecurity decreases with the household's standard of living (measured by the household's consumption per capita). It affects almost all of the poorest households in the first quintile, nearly three-quarters of those in the second quintile, and is virtually nonexistent among well-off households in the fifth quintile. Moreover, among the subpopulation that has not reached the minimum calorie level, seven out of ten people are poor. Furthermore, because rural areas are more affected by this than urban areas and most of the population is rural, nearly nine out of ten people suffering from a calorie deficit live in a rural area.

**FIGURE 3.5 Food Insecurity (calorie-intake approach) Incidence in Burkina by Region**



Source: Author's calculation using the 2014 EMC.

**This second form of food insecurity has the same characteristics as income poverty and is different from food insecurity using the FIES approach.** The regions where food insecurity is less prevalent are Sahel, Centre, and Cascades (under 20 percent), which have less than 11 percent of the food-insecure population; these are the same regions with the lowest poverty rates. At the other extreme, nearly seven out of ten people suffered food insecurity in Nord and Boucle du Mouhoun, two regions also most affected by income poverty. These two regions have 18 percent of the population and 28 percent of the people suffering a caloric deficit. Other regions with an equally high incidence (more than 50 percent) are Centre-Ouest, Plateau-Central, and Centre-Sud.

**In terms of other characteristics, the incidence of food insecurity is higher in male-headed households than in female-headed households; this incidence is an increasing function of the age of the household head and a decreasing function of his/her level of education.** Moreover, among the 38 percent of people suffering moderate or severe food insecurity according to the FIES approach, 16 percent are also insecure according to the calorie-intake approach. Also, of the 62 percent of people not

suffering food insecurity according to the FIES approach, 35 percent are also insecure according to the second approach. So half the people form a hard core of people living in households that are experiencing food insecurity regardless of the form, that is, always experiencing food insecurity, and the other half are experiencing a changing situation, and hence are potentially vulnerable.

**The consumption levels for the various household categories show that households experiencing food insecurity consume one-half less (by value) than those with food security.** The average consumption of a food-insecure household is in the order of CFAF 46,000 per person per year, as opposed to nearly CFAF 97,000

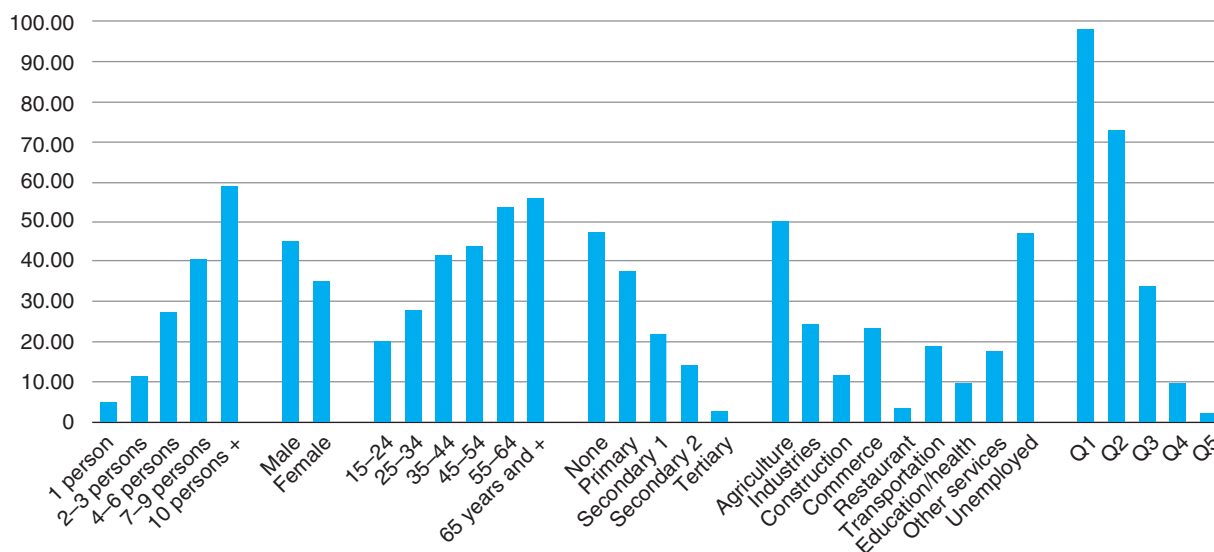
**TABLE 3.2 Comparison of the Different Forms of Food Insecurity**

FIES	Calorie consumption		All
	Food insecurity	Food safety	
Severe food insecurity	6.3	8.8	15.1
Moderate food insecurity	10.0	12.4	22.4
Food safety	27.4	35.1	62.5
Total	43.7	56.3	100.0

Source: Author's calculation using the 2014 EMC.



**FIGURE 3.6 Food Insecurity Incidence (calorie) by Some Socioeconomic and Demographic Characteristics**



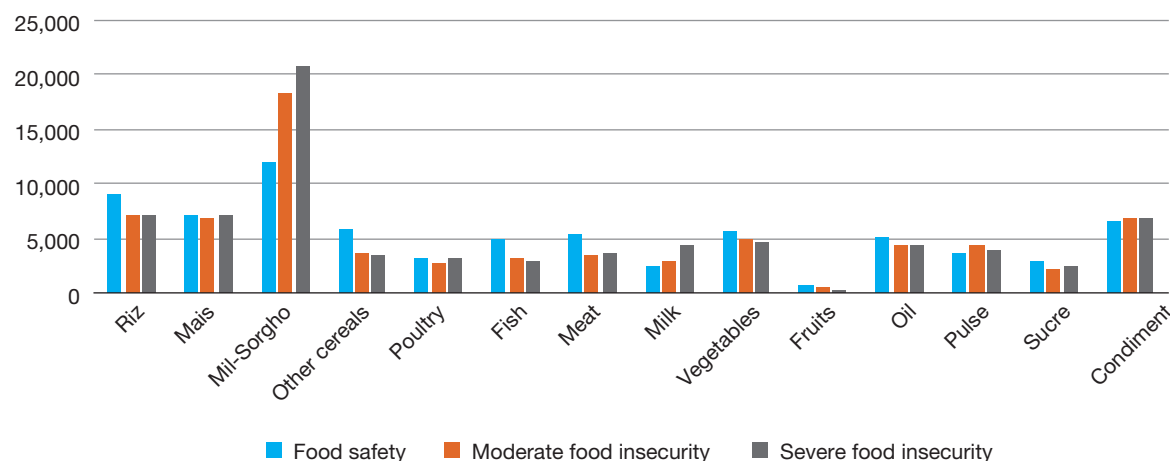
Source: Author's calculation using the 2014 EMC.

for those experiencing food security. Hence, those in the second category simply do not have enough resources to meet their food needs, which basically explains their situation. An examination of the structure of household consumption makes it even easier to determine why some households are experiencing food insecurity. Burkinabé households spend half their food budget on consuming cereals, mainly millet, sorghum, and maize. Much of this consumption of cereals is satisfied by self-production, especially with regard to maize, millet, and sorghum. So behind this

poor country's consumption habits there is first and foremost a philosophy of feeding oneself. Meat and fish, more of a luxury food, account for 15 percent of food consumption. It is worth noting that vegetables and dairy products, foods considered good for the health, are also important, accounting for 6 percent and 4 percent, respectively, of the total. On the other hand, households consume little fruit, less than 1 percent.

**Food-secure households tend to consume relatively luxury foods, whereas those experiencing food insecurity consume necessary**

**FIGURE 3.7 Annual per Capita Consumption of Food Items by Food Security Status (calorie)**



Source: Author's calculation using the 2014 EMC.

**foods first.** Hence cereal consumption is higher among households experiencing food insecurity (with a 52 percent budget share) than among food-secure households (45 percent). Among cereals, food-insecure households consume relatively more less-expensive cereals (millet, sorghum, and maize) and other households consume relatively more rice. Likewise, the former consume two-and-a-half times more meat than the latter, whereas fish consumption is similar in both groups. Those households that are better off in food security consume more milk and dairy products, fruit, and vegetable oils. Food-insecure households consume more sugar, nuts, and condiments. These results on consumption habits tend to show that if matters of nutritional balance were also analyzed, a great many food-insecure households might also find themselves back in a situation of nutritional imbalance.

### 3.1.3 Transient and Chronic Food Insecurity

**Some households are vulnerable in the sense that they may be affected by food insecurity at certain times of the year.** The preceding analyses reveal the overall food-insecurity situation for the year. This snapshot is incomplete, however, because a household's situation can change from one season to the next. For example, farmers have an excess of provisions right after harvest, and the situation may become difficult as time passes. Some households may be in a precarious situation at any given time of the year, and others are chronically in a precarious situation. It is worthwhile studying household mobility in regard to food insecurity: different policies need to be adopted depending on whether a household is chronically or transitorily food insecure. Like the previous one, this subsection uses the calorie-intake approach. Because the food consumption for each of the four rounds of the EMC is known, the transient and chronic nature of this phenomenon can be studied. Food insecurity is defined similarly for each of the four stages of the survey. A household experiences this situation if calorie intake, per adult-equivalent, is less than 2,283 kcal

per day. The mobility between the two periods is monitored using a transition matrix.

**Food insecurity is characterized by strong seasonal variations that most often translate into a worsening of the households' situation.** One-third of people live in a situation of food insecurity in the first quarter; this figure rises to 45 percent in the second quarter, nearly 42 percent in the third, and nearly 47 percent in the last quarter.<sup>10</sup> In fact a significant proportion of households undergo a change in status. Between the first two quarters, more than one-fourth live in households that have undergone a change in status; 18 percent of those experiencing food security in the first quarter find their situation changing for the worse, and just 7 percent find their situation improving. These changes in situation occur in all periods, thus revealing the level of vulnerability of Burkinabé households.

**Food insecurity is more of a transient rather than a chronic phenomenon.** The 2014 results show that only one-third of these people are not experiencing food insecurity at any given time of the year. For the two-thirds who experience this difficulty, 18 percent are in this situation chronically, and nearly half transitorily (that is, once, twice, or thrice during the year). The chronic nature of this phenomenon is the result of extreme poverty. Of those living with chronic food insecurity, 80 percent are in the first quintile, most of whom come from the poorest households. On the other hand, the transitory nature of the phenomenon is the result of a combination of multiple factors. As noted earlier, agricultural production does not always meet the needs of

<sup>10</sup> It is more likely that the figure for the second round is overestimated. It should have been between the figure for the first round and that for the third. Harvests, in fact, begin in November (period preceding the first round) and continue on into January. Farmers have more provisions during this period, and normally the situation deteriorates the more time passes after the harvests. It appears that the second round did not receive as much supervision as the others, as the central team had been selected to produce the first results.

**TABLE 3.3 Characteristics of Food Insecurity**

	% never in food insecurity	% in food insecurity at least once	% chronically in food insecurity	All populations
% in each situation	33.5	48.3	18.2	100
Household size	5.6	8.3	10.5	7.4
Dependency ratio	0.88	1.16	1.22	1.07
Masculinity ratio	0.93	0.95	0.97	0.94
% head is female	15.3	12.2	10.6	13.4
Age of household head	43.1	48.5	51.6	46.5
% head has no education	64.9	85.2	88.1	76.6
% head with primary education	13.6	10.0	9.2	11.5
% head not in agriculture	48.4	21.1	19.1	32.9
% in first welfare quintile	0.2	22.5	79.7	20.0
% in second welfare quintile	5.6	36.1	16.0	20.0
% in third welfare quintile	18.3	26.8	3.1	20.0
% in fourth welfare quintile	33.7	11.5	1.0	20.0
% in fifth welfare quintile	42.2	3.1	0.1	20.0
% in rural areas	58.3	83.6	85.9	72.7
Hauts-Bassins	12.5	10.0	12.9	11.5
Boucle du Mouhoun	3.2	12.2	15.6	8.7
Sahel	8.8	4.6	0.4	5.9
Est	4.6	11.6	7.3	8.0
Sud-Ouest	4.8	4.5	8.5	5.2
Centre-Nord	7.9	7.1	4.2	7.1
Centre-Ouest	5.3	10.7	9.1	8.1
Plateau-Central	3.4	4.7	5.4	4.2
Nord	2.7	7.2	13.4	6.0
Centre-Est	8.4	8.8	7.7	8.5
Centre	28.4	9.5	7.9	17.7
Cascades	5.9	4.2	1.8	4.6
Centre-Sud	3.8	4.9	5.7	4.5
% faced natural shock	33.6	49.8	54.5	43.3
% faced price shock	18.7	28.2	33.5	24.6
% faced an employment shock	5.1	2.8	3.4	3.9
% faced death/illness	14.9	18.6	16.2	16.7
% faced security shock	4.6	5.6	4.2	5.0
% faced household shock	2.1	2.3	2.7	2.3
% faced other shock	2.2	2.5	2.8	2.4
% faced any shock	56.0	70.8	76.1	64.9

*Source:* Author's calculation using the 2014 EMC.

these populations. In 2012, the cereal shortfall was estimated at more than 4 percent of production. Also, as stated previously, a surplus of provisions at the national level does not mean that there will be food balance throughout the country given the differences in production levels among regions and the difficulties associated with transportation. Furthermore, price variations during the year explain the variations in real income, which may decline at certain times of the year and cause temporary food insecurity. During 2012, the food-products price index varied by nearly 6 percent between the month when prices were the lowest and the month when they were highest; this figure was over 11 percent in 2013. The prices of some products, particularly fresh produce, show greater variations (16 percent in 2012 and 9 percent in 2013).

**The profile of chronically food-insecure households and that of households experiencing transient food insecurity are close to that for income poverty, with the profiles differing only by the fact that certain socioeconomic characteristics of these households are more or less acute.** The first factor characterizing the food-insecurity profile is household composition. Chronically food-insecure households are larger (nearly 10.5 people) and have a larger number of young individuals (dependency ratio of 1.2). Households in a transient situation are also large, albeit less so (8.3 people), compared to fewer than 6 people in households that never experience food insecurity. Households experiencing chronic food insecurity are relatively more numerous in rural areas than those experiencing transient food insecurity. The household head of the first group is also older, on average, and likely to be uneducated.

## 3.2 Food Insecurity and Vulnerability to Shocks

### 3.2.1 Main Shocks Suffered by Households

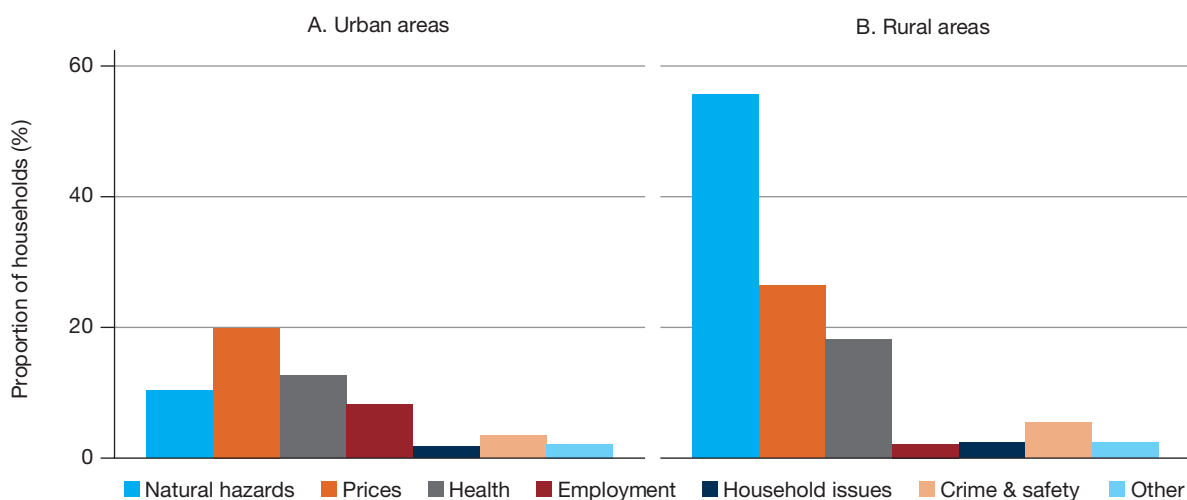
**Burkinabé households are often hit by idiosyncratic and covariant shocks.** Idiosyncratic

shocks are those affecting a household (loss of job, divorce, crime, separation, and so on) in particular, and covariant shocks affect a group of households (price variations, drought, flooding, and so on), for example a village, region, or even the entire country. This is an important distinction as it better indicates the measures to be taken to mitigate or buffer the effects of shocks. In the event of an idiosyncratic shock, the household uses its resources and means to deal with it. In the case of a covariant shock, in addition to individual means, a larger-scale intervention may prove necessary. Food insecurity can be aggravated or even provoked by a shock. A drought affects harvests and the availability of provisions in households. The preceding analysis is based on the retrospective questions of the 2014 EMC.

**The impact of shocks is very significant and affects poor populations the most.** More than two-thirds of households reported that they had suffered at least one shock, most frequently of natural origin (43 percent of households), caused by price fluctuations (25 percent), or by the death or serious illness of a member of the household (17 percent). Other shocks are less frequent and affect less than 5 percent of households. Shocks affect rural populations more than urban populations. Rural households suffer more from problems associated with weather and plant diseases, meaning poor harvests. There are also events associated with price fluctuations that can be correlated with natural shocks. Because these rural households live mainly from agriculture, they are more exposed to shocks of this kind. Moreover, because the health system is poorly developed in rural areas, the incidence of shocks relating to a serious illness or death of a household member is greater there. On the other hand, events associated with the loss of a nonagricultural job or income naturally affects city households more.

**Major regional variations are also seen. The prevalence of natural and job-related shocks is also closely associated with the area's climate and urban development.** Northern areas (Centre-Nord and Sahel), characterized by a Sahelian climate, experience higher incidences of natural and price-related shocks. On the other

**FIGURE 3.8 Incidence of Shocks by Place of Residence**



Source: Author's calculation using the 2014 EMC.

hand, Centre, Hauts-Bassins, and Cascades, located in the south, are more subject to shocks related to the job market. It is also found that the

regions on the south-southwest axis (Cascades, Sud-Ouest, and Centre-Ouest) have a greater frequency of shocks associated with health issues.

### BOX 3.1 Categorization of Shocks Affecting Households

**Household issues.** Divorce, separation, and end of regular transfers from other households

**Prices.** Significant drop in prices of agricultural products, high prices of agricultural inputs, and high food prices

**Natural hazards.** Droughts, floods, high rate of crop diseases, and high rate of animal diseases

**Employment.** Significant loss of nonfarm income, bankruptcy of a nonfarm business, significant loss of wage income (other than due to an accident or illness), and loss of employment of a household member

**Health.** Serious illness or accident of a household member, death of an active member of the household, and death of another household member

**Crime and safety.** Theft of money, goods, or harvest and conflict/violence/insecurity

**Other.** Other issues not classified above

### 3.2.2 The Impact of Shocks on Household Food Security

Shocks can result in a loss of real income and negatively affect household food security, particularly in the most vulnerable households. The correlation between food insecurity and shocks was examined by estimating an econometric model for each of the three approaches to food insecurity. For the first approach, this involves a probit model whose dependent variable is binary and takes the forms 1 or 0, depending on whether the household is food insecure or not, respectively. For the second approach, the dependent variable is the number of calories per adult-equivalent consumed in the household,<sup>11</sup> as part of a classic linear model. For the third approach, the explanatory variable is status in relation to food security; it takes three forms (chronic food insecurity, transitory food insecurity, never food insecurity) as part of a multinomial logit model. The explanatory variables

<sup>11</sup> In the model, the household calorie intake is standardized by dividing it by 2,283, the food-insecurity threshold.

are the same; the socio-demographic characteristics of the household and its head (composition of the household, human capital), standard-of-living variables (access to electricity, modern toilets, ownership of durable goods), and geographic variables that take into account unobservable effects and shock variables. Two models are estimated; the first considers shocks by type and the second includes all shocks.<sup>12</sup> Each of the models is estimated at the national level and for urban and rural areas.

### *FIES Approach*

**The probit model's results show too weak of a correlation between socio-demographic characteristics and this form of food insecurity.** The only variables correlated with food insecurity in the FIES approach are the standard-of-living variables for the household and the region. When the household has electricity, the likelihood that the household is food insecure diminishes. The same is true for a means of transportation (automobile, motorcycle) or a refrigerator. In the case of the region, compared to the region of Hauts-Bassins (chosen as reference) located in the southeast part of the country, the likelihood of being less insecure diminishes in the Boucle du Mouhoun and Plateau-Central regions, and it is neutral or increases in the other regions.

**This form of food insecurity is correlated with physical and economic access to food products.** The main variable measuring physical access is the distance to transportation, which shows a likelihood of reducing food insecurity when transportation is closer. However, as seen earlier, ownership of a means of transportation also reduces the likelihood of being food insecure. Indeed, all things being equal, having a means of transportation is not just a sign of material ease but also reduces the distance to markets and provides an opportunity to expand the geographic field of supply by going to more attractive markets. The same holds true for households having access to electricity

and owning a refrigerator. The former makes the latter possible, and the latter promotes food storage and hence the possibility of buying larger quantities of food at better prices.

### *Calorie Intake Approach*

**Unlike the previous case, the results of econometric regressions show that socio-demographic characteristics are closely correlated with the household's food-security situation.** First, the place of residence has no significant effect on food insecurity. Even though the level of food insecurity is higher in rural areas, the phenomenon is not due to the fact of living there but rather to other factors. The variables of household composition have a significant impact on the level of food insecurity. When household size increases, calorie intake is reduced. One additional individual lowers the calorie intake level per capita by 23 percent in urban areas and by nearly 7 percent in the countryside. Moreover, a one-point increase in the household's dependency ratio further accentuates this drop in calorie intake. The effects of the human capital are mitigated. Calorie intake is a decreasing function of age, but mainly in rural areas, age having no effect in urban areas. This means that the older a household head is, the more likely that the household will fall into food insecurity; in this way, households with an older head seem more vulnerable. On the other hand, educational level has a mainly positive impact on calorie intake; education also probably makes it possible to earn more income and to be better informed about proper nutrition. Variables of housing characteristics or ownership of household assets, which are proxies for a household's level of welfare and permanent income, are negatively correlated with food insecurity. Hence the fact that a household is connected to electricity, has flush toilets, a car, a motorcycle, or a refrigerator causes the household's calorie intake to rise.

### *Dynamic Aspect of Food Insecurity*

**These same demographic variables are correlated with chronic and transitory food insecurity; the difference between states of**

<sup>12</sup> For the multinomial logit model, only the model is estimated with all shocks together.



**insecurity is to be found in its marginal effects, which are more accentuated for the chronic form of the phenomenon.** First, the household's size worsens all states of food insecurity but especially so the chronic form. As seen, households experiencing chronic food insecurity have a very large household size, nearly 11 people on average. In addition, the dependency ratio aggravates the food insecurity. This ratio is also positively correlated with both states of the phenomenon. In other words, household size, and a large number of dependents, are two characteristics leading to food insecurity. Burkina Faso's demographics, characterized by a high composite fertility index and strong demographic growth, are a major factor that intensifies not just income poverty but also food insecurity. On the other hand, the household head's gender is not a determining factor in food insecurity.

**The characteristics of human capital, professional experience, and educational level are only weakly correlated with food insecurity.** Professional experience, measured by age, is positively correlated with transitory food insecurity, but not with chronic food insecurity. The older a household head, the more likely that the household is insecure at any given time of the year. However, on average over a year, a household with an older head is not more exposed than the household with a younger head. This can be expressed by saying that households whose heads are older are more vulnerable in the sense that they do not always manage to have sufficiently calorie-rich food throughout the year. The educational level is also weakly but negatively correlated with transitory food insecurity: the more a household's head has a good level of education (from secondary on), the less likely the household is food insecure at any given time of the year.

**In contrast, the characteristics of household living standards are negatively correlated with food insecurity.** The fact that a household has electricity, a motorcycle, and a car reduces the likelihood that it is experiencing chronic or transitory food insecurity. Rather, these variables measure the household's permanent income, and

a household that has these assets is probably a well-off household.

### ***Shocks and Three Approaches to Food Insecurity***

**Shocks have a generally negative impact on all forms of food security.** When the first form of food insecurity (the FIES approach) is looked at, shocks aggravate the households' situation, which consequently renders them vulnerable. Natural shocks (drought, flooding) negatively impact the food security of households in rural areas. These shocks have direct consequences for agricultural production and, therefore, for the availability of products. Shocks from the job market (layoffs, bankruptcy), death and safety issues (violence, rape) more negatively affect food security in urban areas. It is worthwhile noting that price shocks (strong variation in the prices of food products) are positively correlated with this form of food security in rural areas.

**The results of the model with the second approach to food insecurity point in the same direction.** Price shocks have the most negative impact on household food security. The price effect lowers the calorie intake per adult-equivalent by more than 19 percent in cities and 18 percent in the countryside. In urban areas, where consumption comes from the market, an increase in food prices contributes to a reduction in real income that forces households to reduce the amount of food consumed. In rural areas, on the other hand, some households are net producers, for whom a price increase can be beneficial, but others are net consumers, for whom the situation is like that of urban residents. In any case, the weakness of the country's agricultural production makes rural households dependent on the market, because they produce little in the way of surplus. The other type of shock that has a negative impact on a household's food security relates to issues affecting the household, such as divorce, separation, or the end of transfers sent home by a family member. Shocks of this kind have an impact mainly in urban areas where they cause consumption to drop by 18 percent. The third model yields similar results, with a more

pronounced marginal effect for households experiencing chronic food insecurity.

**These results also show that shocks heighten the vulnerability of households.** To examine the vulnerability of households in the face of shocks, the numerical impact on households that are just above the food-insecurity line (using the second approach) are assessed, that is, households in the fifth and sixth quintiles of calorie intake per equivalent-adult, because the incidence of food insecurity is 43 percent. When all shocks are included in a single variable, a household that experienced those shocks would see its calorie intake reduced by 35 percent in urban areas and 15 percent in rural areas. Thus a shock affecting a household in the fifth quintile with average calorie intake of 2,322 kilocalories per adult-equivalent, would see it drop to around 1,825 kcal per adult-equivalent, well below the food-insecurity threshold. For a household in the sixth decile, it would go from 2,687 to 2,042 and would also find itself in a situation of food insecurity. Hence households up to the sixth decile are vulnerable because a shock during the year plunges them into food insecurity. It is therefore important to guard against shocks and find solutions so they can be dealt with.

### 3.2.3 Food Insecurity and Antishock Strategies

**The preceding analyses show that the profile of households affected by food security differs according to the approach considered; consequently, the responses and public policies also differ.** The first form of food insecurity (the FIES approach) measures economic access to food products. Food insecurity arises, in part, from a limited supply of products, difficulties in transporting products from the production centers to the places where they are consumed, and also high prices in consumption centers. Fluctuations in the supply of products in this country and facing covariant shocks in terms of climate, reinforce food insecurity. Moreover, as seen, problems with moving goods and merchandise aggravate

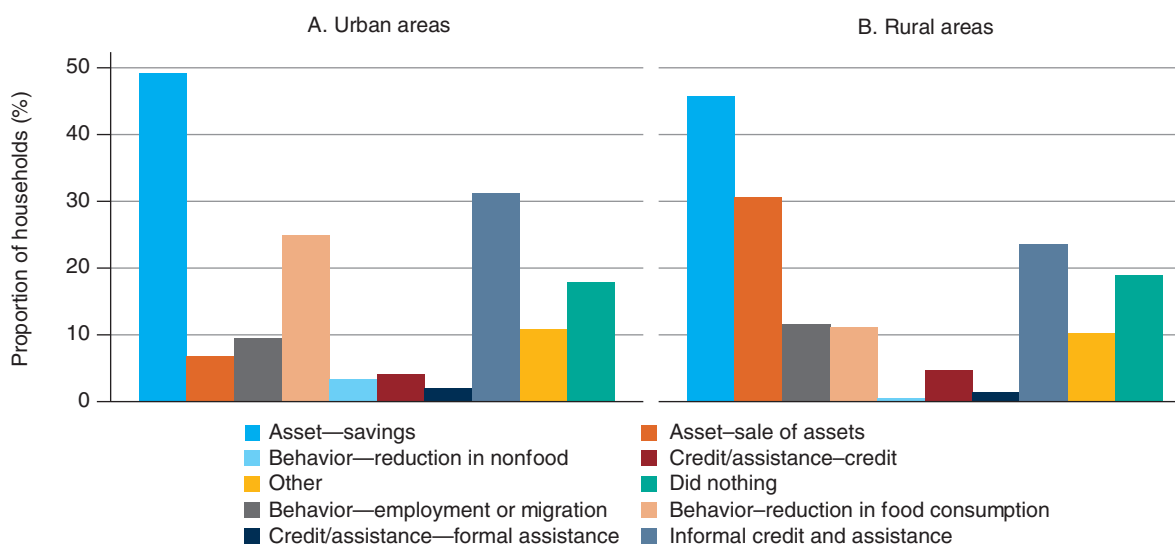
the situation. All these things make households more vulnerable.

**The other two forms of food insecurity are closer to poverty.** They are characterized by large households with low human capital and hence low income, living in rural areas primarily from agriculture. This form of food insecurity makes households vulnerable because of the idiosyncratic shocks that affect them, for example a divorce or a halt in transfers from a household member living elsewhere. In all cases, shocks have a big impact on household vulnerability.

**The strategies adopted to deal with shocks reflect the lack of social protection mechanisms and the country's less-than-perfect insurance market.** The insurance market is not well developed. Health insurance is available for a proportion of wage-earners in the modern sector in a country where a majority of individuals work as independent laborers in agriculture. Other types of insurance are nonexistent, and, given the high risk particularly in agricultural activities and also high moral hazard, there are few insurers willing to venture into this sector. In addition, there is no organized social safety net system (such as unemployment allocations or some specific assistance for poor households). Given the virtual nonexistence of modern social safety net mechanisms, households try to mitigate the effects of shocks by adopting strategies based on their personal relations. Nearly half of them use their own savings to cope with them. And one-fourth of households that are hit by a shock turn to selling off part of their assets or take out a loan or get assistance from a relative or friend. Strategies originating in the modern social safety net system are rare. Only 1.5 percent of households say they receive government assistance and less than 5 percent have obtained a loan in the formal system. However, 20 percent of households also admit that they do not adopt any strategy.

**Adaptation strategies to cope with shocks reflect the country's poverty and increase household vulnerability.** It was noted earlier that the main strategy of households is to use their own savings. In a poor country where the level of

**FIGURE 3.9 Coping Strategies in Burkina Faso, 2014**



Source: Author's calculation using the 2014 EMC.

savings is necessarily low, recourse to savings as the main strategy illustrates the paucity of opportunities available to households in this area. In urban areas, the other two major strategies are recourse to loans from relatives and friends and a reduction in food consumption, which one-third and one-fourth of households, respectively, turn to. This assumes that these households depend either on the generosity of others or simply endure eating less, thereby directly jeopardizing their food security. In all cases, it is obvious that these households are fragile when coping with shocks. Rural households do not have better solutions. One-third of them adopt the strategy of relying on the meager assets they own, and one-fourth accept the generosity of relatives and friends.

**The broad guidelines of public policies to improve food security should include improving agricultural productivity, improving access**

**to provisions, and expanding social safety net mechanisms.** The first two measures are very general and go beyond mere questions of food security. Agricultural productivity is low in the country, and farmers can get better results if it is improved. In addition, increasing agricultural productivity increases supply and reduces imports. Then this supply must be available to populations all over the country, which requires working on the issue of transportation, particularly the poor state of the road network, a structural weakness in Africa. This means that the country is regularly faced with climate shocks, not to mention shocks at the individual level. Shocks make households vulnerable, and even in rich countries the insurance market is used to soften the impact of shocks. A minimum of social safety net mechanisms would ease the negative impact of shocks.



## Chapter 4

# Rural Income and Poverty

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### 4.1 Profile of Rural Households

**The previous analysis shows that the potential for poverty reduction lies in rural areas.** Half of the rural population lives below the national poverty line and 9 poor out of 10 reside in the countryside. Half of the rural population is also food insecure and most of the people are vulnerable in the sense that two-thirds face a situation of food insecurity at some time of the year. The 2011 development strategy also known as SCADD intends to achieve the objective of a substantial poverty reduction through two main channels, a solid GDP growth rate (an average of 10 percent per year) and by promoting pro-poor growth policies. Agriculture was obviously one of the key sectors selected to promote solid growth. The strategy recognizes that significant physical, technical, and socioeconomic constraints have been limiting the performance of the agricultural sector and it was important to remove these constraints to improve productivity and income. The most important constraints identified are land tenure security, agricultural mechanization, access to improved seeds and fertilizers, vulnerability to climate change, and promoting the marketing of agricultural products. This section provides an analysis of source of income for a better understanding of rural poverty.

**Rural households are constrained in many aspects, making it difficult to use their potential.** The average household size is high, 8 persons versus 6 in urban areas. The large number of individuals in households can be a potential for agricultural activities where labor is needed. However, this happens only if most of these individuals are of productive age, which is not the case. The dependency ratio is 1.36, meaning that there are 36 percent more young (under the age

of 15) and elderly (over the age of 64) than people of working age (ages 15 to 64).

**Most of the households are headed by a married man with no education.** The educational level of the population is important for the effective exercise of any activity. Better-educated people are more likely to benefit from the training offered (for example on extension services) and would be more open to new techniques and the use of modern equipment. However, the human capital of heads of household is low. Nine out of ten heads of households in rural areas have no education. This low level of education cannot even be complemented by other members because two-thirds of the most educated adults in the household are in the same situation. This low level of education is also a major constraint on the modernization of this sector.

**The living conditions of rural households are precarious.** On the positive side, nine out of ten households own their dwelling, and three-quarters of rural households have access to safe water, mainly by drilling wells, the primary source of drinking water. However, the other characteristics of housing reflect a high level of poverty. Half of the houses use sheets as roofs, but almost all of them have their walls made of mud or similar materials and less than 40 percent have a cement floor. Also, in rural areas, the population barely use any kind of hygienic toilets, with nearly eight out of ten households having no toilet (modern or even latrines).

**In addition, Burkina Faso households have limited access to infrastructure and basic services.** This limited access not only reflects the poor living conditions of households, but has a direct impact on their ability to carry on economic activities. Electricity is an important input for carrying on many activities. Electricity can make certain basic manufacturing activities

**TABLE 4.1 Characteristics of Rural Households**

	Urban	Rural	All	T-test
<b>Household characteristics</b>				
Household size	5.9	7.9	7.4	***
Dependency ratio	0.7	1.4	1.2	***
% with no education of the best educated member	17.6	63.4	50.9	***
<b>Head of household characteristics</b>				
% women	14.8	13.1	13.6	
Average age	44.5	47.0	46.3	***
% married	70.1	87.3	82.6	***
% with no education	44.7	88.0	76.2	***
% household involved in agriculture	22.2	89.2	71.7	***
<b>Housing characteristics</b>				
% owning dwelling	61.6	92.9	84.4	***
% walls made of cement/brick	50.5	6.4	18.4	***
% roof made of sheets/cement	94.9	53.6	64.9	***
% floor made of cement/tiles	91.5	38.7	53.1	***
% main source of lighting is electricity	59.6	2.6	18.2	***
% living in households using clean energy for cooking	21.8	0.6	5.2	***
% main source of drinking water is potentially safe	94.4	75.2	79.4	***
% individuals living in households with piped water	49.8	0.7	11.4	***
% having a toilet system	80.6	22.5	38.4	***

Source: Author's calculations using the EMC 2014.

possible, enabling households to diversify their sources of income by moving toward the most productive activities, for example processed agricultural products. However, electricity is scarce and less than 3 percent of rural households use it as the main source of lighting, severely limited by access. Firewood is the main source for cooking and less than 1 percent of households use gas or electricity for this purpose.

## 4.2 Stylized Facts on Labor Market and Income Source in Rural Areas

More than others, the poor rely on labor for their livelihood and at first sight, the Burkina Faso labor market suggests a dynamic picture. The working population (ages 15 years and older) is nearly 81 percent and even higher in rural areas, 87 percent. It looks like everyone has to

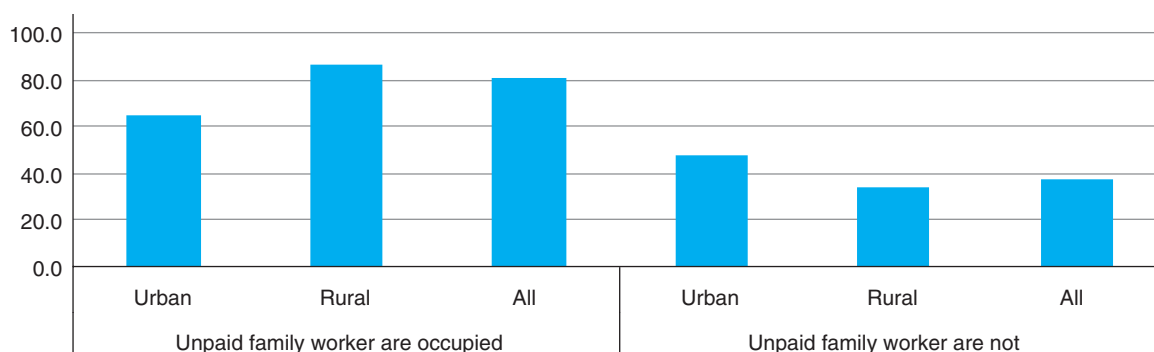
work to compensate for the low income. However, more than half of this workforce are unpaid family workers. This category of workers provides valuable help in farm and nonfarm household enterprises. However, it is also obvious that most of the unpaid family workers would choose a different job if better opportunities were present. In addition, the fact that agricultural activities are not market oriented means the International Labour Organization excludes unpaid family workers involved in subsistence farming from the labor force. Classifying unpaid family workers as unemployed produces a big drop in the working population to less than 38 percent nationally and only 34 percent in rural areas.

When considering the main job, rural employment is characterized by a very high concentration in agriculture,<sup>13</sup> cropping mainly

<sup>13</sup> The subsequent calculations are made after removing unpaid family workers from the workforce.



**FIGURE 4.1 Working Population (ages 15 and older) by Area of Residence**



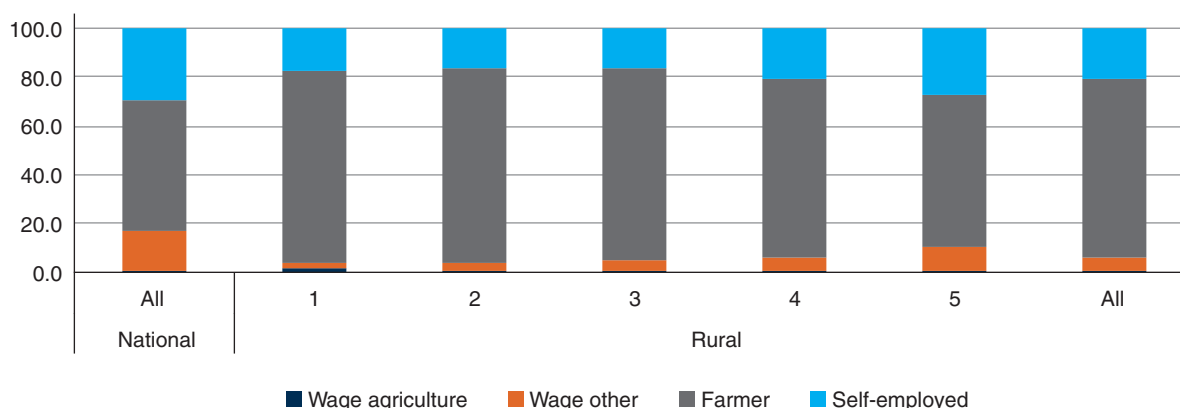
Source: Author's calculations using the EMC 2014.

**cereals and livestock.** Main jobs in the nonagricultural sector represent one-fourth of the workforce, mostly in family enterprises, and less than 6 percent of the whole rural labor force work for a wage. The family enterprises are mostly in small trading and the processing of food products. However, the main employment does not reflect the whole picture of the rural labor market in Burkina Faso. Because the agricultural season does not last the whole year and maybe also because of low productivity in agriculture, the population is involved in other activities. One-third of individuals ages 15 or older declared having a second job during the last 12-month period. While agriculture is still very important when considering the second job, it is not the most prevalent activity. Many families combine agriculture and livestock activities, having de facto multiple jobs; but the population also diversifies its activities and sources of income with nonfarm

activities which represent nearly 48 percent of secondary employment versus 46 percent in agriculture; again wage jobs are less prevalent. So the whole rural labor market picture (considering main employment and secondary jobs) shows that agriculture accounts for nearly two-thirds of the jobs. The nonagricultural sector is important even in rural areas with one-third of the jobs. Still, the rural sector in Burkina Faso is weak. During the last 15 years the structure of its labor market remains unchanged and not only is rural poverty still high, but the gap in relation to cities is increasing.

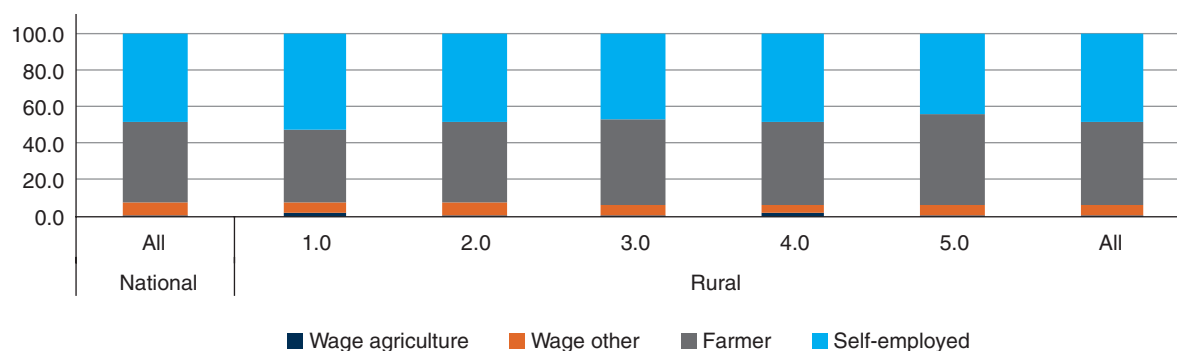
**There is a negative correlation between agriculture and poverty in rural areas.** Individuals from poor households work more in agriculture while better-off households are more involved in nonagricultural activities. The population of the first three quintiles have eight (main) jobs out of ten from farming (crops or livestock),

**FIGURE 4.2 Active Population 15 Years and Older, by Main Occupation and Welfare Quintile**



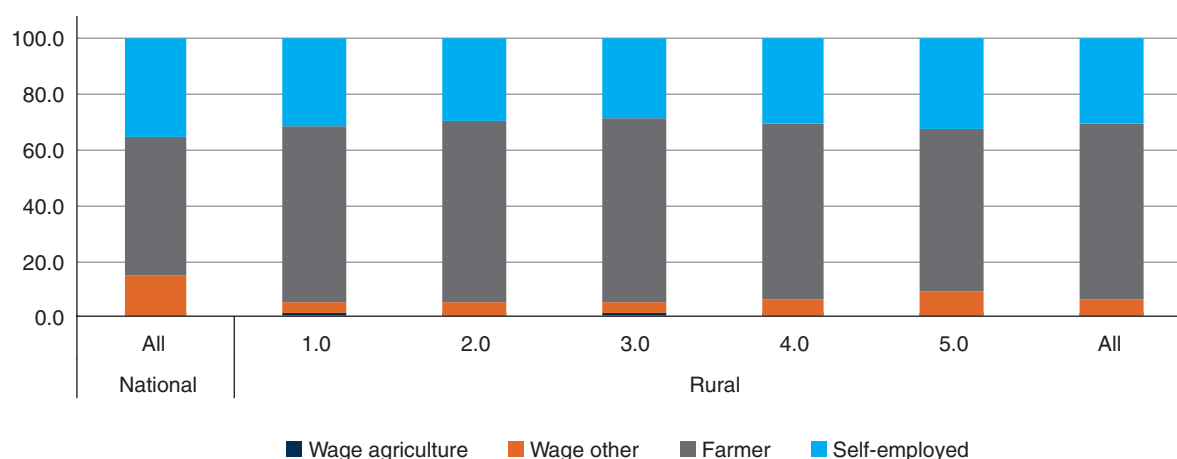
Source: Author's calculations using the EMC 2014.

**FIGURE 4.3 Active Population 15 Years and Older, by Secondary Employment and Welfare Quintile**



Source: Author's calculations using the EMC 2014.

**FIGURE 4.4 Active Population 15 Years and Older, by Main and Secondary Jobs and Welfare Quintile**



Source: Author's calculations using the EMC 2014.

this proportion drops to six out of ten in the fifth quintile. The comparison between rural and urban areas confirms the negative correlation between poverty and agriculture. The share of nonagricultural jobs is higher in urban areas and poverty is lower. While most of the jobs are in agriculture at the national level, there are some slight differences between the regions, explained by the level of urbanization of the region and maybe some other geographic factors. First the Centre region which contains Ouagadougou, the national capital, has 60 percent of its jobs in non-farm activities. This is specific to this region and the situation is largely due to the relative dynamism of African capital cities compared to secondary cities and remote areas. For example, the capital has a high percentage of civil servants and

offers opportunities for small trade and non-trade jobs with little start-up capital. The Centre-Est region, not far from the capital city, is the other region with a medium level of nonagricultural activities (35 percent).

**The high concentration of rural jobs in agriculture implies that most of the households draw at least part of their income from this sector of activity.** More than 90 percent<sup>14</sup> of rural households have an income from agriculture (crops or animal husbandry); wage earners in this sector are rare. Rural households draw an income from agriculture regardless of their welfare level; even among households in the fifth

<sup>14</sup> A household can be involved in more than one activity.

quintile, 80 percent have an income from this sector of activity. However, agriculture is not the sole source of income. As seen earlier, households diversify their activities using multiple strategies. First, they use the fact that household size is important to have multiple individuals in the labor market. Second, the agricultural off-season is the ideal time to be involved in some other activities and improve income and welfare. So households' members are involved in multiple jobs, either concomitantly with agriculture or during the agricultural off-season; nonagricultural income is also very present in rural areas. In fact, six out of ten households have an income from nonagricultural employment. Most of those households who are involved in nonagricultural activities own a small enterprise (56 percent); wage income is enjoyed by only 13 percent of rural households. Salaried income is present when they are wage earners either from the private or public sector. On the private side, most of the enterprises are located in urban areas where there is infrastructure (electricity, roads) and a potential market. On the public side, service delivery is a real problem in Burkina Faso and civil servants are not often present in remote rural areas. More than a quarter of households enjoy a nonlabor market income, mainly from remittances (26 percent). The other types of income (public transfers, real estate, interest from capital, and so on) are scarce (less than 2 percent of households).

**Unsurprisingly, agriculture is the most important income source. It represents nearly 61 percent of the total rural household income.** Less than half of a percentage point of this income comes from wages, so the total agricultural income is from farming. In Burkina Faso, farms are small and the production is for self-consumption, so the biggest part of this income is in nature, not cash, except for those who grow cash crops. Nonagricultural activities account for 36 percent of income; two-thirds of this income is derived from self-enterprises. The low level of wage income (less than 7 percent) reflects the rarity of wage earners in the countryside. Other income represents just 3 percent of total income,

most of it from private transfers. In particular, it is interesting to note the scarcity of public transfers in a country where households are vulnerable to many hazards (climate, shocks, and so on). Just for comparison, the distribution of income at the national level shows that 41 percent of the total national income comes from agriculture and 53 percent from nonagricultural activities.

**The Burkina Faso income structure adds another dimension of vulnerability to households.** Agriculture is subject to many types of shocks, including rainfall variability (drought, flood, and so on), locust attacks, prices volatility, and so on. For example, a decrease of more than 30 percent in the volume of rainfall and a similar increase a year later is not unusual in Burkina Faso. During the last decade, such decreases or increases have been recorded in Bobo-Dioulasso in 2006, 2010, 2011, 2012, and 2014; in Dori from 2005 to 2007 and in 2014; and in other parts of the country.<sup>15</sup> In addition to rainfall volatility, price variation is another issue faced by households. For example, cotton prices peaked at US\$210 per metric ton in 2011, but were around US\$60 in 2016. Having most of its income derived from agriculture makes income volatile and households vulnerable.

**With this configuration there is some degree of income diversification in rural Burkina Faso.** Income distribution is analyzed according to the degree of diversification at the household level. Diversification can be a strategy for accumulating wealth. This can be true for better-off households, for example those with one or more members with well-paid jobs who invest in some other activities. However, diversification can also be a necessity, for example, for poor households who need to complement their low income. In a situation of high poverty, diversification is a good strategy because it helps households cope with shocks. A household is specialized in a source of income if it derives at least 75 percent of its total revenue from that source. Households that obtain less than 75 percent of their total income from

<sup>15</sup> The statistics come from the Statistical Yearbook of Burkina Faso, 2014 edition.

**TABLE 4.2 Total Household Income by Source and Welfare Quintile**

	National	Rural					
	All	1	2	3	4	5	All
% having income							
Agriculture	70.7	95.3	95.3	94.1	92.0	80.9	90.2
Wages	1.9	4.1	2.9	2.2	2.2	1.1	2.3
Farm	70.5	95.3	95.1	94.0	92.0	80.7	90.1
Nonagriculture	68.5	57.7	60.6	61.0	61.7	65.5	61.9
Wages	23.4	10.1	11.7	11.7	13.3	16.3	13.1
Self-enterprises	57.4	53.9	56.2	55.7	57.3	56.4	56.1
Other	29.4	24.6	28.6	28.2	24.4	29.9	27.4
Private transfers	26.4	24.5	27.7	26.9	22.8	27.9	26.1
Others	4.8	0.6	1.4	1.5	1.9	3.2	1.9
% of total income							
Agriculture	40.8	75.8	69.9	65.5	60.3	50.6	61.0
Wages	0.4	1.1	0.7	0.6	0.4	0.1	0.5
Farm	40.4	74.7	69.1	64.9	59.9	50.5	60.5
Nonagriculture	53.2	22.4	28.0	32.0	36.7	45.0	35.9
Wages	17.4	2.3	3.3	5.3	5.2	10.1	6.3
Self-enterprises	35.8	20.1	24.7	26.7	31.5	34.9	29.5
Other	6.1	1.8	2.1	2.5	3.0	4.3	3.1
Private transfers	3.2	1.7	2.0	2.3	1.6	3.3	2.4
Others	2.8	0.1	0.1	0.2	1.4	1.1	0.7

Source: Author's calculations using the EMC 2014.

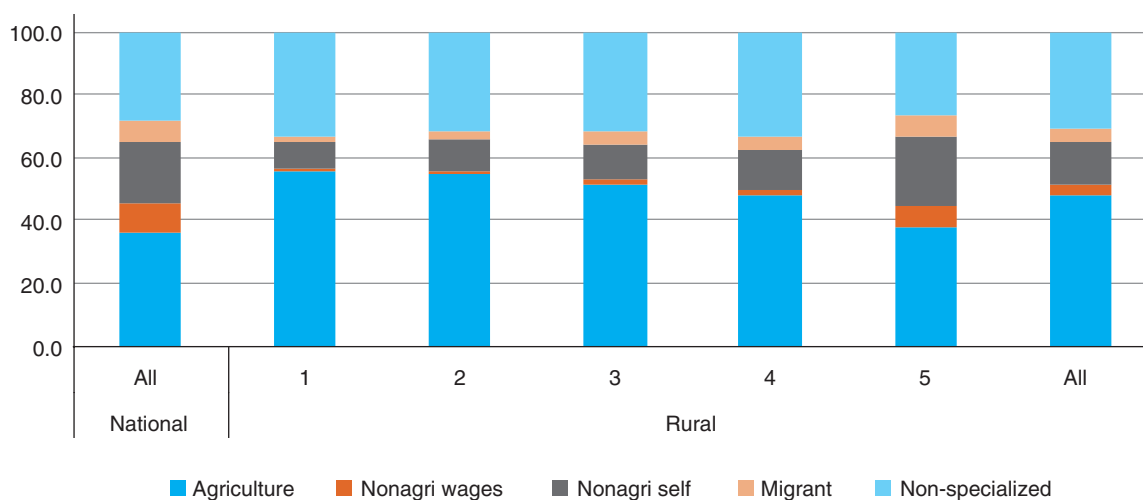
four sources are considered not specialized or diversified.

**In rural Burkina Faso, half of the households are specialized in agriculture, roughly one out of six are specialized in nonagricultural activities, nearly 7 percent on migration, and nearly one-third are diversified.** Given the efforts deployed by households in agriculture, and effort measured as the proportion of households involved in those activities, this level of specialization is logical. However, it also puts households, and particularly poor households, in a difficult situation. Households in rural Burkina Faso are subject to many shocks as noted earlier. Having most of their income come from agriculture makes these households vulnerable because in the event of a shock, they can lose a

big part of their income. With the imperfection of the insurance market, as seen previously, they have to rely on their own solitary mechanisms to cope with it.

**In rural Burkina Faso, income diversification is not necessarily correlated with welfare, but the type of specialization is.** Better-off households are more specialized in nonagricultural activities, either self-enterprises or wage jobs. Only 8 percent of households in the first quintile are specialized in nonfarm enterprises and less than 1 percent are specialized as wage earners; those statistics are 21 percent and 7 percent, respectively, of those in the fifth quintile. At the same time, better-off households are less specialized in agriculture and are also less diversified. It seems that even though

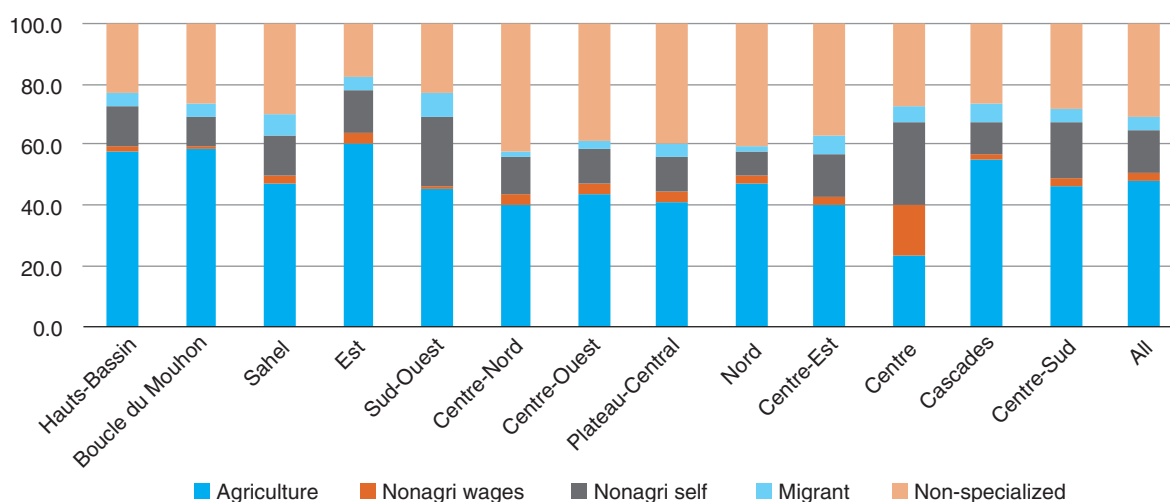
**FIGURE 4.5 Percentage of Households by Type of Specialization and Welfare Quintile<sup>a</sup>**



Source: Author's calculations using the EMC 2014.

Note: a. A household is specialized in an activity if 75 percent of its income comes from that activity.

**FIGURE 4.6 Percentage of Households by Type of Specialization by Region<sup>a</sup>**



Source: Author's calculations using the EMC 2014.

Note: a. A household is specialized in an activity if 75 percent of its income comes from that activity.

diversification clearly improves income because households are involved in activities other than their primary ones, it does not really take households to the next level of well-being. Poor households start with agricultural activities, then they diversify, but the additional income is low so those households are still poor and, despite diversification, are either specialized in agriculture or not specialized. The pattern of diversification also varies by region. The Centre region, where

Ouagadougou is located, has two households out of five specialized in nonagricultural activities; one-fourth are diversified, and less than one-fourth are specialized in agriculture. On the other hand, high specialization in agriculture is in regions such as Est, Boucle du Mouhoun, Cascades, and Hauts-Bassins, some being very poor and others not. So at the regional level, the type of agriculture and its level of productivity can account for some differences.

### BOX 4.1 Income Aggregate

The income aggregate is constructed using the Rural Income Generating Activities approach. Household income has three components: agricultural income, nonagricultural income, and other income. Agricultural income consists of wages, crop income, and livestock income. Nonagricultural income comprises wages and income from nonfarm enterprises, and other income includes public transfers, remittances, and other income (rental, interest, dividends, and so on). Income is calculated using different modules of the questionnaire. The employment module collects wage income. There are two modules on production activities, a module on agriculture and a module on nonfarm enterprises. Another module is dedicated to remittances and a last module collects other nonlabor income. The survey was implemented in four visits, and different modules were administered during different visits.

**Agricultural income.** This income comprises agricultural wages and farm income. The EMC did not collect livestock data. Livestock is important in Burkina Faso, representing 10 percent of GDP. So not taking into account livestock underestimates both total income and agricultural income. Wages are taken from the employment module of the second visit. Agricultural wages are defined by the type of industry reported by the respondent. Only those industries related to agriculture are included. Wages comprise salary and different bonuses, in cash. Some workers have some benefits in-kind but those have been dropped—first because only a few people received them and second because there were too many outliers. Wages are computed for the primary and secondary employment at the individual level and then aggregated to the household level. The agriculture module was administered during the fourth visit, between November 2014 and January 2015 when the harvest was almost completed. Farm income is computed by considering the whole production, crop by crop, valuing it using production prices and subtracting the costs of labor and input. In contrast to wages, farm income is directly computed at the household level.

**Nonagricultural income.** This income is computed in the same way. Wages from nonagricultural work come from the employment module and are computed for the primary and secondary employment. The type of industry is used to classify nonagricultural wages. The module on nonfarm enterprises which was administered during the second visit is used to calculate income from enterprises. Information is collected on the revenues received and operating costs for the last month of operation. Using this information, the monthly value added is computed. This value added is annualized by multiplying the former by the number of months the enterprise operated during the last 12 months. Then taxes, which are collected for the last 12 months, are subtracted to provide the net income.

**Other income.** A module on remittances was administered during the second visit and is used for the calculation of this type of income. A module for all other income sources is also available. It is worth noting that remittances are underestimated. According to the 2014 EMC, the total amount of private transfers was CFAF 74.3 billion, with CFAF 48.5 billion being transferred from abroad. The total amount of remittances according to the 2014 balance of payment was CFAF 179 billion. It is true that the two concepts do not coincide exactly. For example, if someone who lives abroad has a bank account in his country and transfers money to this account, it is a remittance in the sense of the balance of payment, but not a transfer in the sense of household survey because there is no beneficiary. Still the difference is huge and it is not an exaggeration to think that the EMC has captured just one-third of the remittances.

## 4.3 Agricultural Sector

**Agriculture is the backbone of the Burkina Faso economy and because the majority of households derive their income from it, improving agricultural productivity is a key driver of poverty reduction.** The sector is dominated by traditional subsistence farming. In

2014, traditional crops accounted for three-fifths of total production (by value) with sorghum, millet, and maize accounting for 40 percent. The other important traditional crops are rice, peanut, and cowpeas. Cash crops, cotton and sesame also total 40 percent of production. The potential of the country in other high value-

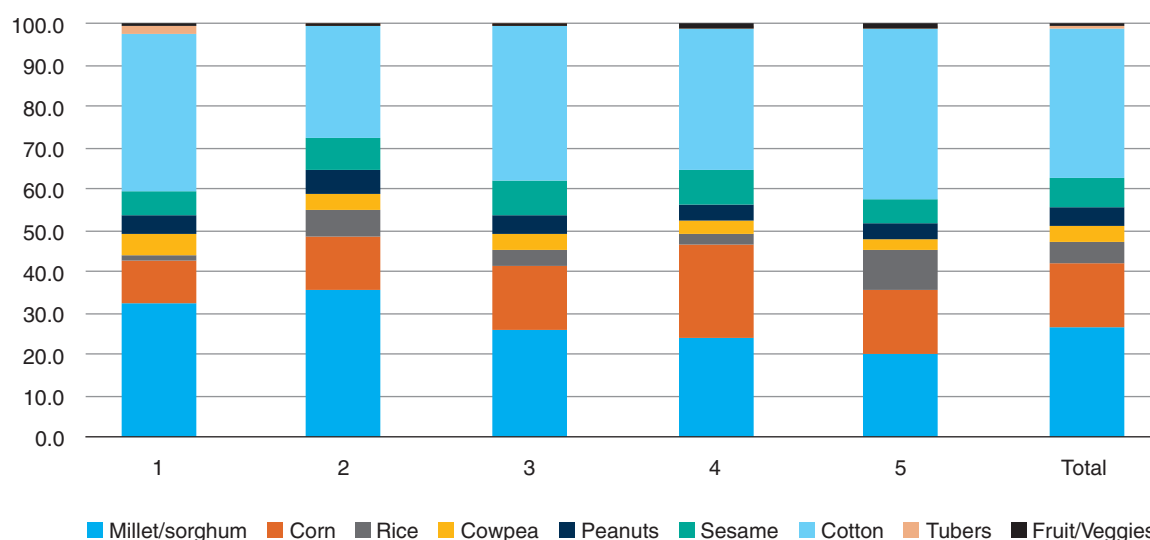


**TABLE 4.3** Distribution of Agricultural Production (by value) by Area of Residence and Type of Crop

	Cereals	Tubers	Grains	Cotton	Fruit/veggies	Total
Urban	58.2	0.3	23.3	15.9	2.2	100
Rural	47.5	0.6	15.1	36.2	0.7	100
Total	47.8	0.6	15.4	35.4	0.8	100

Source: Author's calculations using the EMC 2014.

**FIGURE 4.7** Distribution of Rural Agricultural Production by Welfare Quintile and Type of Crop



Source: Author's calculations using the EMC 2014.

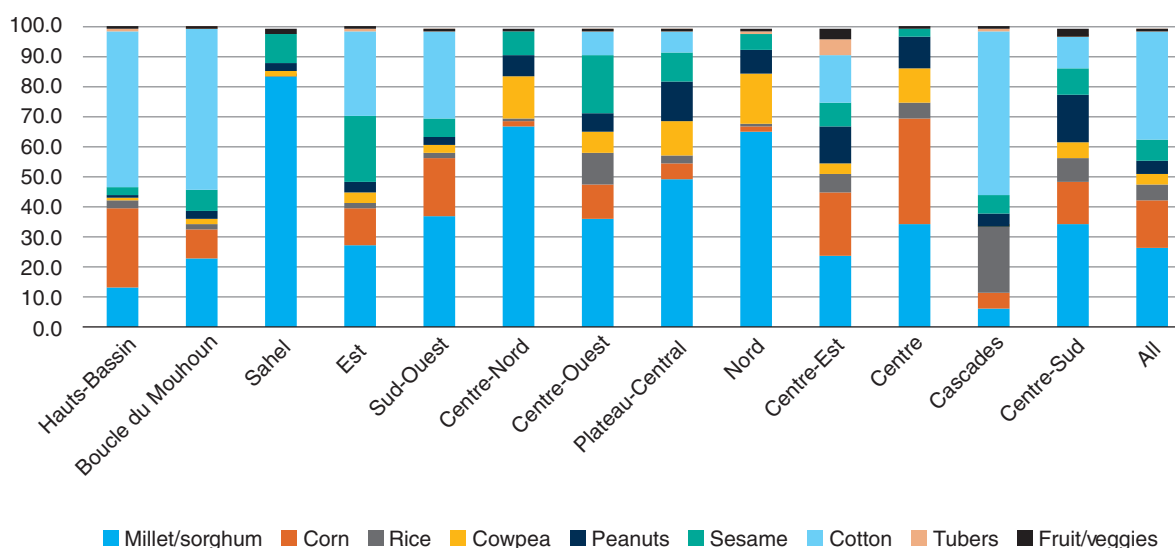
added crops like fruits and vegetables is inadequately exploited.

**There is no obvious correlation between diversification in agriculture and poverty at the regional level.** Two of the three poorest regions, Nord and Centre-Nord, are highly specialized in traditional crops, particularly in dry cereals (millet and sorghum); the sole cash crop is sesame which represents some 6 percent of the total production. However, the Sahel region, one of the least poor, also specializes in traditional crops. The difference between the three regions may come from livestock which is important in Sahel but is not taken into account in this analysis.<sup>16</sup> On the other hand, being specialized in cot-

ton does not protect against poverty. In three regions, Hauts-Bassins, Boucle du Mouhoun, and Cascades, cotton accounts for more than half of production. While the first and the last regions enjoy moderate poverty rates, Boucle du Mouhoun is the region with the second highest poverty head count. Again, the Hauts-Bassins region is one of the most important in livestock, but livestock is also important in the two other regions. The Est and Sud-Ouest regions are the most diversified agriculturally, producing cotton, sesame, cereals, and peanuts, but the two regions are not less poor. So the pattern of poverty is not linked to the degree of agricultural diversification as can be seen when looking at the pattern of production by welfare quintile. Cotton, which is the main cash crop, is relatively important in the first quintile (the poorest) and the fifth quintile (the richest). However, it is interesting to note

<sup>16</sup> There are three important regions for livestock in Burkina Faso: Sahel, Est, and Haut-Bassins. The Nord region, which borders the Sahel region, is among the less dynamic regions for livestock.

**FIGURE 4.8** Distribution of Rural Agricultural Production by Region and Type of Crop



Source: Author's calculations using the EMC 2014.

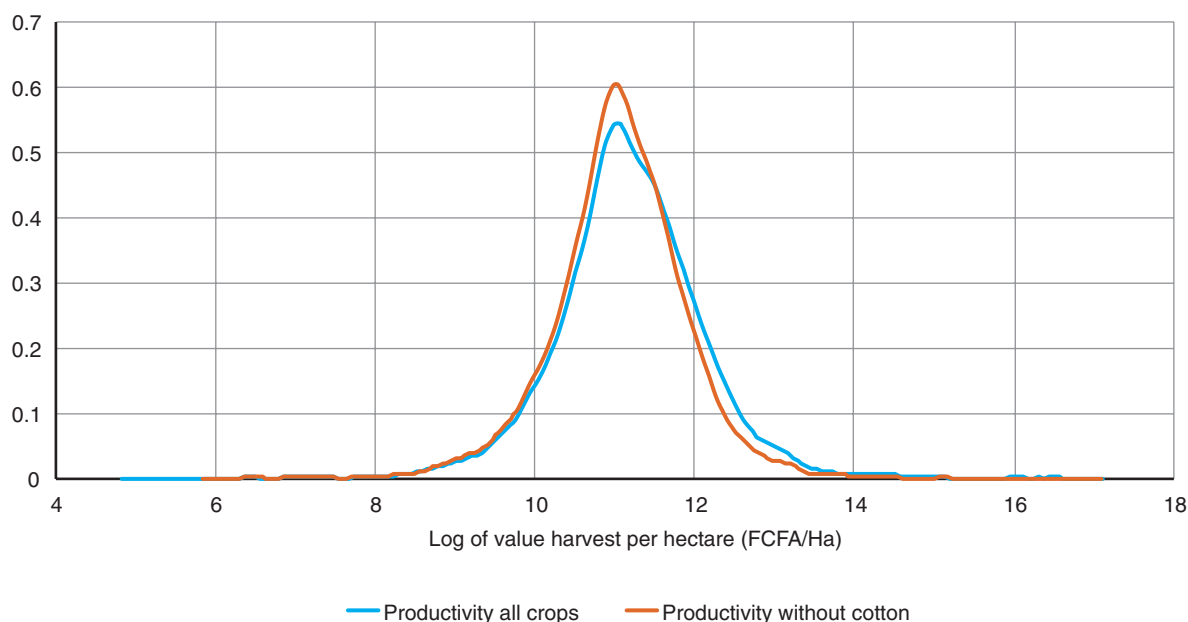
that millet and sorghum are relatively more important in the poorest households and rice is more important in the wealthy rural households.

**Burkina Faso's agriculture sector operates at a small level.** Total annual production is less than CFAF 600,000 a year. To put this production into perspective, remember that the poverty line is CFAF 153,530 per capita per year and that the average household size in rural areas is eight persons. So an average household needs CFAF 1.2 million to be out of poverty, twice the annual production of an agricultural household in a rural area. This agriculture is household-needs oriented rather than market oriented. Less than 6 percent of total production was sold during the data collection period. Even though part of that production was still in stock (and in the case of cotton it will be sold), it is hard to imagine that a substantial percentage of cereals and other food crops will be brought to market when household needs are barely satisfied. The scale of production is small, with the average household cultivating less than 4 ha and half of households less than 2.5 ha. While this area of land is not as small as in other countries like Mali and Niger, it would certainly be considered small if the production were for market.

**Productivity is also low, around CFAF 160,000 per hectare.** As seen earlier, yields of the main crops (millet and sorghum, maize, and cotton) have not improved much in the last two decades. While population is growing rapidly with obviously additional food needs, production increases come from more areas being cultivated and not from productivity gains.

**The agriculture sector performs largely below capacity.** Agriculture is not mechanized and farmers rely on small equipment like hoes, pickaxes, sickles, machetes, and so on. The average value of the equipment owned by a farm is CFAF 135,000, less than US\$250. Tractors or other big equipment are nonexistent and less than two farms out of five use a plough or other type of equipment that relies on animal traction. Labor is abundant, due in part to the large size of households and the contribution of children. The total amount of labor on a farm is 411 days, and 20 percent of this amount of work is provided by children under the age of 15. However, although labor is abundant, the whole labor force is shared among many activities. Assuming that a regular worker works 200 days a year and there are, on average, four adults in a household in a rural area, the amount of work provided by adults on a farm represents less than 50 percent of household

**FIGURE 4.9 Kernel Density of Logarithm of Agricultural Production per Hectare (in CFAF/Ha)**



Source: Author's calculations using the EMC 2014.

potential. In addition to the underutilization of labor, the use of inputs is also limited. Half of the farms use manure, but only four out of ten use chemical fertilizers and one-third rely on pesticides. Also, according to the 2015 agricultural survey, less than 5 percent of farms practice irrigation.

**The pattern of agriculture in Burkina Faso cannot be fully understood without taking cotton into account.** There are huge disparities between cotton producers and other agricultural households. Households involved in cotton are less likely to have female heads (4 percent versus 13 percent for non-cotton), household heads are more educated, and households are smaller in size. Total production is eight times greater than in non-cotton households, area cultivated is two times greater, and productivity is 3.5 greater. Cotton producers also mobilize more inputs and have more equipment. Household size is slightly larger among households that produce cotton but family labor is even more heavily used in these households, providing, on average, 42 percent more family labor than non-cotton producers. Cotton-producing households also use non-family labor (51 days of work a year) while this

resource is virtually unused by non-cotton-producing households. Nearly all cotton producers use chemical fertilizers and 90 percent use pesticides. The value of their equipment is three times greater than that of non-cotton-producing households.

**An estimation of an agricultural production function provides some insight into the low level of productivity in Burkina Faso.** The dependent variable is the logarithm of the value of production per hectare. The explanatory variables are the household characteristics and its head; the farm characteristics, including area cultivated, labor, level of input used, equipment, and so on; and dummy on the type of crops grown and geographic variables. The model is estimated for all households and then separately for households that grow cotton and those that do not. The results are in Table A8 in the annex.

**First, the results show that household characteristics are correlated with productivity.** The sign of the coefficient associated with the variable identifying the gender of the head is positive, and female-headed households are, on average, 14 percent more productive than male-headed households; but the result does not hold for

**TABLE 4.4 Characteristics of Rural Agriculture by Welfare Quintile**

	1	2	3	4	5	All
Head being female (%)	11.9	10.2	13.2	12.0	16.1	13.1
Average age of the head	51.2	49.3	48.4	46.4	43.2	47.0
% head with some education	7.1	7.3	10.3	10.3	19.5	12.0
Dependency ratio	1.74	1.55	1.48	1.28	1.03	1.36
Average number of plots	3.9	3.8	3.6	3.3	2.9	3.4
Production total (CFAF)	580,330	578,313	529,011	551,067	679,695	589,689
Production sold (CFAF)	24,483	26,671	36,107	34,455	39,864	33,326
Area cultivated (Ha)	4.1	4.4	3.9	3.6	3.1	3.7
Men family labor (days)	171	186	167	161	130	159
Women family labor (days)	195	220	188	158	121	168
Kids family labor (days)	110	123	102	76	43	84
Non-family labor (days)	8	13	12	11	16	12
Non-family wages (CFAF)	4,059	7,599	6,923	9,572	12,518	8,819
Non-family wages if labor (CFAF)	16,988	25,827	23,569	32,788	3,5956	29,260
Use organic fertilizer (%)	57.6	59.8	57.7	57.5	49.4	55.6
Value of organic fertilizer (CFAF)	621	1045	511	959	626	744
Value of organic fertilizer, if used (CFAF)	1078	1749	885	1585	1267	1321
Use chemical fertilizer (%)	37.0	43.8	43.3	42.4	40.5	41.5
Value of chemical fertilizer CFAF)	33,713	49,038	46,463	46,494	45,849	44,886
Value of chemical fertilizer, if used (CFAF)	91,195	112,025	107,219	109,583	113,144	108,203
Use pesticides (%)	25.7	32.5	31.1	32.1	33.3	31.4
Value of pesticides (CFAF)	9,661	13,452	14,246	13,193	14,471	13,296
Value of pesticides if used (CFAF)	37,655	41,341	45,837	41,095	43,399	42,318
Acquire seeds in the market (%)	92.4	92.0	90.3	87.8	76.5	86.4
Value of seeds bought (CFAF)	7,873	226,634	11,415	14,043	11,252	47,185
Value of seeds bought, if used (CFAF)	8,520	246,456	12,647	15,986	14,704	54,642
Use tractors or similar equipment (%)	0.5	0.3	0.6	0.8	0.6	0.6
Use plough or medium equipment (%)	42.3	43.2	41.3	38.4	30.6	38.0
Use small equipment (%)	95.9	95.8	95.0	92.8	81.9	91.0
Equipment value (CFAF)	123,472	134,910	145,188	140,745	129,831	134,949
Equipment value, if available (CFAF)	128,756	140,783	152,828	151,666	158,481	148,314
Farm more than an hour to market (%)	33.5	31.2	32.1	35.4	32.8	33.0
Farm more than an hour to transport (%)	51.0	53.2	49.8	51.2	49.5	50.8
Farm more than an hour to the road (%)	41.2	42.1	38.0	37.5	35.9	38.4
Having a bank account or in a microfinance institution (%)	4.8	7.7	8.7	9.3	18.8	11.1

*Source:* Author's calculations using the EMC 2014.

households cultivating cotton. The effect of human capital variables is mixed. The experience, measured by the age of the head, has a positive effect on productivity, but education variables have no effect. Actually education is generally low in rural Burkina Faso and the

absence of effect is not a surprise. The effect of land size (measured by the natural log of the area cultivated) is negative and strongly significant in all regressions indicating that productivity declines with land size. This result is consistent with the inverse relationship between

productivity and land size found in many other studies.<sup>17</sup> Because households involved in cotton have, on average, larger farms than non-cotton producers, this result may give female-headed households a relative advantage in productivity.

**Second, labor and nonlabor inputs are also strongly positively correlated with productivity.** The elasticities of male household labor, female household labor, child family labor, and nonfamily labor are all positive with a positive sign. The highest is the elasticity of male family labor which is 0.07. In other words, a 10 percent increase in male family labor (in number of days per hectare) is associated with a 0.7 percent increase in productivity. Female labor and child labor elasticities are 0.04 and 0.01, respectively, and the elasticity of hired labor is 0.06. These results suggest that men working on their own farms are more productive than persons coming from outside the household; but women and children are less productive than hired labor. As for nonlabor input, the coefficients associated with those variables are also significant. The value of chemical fertilizers and pesticides has a positive effect on productivity. If the value of chemical fertilizer increases by 10 percent, productivity increases by 2.3 percent; a similar effect with the use of pesticides is noted.

**Labor and nonlabor inputs are used in conjunction with capital to generate production. Despite the fact that capital resources are low, the coefficient associated with the value of agricultural capital per hectare (in log form) is positive and significant.** The coefficient estimate suggests that a 10 percent increase in the value of agricultural capital leads to a 0.7 percent increase in productivity. While this elasticity is relatively low, the positive correlation shows that there is room to improve productivity with a minimum of equipment involved in the production process.

**Other factors considered also have solid correlation with productivity.** The type of crops grown by the household affects productivity. In

fact, growing dry cereals is associated with a decrease in productivity while rice, sesame, cotton, and tubers are associated with an increase in productivity. The strongest effect is with cotton: a household growing this crop doubles its productivity, after controlling for all other characteristics. Rice also has a significant effect, with an increase of 17 percent compared to households not growing rice, after controlling for all the other factors. The impact of shock also is negative; households affected by a shock see an 8 percent decrease in their productivity compared to households that have not been affected by any shock. Having any bank account, either in the formal banking system or in a microfinance institution, is associated with an increase in productivity of nearly 12 percent. Finally, regions, which take into account unobservable characteristics, also have a significant coefficient.

**These results provide insight into the low productivity of Burkina Faso's agriculture sector and explain the difference in welfare among households.** Wealthier rural households do not have larger plots. However, they use more fertilizer and pesticides (when measured per hectare), the value of equipment is higher, and they use more hired labor. All these factors are the main determinants of productivity and explain why they have better income. In addition, their demographic composition (lower in size and lower dependency ratio) explains the differences in income and welfare. In fact, rural households face several poverty traps which hamper their ability to improve productivity. First, agriculture is not mechanized, and equipment has a real impact on productivity. In addition, the imperfection of the credit market makes it difficult to borrow and acquire equipment. Only 11 percent of households have a bank account and the poorest households in the lowest quintile are more penalized, with less than 5 percent of them having a bank account versus 19 percent of those in the highest quintile. Without having access to the formal finance system, farmers rely solely on family and friends who have weak financial capacity to finance equipment and will rarely

<sup>17</sup> See for example Carletto et al., 2013.

lend their money for the medium term. In 2014, in less than 2 percent of existing rural areas have loans been granted for equipment. It is interesting to notice that if credit were accessible, farmers would be willing to borrow, as they do when it comes to other matters. For example, nearly one-third of loans have been to acquire input, one-third coming from friends and family, one-third from a cooperative, and one-third from a supplier or the formal banking system. The second poverty trap is the low use of fertilizer and pesticides, which also has a negative impact on agricultural productivity. Access to labor input is better, but even that is not optimally used by households. The third point is the specialization in households. Most of the areas cultivated are mainly used for dry cereals, crops with a negative impact on productivity. Cotton, rice, and tubers have a better impact on productivity and are probably a pathway to improving it. Of course it can be worth exploring other potential high productivity crops like fruit and vegetables. In addition to all these factors, households have limited access to a market. Half of the households have to walk more than an hour to find transportation and 38 percent are more than an hour from the nearest road. In such conditions, even if farmers were able to produce a surplus, they would have difficulty getting it to market and selling it at a fair price.

## 4.4 Nonfarm Enterprise Income

**A nonfarm enterprise is the second most important income source in Burkina Faso rural areas.** According to the 2014 EMC, there are 2 million nonfarm enterprises in rural areas, on average 1.1 enterprise per household. More than 60 percent of households rely on nonfarm enterprises for their livelihood. These enterprises belong equally to households at all levels of welfare, the poorest to the wealthiest; 61 percent of households in the first quintile have a household enterprise and this percentage is 63 percent in the fifth quintile, meaning that poorer and better-off

households rely on this source of income. Most of the household enterprises belong to women (three out of five), who usually run them as their secondary job in addition to their activities in agriculture. Only one-third of rural enterprises are busy all year round. Half of them are seasonal activities, eight months a year on average. The remaining may not operate at all due to difficulties, such as lack of customers or lack of inputs. The average age of the owner is 36, showing that the person has some experience of the activity. These enterprises are concentrated in activities with few barriers to entry (low capital and relatively unskilled). The most represented sectors are retail (40 percent), food processing (20 percent), and extractive industries (1 in 6). Such activities may start with a low level of equipment and without any specific technical training. Manufacturing that requires more technical skills accounts for only 11 percent of enterprises.

**The demographics of nonfarm enterprises present a mixed picture.** The average number of years of existence is seven, showing that the enterprises last enough years, which allows them to grow; in fact, one enterprise out of six is more than 15 years old. However, at the same time, one-half of them are less than five years old and one-fourth were created during the last three years, clearly showing less dynamism. The older enterprises are found in manufacturing, food processing, and services.

**The relationship between family enterprises and the administration are nonexistent and most of them are in the informal sector.** A formal or modern enterprise is known by the administration and is at least registered with the tax authorities. In addition, it must have a basic formal accounting system. Household enterprises in Burkina Faso do not meet any of these two criteria. Only 0.7 percent are registered with the tax authorities and 0.1 percent have a formal accounting system. These enterprises may be unregistered because the tax authorities are less present in the countryside, but that is probably not the reason as, even at the national level, only 1.6 percent of enterprises are known by the tax authorities. The truth is that most nonfarm



enterprises are so small that it is not worth trying to collect any tax.

**Nonfarm enterprises also operate at a small level and working conditions are precarious.** The main place of business is outdoors, either a specific spot by the side of the road or a market place or as a street vendor. One-third of the enterprises operate at home and only 7 percent own a specific business premises. The place where the business operates depends on the type of industry. In the case of extractive industries, virtually all of them work outdoors. Manufacturing and food processing industries have a local plant, with 60 percent of them operating from home. Only one-third of retailers work from home and most of them are on the street. In addition to not having a business premises, activities are carried on without basic commodities, such as electricity or water. This precariousness in the exercise of the activity makes these companies vulnerable (and perhaps also the households to which they belong), as adverse weather conditions may force them to stop working. In fact, the mobile phone is the only modern working tool that is now entering the world of individual enterprises.

**The low level of business is evident in the means of production used.** In addition to the absence of a business premises and basic commodities, the start-up capital of the average enterprise is CFAF 80,000 (less than US\$150) and consists essentially of tools and basic equipment. Less than 3 percent of enterprises have machines, less than 6 percent have motorbikes and automobiles, and less than 1 percent have furniture. At this low level of business, it is difficult to achieve good productivity and a decent income. Start-up capital correlates to the level of welfare. Very small enterprises with an average start-up capital of CFAF 22,000 belong to the poorest households while the start-up capital of the wealthiest households is more than ten times greater. So although owning a family enterprise does not make the difference between households, the size of the enterprise is discriminant, with bigger enterprises belonging to better-off households. Moreover, growth potential is limited. Growth requires

more financing. But the relationship between owner enterprises and the banking system is limited and only 5 percent own a bank account in the formal system or in a microfinance institution. Although more than 94 percent obtained loans during the last 12 months, it was through informal channels, particularly parents and friends, and the loans were small and not dedicated to developing the enterprise.

**Nonfarm enterprises' labor comes mainly from family, and these enterprises are created more for survival than to create wealth.** An average individual enterprise employs just its owner and at times some unpaid family workers. Less than 3 percent of the family enterprises use hired labor (1 percent in the first quintile and 4 percent in the fifth quintile). To put it another way, an individual enterprise in Burkina Faso is created only to employ the person who created it. In addition, the human capital is low; only one out of ten owners have attended school. This low level of education cannot be supplemented by other family members as they are in the same situation. These statistics reflect the low skill level of the workforce, and this low skill level combined with the low level of capital can only result in the production of low-quality products that cannot always compete with imports.

**The small scale of production largely justifies the modest outcome from nonfarm enterprise business.** The annual turnover is CFAF 662,000. A unit of production creates on average a value added of CFAF 550,000 per year. Because hired labor is rare and very few units pay taxes, the total value added turns out to be very close to net income, which is CFAF 534,000. This net income varies from CFAF 192,000 for enterprises in the first quintile to nearly ten times greater for enterprises in the fifth quintile, making a massive difference.

**As earlier, the performance of nonfarm enterprises is analyzed using a regression technique.** The dependent variable is productivity, measured by the value added per hour of work. The explanatory variables include the characteristics of the owner (gender, human capital) and of the enterprise (the total hours worked, the use

and value of equipment, and some other characteristics). The model is estimated using the Heckman technique, at the first stage the probability of owning a nonfarm enterprise and productivity at the second stage; the results are provided in Table A5 in the annex. Productivity depicts an inverse relationship with the annual volume of hours worked as in the case of farm enterprises. Enterprises run by women are also less productive than those run by men, the difference being estimated at 56 percent. Because six out of ten nonfarm businesses belong to women, this result provides one explanation of low productivity and income derived from these enterprises. Productivity is also correlated with experience, the experience of the owner and the experience of the enterprise itself. The more the person is in the business, the more his enterprise gains in productivity; and the more the enterprise is operating, the more its productivity improves. Productivity is positively correlated with the value of capital and hired labor. The elasticity of productivity on capital is 0.017, meaning that an increase of the value of capital of 10 percent will increase productivity by 0.17 percent. So owning machines and other equipment increases productivity. As for labor, an enterprise that hires people is 34 percent more productive than one that only uses family workers. Having some degree of formal existence, for example having registered with the tax authorities, having a professional place of work, having electricity, or owning a mobile phone, improve the enterprise's performance substantially.

**These results confirm that productivity and income are positively correlated with the size of nonfarm enterprises.** When the enterprises have a minimum size which allows them to own some equipment, if they operate in a professional local and if they have a minimum degree of formal existence, then their performance improves substantially. The issue with a low income-generating process is that the creation of nonfarm enterprises follows population growth. Enterprises are created at a very small scale of production, more to fill the nonworking time encountered during the agricultural off-season. However, without

qualifications, skills, and access to credit, those enterprises remain too small to provide decent incomes to their owners and they struggle to impact poverty.

## 4.5 Private Transfers

### 4.5.1 The Size and Origin of Private Transfers

**Private transfers are an important source of household income in many developing countries, but they present a real challenge of measurement from household surveys.** According to World Bank,<sup>18</sup> at the macroeconomic level, international remittances which are part of private transfers were estimated at US\$582 billion in earnings in 2015. In 27 countries, remittances were equal to more than 10 percent of GDP in 2014; in ten countries they were equal to more than 20 percent of GDP. At the household level, a survey on different research of private transfers in nine countries shows that a minimum of a quarter of households receive private transfers.<sup>19</sup> Having a better understanding of private transfers is important for designing social policy because they provide economic and social benefits similar to those of public programs, for example a pension for the senior or insurance in the case of unemployment or a shock. In Burkina Faso in 2014, the World Bank estimation of international remittances was US\$396 million (roughly CFAF 200 billion) while the calculation of the 2014 household survey is CFAF 74 billion for all transfers, with 40 percent (CFAF 30 billion) originating from outside the country. Clearly this household survey underestimates private transfers, because the international private transfers, as measured by the survey, represent just 15 percent of remittances as estimated

<sup>18</sup> <http://www.worldbank.org/en/topic/migration/remittancesdiasporaissues>

<sup>19</sup> Daniel Cox and Emmanuel Jimenez. 1990. Achieving Social Objectives Through Private Transfers: A Review, The World Bank Research Observer.

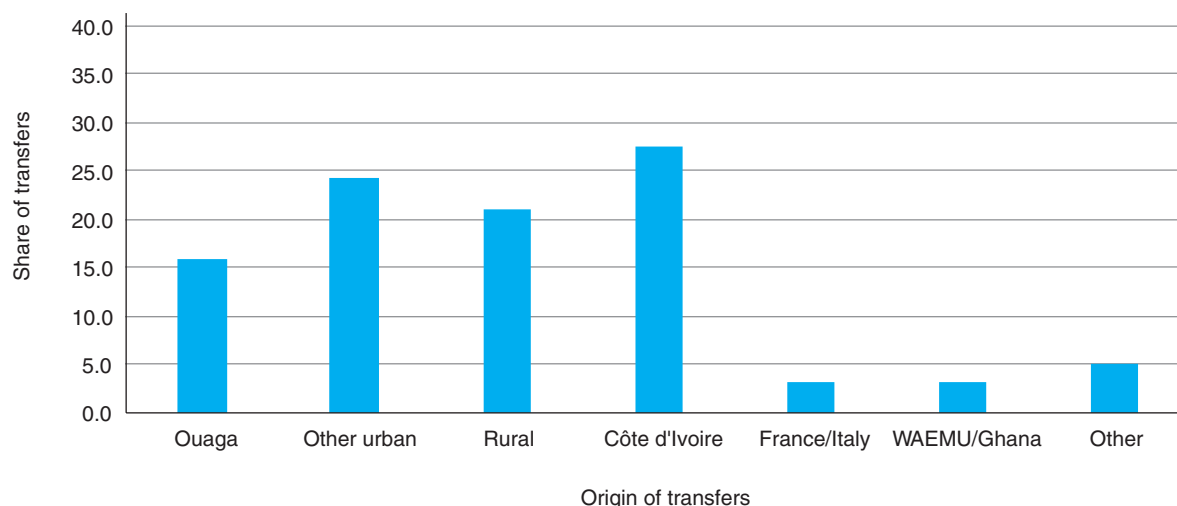
by the World Bank. Measuring transfers from household surveys poses the same difficulties as measuring other sources of income, reluctance to declare income, memory effect, and so on. However, the underestimation underlined above is overstated because the concept of remittances (as defined by the World Bank) and transfers (as seen in household surveys) do not coincide. In particular, remittances include compensation of employees and savings and direct investment of migrants, which are not included in transfers as captured by surveys. However, the team kept in mind that there is an important underestimation of private transfers and were cautious when drawing conclusions.

**In Burkina Faso, 25 percent of households enjoy private transfers and they represent 3.2 percent of the total household income.** As it has been stated earlier, private transfers seem largely underestimated. However, they represent the fourth source of income after agriculture, wages, and nonfarm enterprises and largely before public transfers. Private transfers have different motives and most of them are fulfilled in Burkina Faso. First there are customs and social norms and the more valid population has the moral obligation to support the others, either by altruism or for self-interest. In a country where about 80 percent of the population lives in rural

areas and depends on a low productive rain-fed agriculture, many are poor and they benefit from the generosity of the less poor. However, private transfers can also be the consequence of economic shocks or other motives. For example, through mutual agreements, households use transfers as risk-sharing mechanisms. These mutual insurances allow households to transfer transitory income among themselves with the aim to smooth their consumption. Also the principle of reciprocity motivates transfers between households. In this view, each transfer acts as a counterpart of previous transfers involving family members and friends in social arrangements.

**Households receive transfers both inside and outside the country, and Côte d'Ivoire is the main origin of such transfers.** The most important fraction of Burkinabé who migrated live in Côte d'Ivoire. These millions of individuals, who work essentially on coffee and cocoa plantations and in industries, send money to their relatives in Burkina Faso. These transfers represent a quarter of the total transfers (inside and outside the country) and 70 percent of transfers from outside the country. Doing so, populations in Burkina Faso benefit from positive externalities of the economic health of Côte d'Ivoire. Data also show that transfers from Côte d'Ivoire are directed to rural areas (34.2 percent

**FIGURE 4.10** Share of Transfers by Their Origin



Source: Author's calculation using the 2014 EMC.

against 12.7 percent in urban areas). This can be explained by the fact that plantations in Côte d'Ivoire attract agricultural labor force largely available in rural Burkina Faso. In return, these workers send transfers to their relatives (parents, families) who live in rural areas in Burkina Faso. Transfers from urban Burkina Faso (the capital city of Ouagadougou and other urban areas) represent 40 percent of the total. If transfers are motivated by altruism, one can understand why in-country transfers come more from urban than rural areas. Urban households are richer than rural households and the first are more likely to send transfers than the second according to the principle of altruism. However, transfers from rural areas are also important.

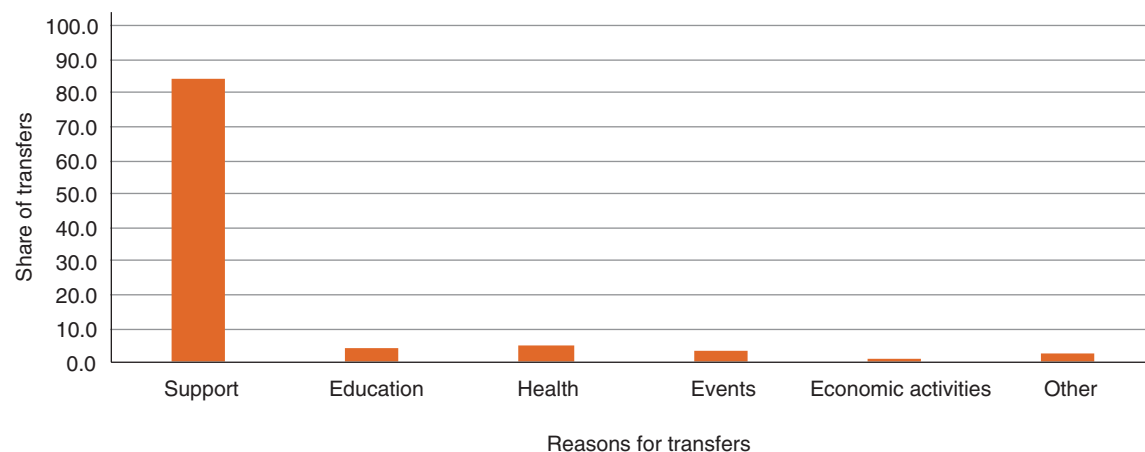
#### 4.5.2 Motive of Private Transfers

**Transfers play a key role in equalizing welfare among members of families in a broader sense.** Intergenerational transfers are important in Burkina Faso. Indeed, 35 percent of the total amount of transfers flow from the children to their parents, probably playing the role of pensions in a country where most of the active population is involved in informal employment (either in agriculture or in urban activities) without a possibility to have formal employment. At the same time, 7 percent of the transfers represent a support from the parents to their children. The

low percentage of transfers from parents to children is not a surprise because most of the children live in the same households with their parents until they are able to move to build their own household. However, it is also important to point out that the bigger percentage (nearly half) of the transfers flow from other family members, in particular siblings. It is very common in African countries in general and in Burkina Faso in particular for the elder sibling to support the younger siblings, and this translates into transfers among those households. This type of transfer is not only motivated by altruism, but as stated earlier they are a substitute for insurance in the case of shock (unemployment, natural hazards, and so on). The solidarity mechanism induced by transfers goes beyond the family because 10 percent of the transfers are from nonfamily members.

**Households receive transfers for many reasons, but support to family appears to be the main motivation of transfers in Burkina Faso.** Regardless of socio-demographic characteristics of the head, transfers are provided to households as assistance for household needs. This means that transfers provided to households are essentially one-time transfers with the aim to smooth household's consumptions. Only 10 percent of transfers are directed to funding investment in education, health, or economic activities. As it appears from this analysis, the motivation of household transfers in Burkina Faso is essentially

**FIGURE 4.11** Share of Transfers (in total) by Motive



Source: Author's calculation using the 2014 EMC.

to smooth household consumption instead of productive investments. However, as seen in the introduction, underestimation can play a role here. An important part of a transfer can be for a personal investment by a migrant in his own country, and because no household benefits from it, this type of transfer is not captured by household surveys.

### 4.5.3 Private Transfers, Poverty, Inequality, and Vulnerability

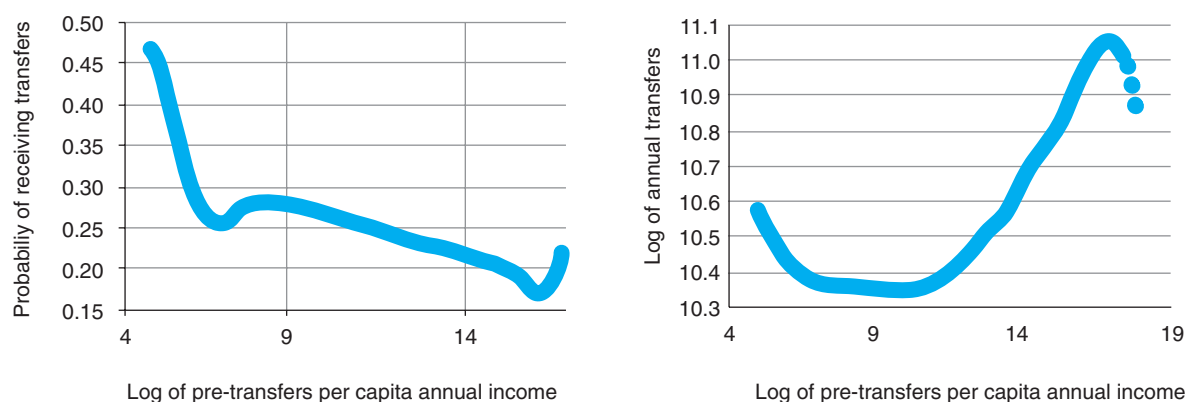
#### Private transfers contribute to alleviate poverty and make other households less vulnerable.

The probability of receiving transfers is a decreasing function of pre-transfers annual per capita income (Figure 4.12, left panel). Nearly half the households at the left end of the distribution of the pre-transfers per capita income are receiving transfers, while only 20 percent of the richer ones (as measured by income per capita) enjoy transfers. Clearly the flow of transfers goes more to the poorer, contributing to alleviate poverty. The transfers also seem to reduce inequality with the Gini index of per capita income decreasing by 2 percentage points before and after transfers. However, in absolute value, the curve of total transfers function of pre-transfers per capita annual income has a 'U', first decreasing for the poorer households and then increasing for the better-off households who receive the most important transfers (Figure 4.12, right panel).

This result is not easy to explain without further investigation. However, one assumption is that the poorest households have a high frequency to receive transfers and this high frequency is translated into an important amount. While the richest, even if the frequency is low, they benefit because the amounts received are more important when they can invest, for example, in having migrants abroad with higher economic power.

**The analysis of transfers by household characteristics confirms that the more vulnerable and poorer households have a higher probability to benefit from transfers.** The gender of a household's head is correlated to the probability of having a transfer. Data show that female-headed households are more likely to receive transfers compared to those headed by men. About 46 percent of female-headed households receive a transfer while only 23 percent of male-headed households receive a transfer. The average amount of transfer received by a female-headed household (CFAF 65,281) is 2.6 times the average amount received by a male-headed household (CFAF 25,239). Transfers represent 12.7 percent of the total income of female-headed households while they represent 2.5 percent of the total income of male-headed households. The fact that female-headed households received more transfers than male-headed households can be explained in part by their vulnerability. It has been estimated that the probability of a

**FIGURE 4.12** Probability of Receiving Transfers and Annual Transfers by Log of Pre-Transfers per Capita Annual Income



Source: Author's calculation using the 2014 EMC.



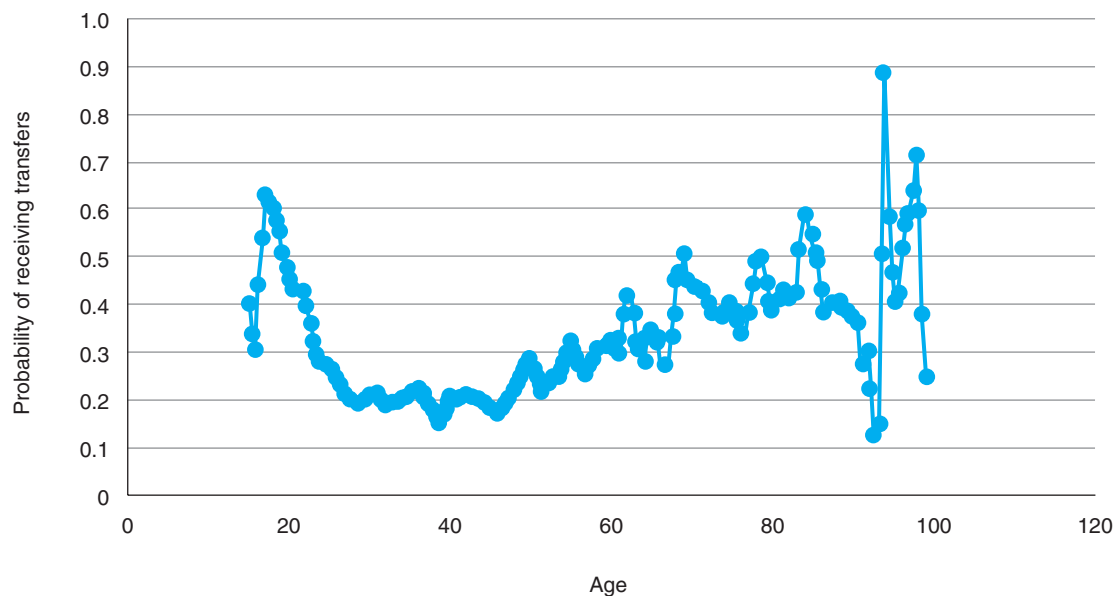
household being poor is 30 percent higher when the head of household is a woman compared to a household having a man as a head. However, also many female-headed households depend on the financial support of a husband who is not considered as a household member (in the case of polygamy) according to the survey definition.

**The support to the more vulnerable population can also be seen when considering a handicap.** A household having a disabled person as a head has a 22 percent higher probability of receiving transfers than a household with a non-handicapped head. This result reinforces the role of transfers as safety nets for the population facing adverse conditions in their lives.

**Households with a head at the working age are less likely to receive transfers than those having a youngster or a senior as a head.** The probability of receiving transfers as a function of age also has a ‘U’ shape, with the probability being relatively high at the younger age and at the higher age, and lower in the middle of the life.

The shape of this curve and of the other curves of transfers and income function of age show that private transfers are directed to those who need them most, at least in terms of frequency. As can be seen in Figure 4.12 (both left and right panels), the amount of transfers is relatively high when personal income is low and becomes low for middle-income earners before increasing when personal income is higher. In this case, transfers also respond to some intergenerational and solidarity pattern. The young receive transfers not only from their parents but also from their elder siblings. The senior heads have active children who provide them financial assistance through transfers. For example, among the seniors (50 years and older), 34 percent of the recipients received transfers from their children. In addition, in Burkina Faso, older individuals play a central role in the social structure and have an important social network. In return of their social engagement, they received many transfers from members of their community.

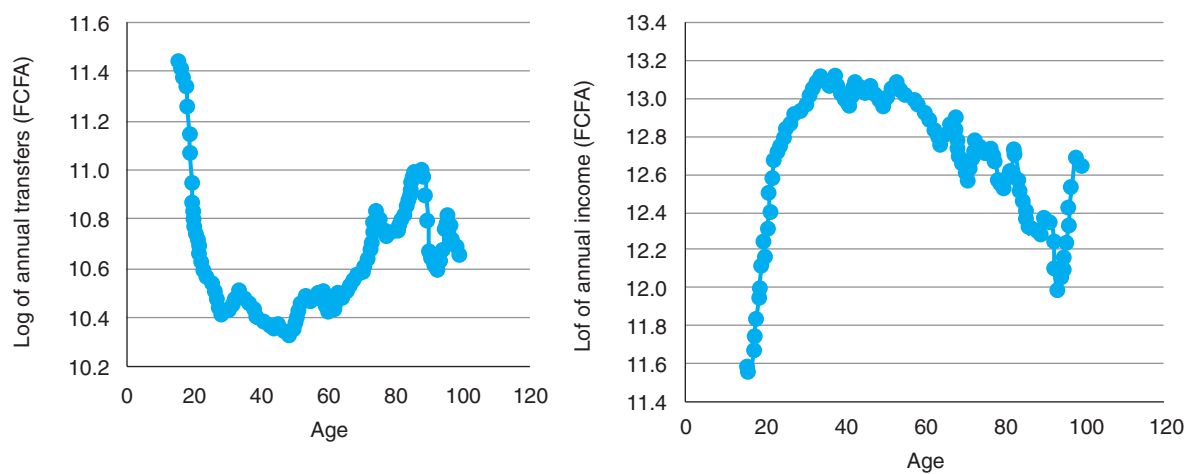
**FIGURE 4.13** Probability of Receiving Transfers by Head of Household Age



Source: Author's calculation using the 2014 EMC.



**FIGURE 4.14** Amount of Transfers and Total Income by Head of Household Age



*Source:* Author's calculation using the 2014 EMC.



## Chapter 5

# Conclusions

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**Despite some major progress during the past 15 years, poverty is still high in Burkina Faso, in rural areas, in particular, where nearly half of the population still live below the national poverty line.** Poverty projections show that, with the current trend, the country will not be able to reach one of the twin goals, which is eradicating poverty by the year 2030. Poverty in the country is not due only to a deficit in consumption, but it has multiple aspects. Different forms of food insecurity affect the population. Foodstuffs are not equally accessible to all strata of the population. Some people are chronically food insecure while some others are regularly affected by shocks, making them transiently food insecure at some periods of the year. In addition, the living conditions of the population are difficult. Houses are built of poor materials. Access to electricity, energy, sanitation, and other basic commodities is limited. Many factors explain the poor situation of the population of Burkina Faso.

**The first challenge is demography. Burkina Faso has very rapid population growth, around 3 percent a year.** This rapid population growth is the consequence of very high fertility at six children per woman. Like many countries in Sub-Saharan Africa, Burkina Faso intends to become an emerging market economy in the next 25 years. The current population structure, with a wide based age pyramid poses a real challenge to this objective. Actually, Burkina Faso cannot reach a high stage of development without undergoing a demographic transition. Demographic transition means a shift from a largely rural agrarian society with high fertility and mortality rates to a predominantly urban industrial society with low fertility and mortality rates. At an early stage of this transition, fertility rates would fall, leading to fewer young mouths to feed. During this period, the labor force temporarily grows

faster than the population dependent on it, freeing up resources for investment in economic development and family welfare. Other things being equal, per capita income grows faster too (Lee et al., 2006). This step can take more than 20 to 30 years or even longer. In Burkina Faso, the mortality rate is falling but this is not yet the case for fertility. The growth enjoyed by Burkina Faso during the last 15 years could have been more pro-poor with lower population growth. High fertility rates are a real challenge for growth and poverty reduction and getting a better understanding of the determinants of fertility and the channels by which it can be reduced is a path for better results on poverty reduction.

**The second challenge is education. Human capital in Burkina Faso is extremely low.** Education improves human capital and has a positive impact on income and on poverty reduction. Education, in particular women's education, has a positive impact on many other phenomena, including the use of contraceptives and fertility, undernutrition, and so on. The country has made a lot of progress but that progress is limited. The completion rate in primary schools is better than it was 15 years ago, but expected years of attendance at school is still low, 7.5 years, meaning that the average child completes only up to the first year of secondary school. There is no doubt that pro-poor growth must begin with robust agricultural growth. However, while this has proven elusive in the past, the aspirations remain and the new world offers some prospects for success.

**The third challenge for poverty reduction in Burkina Faso is improving productivity in agriculture.** This sector is the main income source for the vast majority of the population. However, performance in the sector is poor. Agriculture is characterized by low mechanization

and low access to inputs, improved seeds, labor, and credit. Most farmers continue to use traditional techniques which have proven to be ineffective in boosting productivity. The potential of the country concerning irrigation is not totally exploited. However, at the same time, there are many initiatives in this sector. It is important to conduct a rigorous evaluation of the investment in the sector to be able to inform policy makers on the potential of future projects on reaching the goal of improving productivity and income. Agriculture also needs to invest in research to improve seeds and techniques and different types of infrastructures (storage, processing, roads, and so on) to facilitate access to markets. The issue of diversifying agriculture toward new crops with higher potential value added and choosing a variety of crops with higher productivity are paths to growth and poverty reduction.

**The fourth challenge is to increase the resilience of the population by implementing safety**

**nets.** The poorest accumulate too many handicaps (low human capital, low productive capital, no access to credit, and so on), are too far below the poverty line, and are less likely to benefit from a poverty reduction strategy without specific targeting. The poorest are also vulnerable to the many shocks that affect the country and are most affected by food insecurity. In the absence of social security mechanisms, households rely on their own resources to cope with adverse situations. Many households rely on friends who are as poor as themselves. Others have to sell their assets, making them more vulnerable. A system of safety nets would prevent people from falling into deep poverty, help keep their dignity, and sometimes keep their children in school. In addition to overcoming the negative effects in case of shocks, social safety nets improve human capital (education, preventive, and curative health) and allow beneficiaries to build productive capital.

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# Annex

**TABLE A1 Growth Inequality Decomposition**

	National			Urban			Rural		
	2003	2009	Average effect	2003	2009	Average effect	2003	2009	Average effect
<b>2003–2009</b>									
Poverty head count	51.8	46.7		24.6	27.9		57.9	52.6	
Change	–5.1	–5.1	–5.1	3.3	3.3	3.3	–5.3	–5.3	–5.3
Growth component	–2.4	–2.6	–2.5	7.5	7.6	7.6	–4.1	–4.1	–4.1
Redistribution	–2.6	–2.8	–2.7	–4.3	–4.2	–4.2	–1.2	–1.2	–1.2
Residual	–0.2	0.2	0.0	0.1	–0.1	0.0	0.0	0.0	0.0
<b>2009–2014</b>									
Poverty head count	46.7	40.1		27.9	13.7		52.6	47.5	
Change	–6.6	–6.6	–6.6	–14.2	–14.2	–14.2	–5.1	–5.1	–5.1
Growth component	–3.2	–3.7	–3.4	–9.1	–8.5	–8.8	0.2	0.4	0.3
Redistribution	–2.9	–3.4	–3.2	–5.7	–5.1	–5.4	–5.5	–5.3	–5.4
Residual	–0.5	0.5	0.0	0.6	–0.6	0.0	0.2	–0.2	0.0
<b>2003–2014</b>									
Poverty head count	51.8	40.1		24.6	13.7		57.9	47.5	
Change	–11.7	–11.7	–11.7	–10.9	–10.9	–10.9	–10.4	–10.4	–10.4
Growth component	–5.3	–6.6	–5.9	–1.5	–0.9	–1.2	–4.0	–5.1	–4.5
Redistribution	–5.2	–6.4	–5.8	–10.0	–9.4	–9.7	–5.2	–6.4	–5.8
Residual	–1.3	1.3	0.0	0.6	–0.6	0.0	–1.2	1.2	0.0

*Source:* Authors calculations using INSD surveys, QUIBB 2003, EICVM 2009, and the EMC 2014.

**TABLE A2 Sectoral Decomposition of a Change in Poverty Head Count**

	2003–2009			2003–2014			2009–2014		
Poverty in period 1	52.734			52.734			47.972		
Poverty in period 2	47.972			40.107			40.107		
	Percentage population base year	Absolute change	Percentage change	Percentage population base year	Absolute change	Percentage change	Percentage population base year	Absolute change	Percentage change
<b>Change in population</b>									
Agriculture urban	3.7	–0.046	1.0	3.7	–0.521	4.1	4.3	–563	7.2
Industry/construction urban	1.9	0.052	–1.1	1.9	–0.242	1.9	2.4	–0.363	4.6
Commerce/services urban	7.0	0.486	–10.2	7.0	–0.397	3.2	7.8	–0.981	12.5
Unemployed urban	2.9	0.009	–0.2	2.9	–0.385	3.1	4.3	–0.578	7.3
Agriculture rural	77.9	–4.127	86.7	77.9	–8.162	64.6	68.3	–3.533	44.9
Industry/construction rural	1.1	0.038	–0.8	1.1	–0.235	1.9	1.7	–0.409	5.2
Commerce/services rural	2.8	0.147	–3.1	2.8	–0.109	0.9	2.9	–0.269	3.4
Unemployed rural	2.7	–0.135	2.8	2.7	–0.085	0.7	8.4	0.155	–2.0
<b>Change in poverty</b>									
Total intra-sectoral effect	–3.575	75.080		–10.135	80.270		–6.542	83.180	
Population-shift effect	–1.504	31.570		–2.832	22.430		–0.969	12.320	
Interaction effect	0.317	–6.650		0.341	–2.700		–0.354	4.500	
Change in poverty	–4.762	100.0		–12.627	100.0		–7.865	100.0	

Source: Authors calculations using INSD surveys, QUIBB 2003, EICVM 2009, and the EMC 2014.

**TABLE A3 Ranking of Regions Using the Poverty Head Count (from the least poor to the poorest region)**

	PC0	PC1	PC2	PC3	PC4	PC5	Average
Hauts-Bassins	4	4	4	4	4	4	4.0
Boucle du Mouhoun	12	12	12	12	12	12	12.0
Sahel	2	2	2	2	2	2	2.0
Est	10	11	9	11	9	9	9.8
Sud-Ouest	7	8	10	6	8	10	8.2
Centre-Nord	9	5	6	5	7	7	6.5
Centre-Ouest	11	10	8	9	11	11	10.0
Plateau-Central	8	9	7	10	10	8	8.7
Nord	13	13	13	13	13	13	13.0
Centre-Est	5	7	11	8	5	5	6.8
Centre	1	1	1	1	1	1	1.0
Cascades	3	3	3	3	2	3	2.8
Centre-Sud	6	6	5	7	6	6	6.0

Source: Author's calculations using INSD survey and the EMC 2014

**TABLE A4 Regression of the Logarithm of per Capita Consumption**

	National		Urban		Rural	
	Parameter	T-student	Parameter	T-student	Parameter	T-student
<b>Socio-demographics</b>						
Kids less than 5	-0.104	-15.9	-0.149	-10.5	-0.094	-12.9
Kids less than 5, squared	0.008	8.6	0.017	5.4	0.007	6.7
Boys 5–14	-0.134	-19.2	-0.154	-9.9	-0.117	-15.2
Boys 5–14, squared	0.013	10.3	0.016	4.1	0.011	8.3
Girls 5–14	-0.139	-18.3	-0.179	-11.1	-0.125	-14.7
Girls 5–14, squared	0.017	11.2	0.028	6.6	0.014	8.8
Men 15–64	-0.040	-4.9	-0.089	-6.6	-0.020	-2.0
Men 15–64, squared	0.002	2.0	0.007	3.9	0.001	0.5
Women 15–64	-0.039	-5.2	-0.080	-6.1	-0.022	-2.5
Women 15–64, squared	0.004	5.0	0.008	4.6	0.003	3.2
Men 65 or more	-0.080	-2.0	0.024	0.3	-0.083	-2.0
Men 65 or more, squared	0.050	1.7	-0.064	-0.9	0.060	1.9
Women 65 or more	-0.120	-5.0	-0.118	-2.4	-0.093	-3.6
Women 65 or more, squared	0.009	0.6	-0.002	-0.1	0.003	0.2
Head married (yes)	-0.110	-2.2	-0.282	-3.2	0.161	2.6
Head is a woman (yes)	-0.352	-15.7	-0.439	-12.8	-0.147	-4.9
Head not a Burkinabé (yes)	-0.280	-4.9	-0.316	-4.6	-0.057	-0.5
Head is disabled (yes)	-0.045	-2.2	-0.005	-0.1	-0.059	-2.5
<b>Age</b>						
Age of head	0.005	2.4	0.012	3.3	0.001	0.3
Age of head, squared	0.000	-3.4	0.000	-3.4	0.000	-1.1
Age of spouse	-0.010	-4.1	-0.010	-2.1	-0.010	-3.4
Age of spouse squared	0.000	4.7	0.000	2.9	0.000	3.4
<b>Education of head</b>						
None	ref					
Primary	0.103	7.2	0.126	6.0	0.060	3.1
Low secondary	0.228	11.1	0.218	8.3	0.160	4.6
Upper secondary general	0.415	14.6	0.357	10.4	0.468	7.6
Upper secondary professional	0.484	7.4	0.449	6.0	0.247	1.4
Post-secondary and university	0.700	20.5	0.608	15.1	0.704	7.5
<b>Education of spouse</b>						
None	ref					
Primary	0.084	4.7	0.102	4.0	0.100	4.1
Low secondary	0.110	4.8	0.146	5.0	0.144	3.4
Upper secondary	0.095	2.2	0.177	3.5	-0.040	-0.3
Post-secondary and university	0.231	3.7	0.282	4.0	0.286	1.8
<b>Labor market of head</b>						
Nonparticipant	ref					
Participant	-0.003	-0.1	-0.023	-0.6	0.099	1.6

*(continued)*

**TABLE A4 Continued**

	National		Urban		Rural	
	Parameter	T-student	Parameter	T-student	Parameter	T-student
<b>Institutional sector of head</b>						
Public administration	ref					
Public enterprise	0.017	0.3	0.015	0.2	−0.232	−1.3
Private enterprise	−0.035	−1.0	−0.044	−1.1	−0.143	−1.8
Individual enterprise	−0.055	−2.0	−0.067	−2.0	−0.097	−1.6
<b>Type of industry of head</b>						
Agriculture	ref					
Industries	0.285	12.0	0.244	7.5	0.282	7.5
Construction	0.235	7.1	0.187	4.8	0.380	4.6
Commerce	0.333	16.7	0.325	12.2	0.269	7.4
Restaurant/hotel	0.427	8.5	0.374	6.1	0.342	3.4
Transportation	0.299	8.1	0.263	6.0	0.404	4.3
Education/health	0.278	7.8	0.191	4.5	0.668	8.3
Other services	0.288	12.5	0.244	8.3	0.290	6.0
<b>Institutional sector of head</b>						
Public administration						
Public and private enterprise	0.163	2.5	0.085	1.1	0.445	3.0
Individual enterprise	0.044	0.9	0.000	0.0	0.169	1.7
Unemployed	0.121	2.5	0.088	1.5	0.255	2.5
<b>Type of industry of head</b>						
Agriculture	ref					
Industries, construction	−0.022	−0.8	0.027	0.7	−0.069	−1.6
Commerce	0.064	3.3	0.084	3.0	0.127	3.8
Restaurant/hotel	0.134	3.2	0.168	3.2	0.186	2.3
Education/health	0.143	2.5	0.152	2.3	0.104	0.8
Other services	−0.006	−0.2	−0.002	−0.1	0.123	1.6
<b>Time to the grocery market</b>						
Less than 15 minutes	ref					
15–29 minutes	−0.033	−2.5	−0.035	−1.7	−0.034	−2.1
30–44 minutes	−0.034	−2.3	−0.105	−4.0	0.002	0.1
45–59 minutes	−0.046	−2.3	−0.100	−2.4	−0.023	−1.1
60 minutes and +	0.004	0.3	−0.076	−1.7	0.029	1.6
<b>Time to the nearest pharmacy</b>						
Less than 15 minutes						
15–29 minutes	−0.043	−3.2	−0.036	−1.8	−0.035	−1.9
30–44 minutes	−0.045	−2.8	−0.049	−1.8	−0.023	−1.2
45–59 minutes	−0.081	−4.0	−0.142	−3.4	−0.050	−2.2
60 minutes and +	−0.023	−1.3	−0.056	−1.2	−0.005	−0.3
<b>Time to the civil registration center</b>						
Less than 15 minutes						
15–29 minutes	−0.045	−3.2	−0.046	−2.0	−0.027	−1.6
30–44 minutes	−0.030	−1.8	0.005	0.2	−0.037	−2.1

	National		Urban		Rural	
	Parameter	T-student	Parameter	T-student	Parameter	T-student
45–59 minutes	0.004	0.2	–0.022	–0.3	0.003	0.1
60 minutes and +	0.002	0.1	–0.053	–0.9	–0.003	–0.2
<b>Time to the police station</b>						
Less than 15 minutes						
15–29 minutes	–0.037	–2.1	–0.032	–1.5	–0.036	–1.0
30–44 minutes	–0.051	–2.7	–0.015	–0.6	–0.087	–2.6
45–59 minutes	–0.057	–2.8	0.012	0.4	–0.121	–3.5
60 minutes and +	–0.108	–5.9	–0.105	–3.2	–0.134	–4.4
<b>Physical and social capital</b>						
Area land cultivated	0.004	2.6	–0.002	–0.4	0.006	3.6
Area land cultivated, squared	0.000	–3.2	0.000	–0.3	0.000	–3.8
Member of any association (yes)	0.076	7.7	0.086	4.8	0.063	5.6
<b>Regions</b>						
Nord	ref					
Hauts-Bassins	0.148	6.9	0.157	4.2	0.111	4.2
Boucle du Mouhoun	0.005	0.3	0.005	0.1	–0.013	–0.5
Sahel	0.368	15.9	0.305	7.4	0.382	14.2
Est	0.123	5.5	0.092	2.3	0.112	4.3
Sud-Ouest	0.175	7.5	0.315	7.6	0.128	4.7
Centre-Nord	0.280	12.6	0.276	6.9	0.254	10.0
Centre-Ouest	0.096	4.3	0.102	2.6	0.082	3.2
Plateau-Central	0.102	4.5	0.021	0.5	0.134	5.1
Centre-Est	0.244	11.1	0.170	4.5	0.291	11.2
Centre	0.277	12.3	0.291	8.2	0.183	6.0
Cascades	0.274	11.7	0.214	5.3	0.292	10.5
Centre-Sud	0.163	7.1	0.074	1.8	0.209	7.9
<b>Residence</b>						
Rural (yes)	–0.034	–2.7				
Constant	1.101	12.0	1.309	10.3	0.443	2.8
<b>Statistics</b>						
# observations	10411		4003		6408	
R <sup>2</sup>	0.572		0.630		0.402	

Source: Authors calculations using INSD survey and the EMC 2014.

**TABLE A5 Probit Model of FIES Food Insecurity**

	Model 1: Shock in detail			Model 2: Shock grouped		
	National	Urban	Rural	National	Urban	Rural
<b>Household demographics</b>						
Household size	0.000	0.026	-0.007	-0.002	0.021	-0.008
Household size (squared)	-0.000	-0.001	-0.000	-0.000	-0.001	-0.000
Dependency ratio	0.063	0.173	0.037	0.072	0.188	0.048
Head female (yes)	0.035	0.138	-0.033	0.050	0.165	-0.012
Single	-0.157	-0.203	-0.203	-0.177	-0.225	-0.194
Polygamous	-0.072	-0.496*	-0.054	-0.089	-0.493*	-0.049
Divorced	-0.321	-0.619	-0.270	-0.352	-0.681*	-0.267
Widower	-0.051	-0.319	-0.055	-0.095	-0.368	-0.071
<b>Human capital</b>						
Household head age	0.005	0.030	0.001	0.004	0.030	0.000
Squared head age	-0.000	-0.000	0.000	-0.000	-0.000	0.000
Primary	-0.063	-0.177	-0.042	-0.069	-0.197	-0.040
Low secondary	-0.098	-0.264*	0.097	-0.076	-0.244*	0.125
Upper secondary	-0.345	-0.269	-0.874***	-0.360*	-0.303	-0.855**
University	-1.023***	-0.815**	-1.744***	-1.027***	-0.805**	-1.761***
<b>Household assets</b>						
Electricity (yes)	-0.296***	-0.305***	-0.127	-0.299***	-0.288***	-0.154
Toilets with flush (yes)	-0.055	-0.212	0.319	-0.005	-0.172	0.363
Automobile (yes)	-0.427	-1.037***	0.020	-0.405	-1.025***	0.028
Motocycle (yes)	-0.486***	-0.610***	-0.462***	-0.487***	-0.615***	-0.467***
Bicycle (yes)	-0.118**	0.137	-0.242***	-0.116**	0.138	-0.240***
Refrigerator(yes)	-0.275*	-0.218	-0.091	-0.277*	-0.212	-0.084
<b>Access to infrastructure</b>						
Transport < 30 min (yes)	-0.085*	-0.027	-0.097*	-0.095*	-0.027	-0.110**
<b>Shocks</b>						
Shocks				0.292***	0.435***	0.242***
Natural	0.286***	0.129	0.311***			
Price	-0.083	0.081	-0.121**			
Employment	0.209*	0.333*	0.036			
Death and illness	0.058	0.364***	-0.008			
Security (crime, theft)	0.040	0.302*	-0.018			
Social issue	0.246**	0.180	0.231*			
Other shock	0.283**	0.596**	0.207			
<b>Social capital</b>						
Association (yes)	-0.039	-0.150	-0.023	-0.039	-0.147	-0.023
<b>Geographic variables</b>						
Boucle du Mouhoun	-0.338**	-0.546***	-0.321**	-0.290**	-0.586***	-0.254
Sahel	0.350***	-0.073	0.356**	0.407***	-0.150	0.441***
Est	0.517***	0.621***	0.517***	0.559***	0.605***	0.576***
Sud-Ouest	0.167	-0.051	0.166	0.215	-0.065	0.234
Centre-Nord	0.161	0.023	0.176	0.218	0.005	0.253



	Model 1: Shock in detail			Model 2: Shock grouped		
	National	Urban	Rural	National	Urban	Rural
Centre-Ouest	−0.023	0.220	−0.035	−0.003	0.182	−0.000
Plateau-Central	−0.333**	0.218	−0.351**	−0.299**	0.152	−0.304*
Nord	−0.161	−0.489***	−0.130	−0.141	−0.602***	−0.084
Centre-Est	0.226*	0.020	0.263*	0.234*	−0.053	0.284*
Centre	0.361***	0.380***	0.257	0.358***	0.361**	0.277*
Cascades	−0.071	0.183	−0.144	−0.035	0.183	−0.081
Centre-Sud	0.237*	0.532***	0.205	0.279*	0.477***	0.268
Rural	0.064	0.000	0.000	0.083	0.000	0.000
<b>Constant</b>	−0.260	−1.083**	0.071	−0.310	−1.095**	0.010
# observations	9901	3718	6183	9901	3718	6183

*Source:* Author's calculation using the 2014 and the EMC.

**TABLE A6 Regression on Calories Consumption**

	Model 1: Shock in detail			Model 2: Shock grouped		
	National	Urban	Rural	National	Urban	Rural
<b>Household demographics</b>						
Household size	-0.100***	-0.261***	-0.070***	-0.099***	-0.258***	-0.069***
Household size (squared)	0.002***	0.006***	0.001***	0.002***	0.006***	0.001***
Dependency ratio	-0.526***	-0.888***	-0.366***	-0.519***	-0.892***	-0.359***
Head female (yes)	0.054	-0.106	0.124*	0.046	-0.099	0.112*
Single	-0.931***	-1.089***	-0.071	-0.934***	-1.078***	-0.089
Polygamous	-0.780***	-0.625*	-0.018	-0.781***	-0.603*	-0.034
Divorced	-0.560**	-0.680*	0.166	-0.553**	-0.672*	0.167
Widower	-1.044***	-1.063***	-0.201	-1.036***	-1.047***	-0.203
<b>Human capital</b>						
Household head age	-0.027***	-0.073*	-0.019***	-0.028***	-0.073*	-0.019***
Squared head age	0.000***	0.001*	0.000***	0.000***	0.001*	0.000***
Primary	-0.020	-0.066	-0.012	-0.021	-0.057	-0.012
Low secondary	0.262***	0.167*	0.188**	0.269***	0.177*	0.189**
Upper secondary	0.342***	0.160	0.499***	0.322***	0.136	0.485***
University	0.959***	0.654***	0.312	0.940***	0.637***	0.296
<b>Household assets</b>						
Electricity (yes)	0.254***	0.293***	0.177***	0.259***	0.279***	0.189***
Toilets with flush (yes)	0.201*	0.320**	-0.079	0.199*	0.317**	-0.067
Automobile (yes)	0.217**	0.304**	0.360**	0.213**	0.291**	0.369**
Motocycle (yes)	0.171***	0.256***	0.157***	0.168***	0.248***	0.157***
Bicycle (yes)	-0.210***	-0.163*	-0.127***	-0.216***	-0.155	-0.136***
Refrigerator (yes)	0.319***	0.200*	1.064***	0.323***	0.209**	1.038***
<b>Access to infrastructure</b>						
Transport < 30 minutes (yes)	-0.040*	0.026	-0.050*	-0.052**	0.014	-0.060**
<b>Shocks</b>						
Shocks				-0.133***	-0.127	-0.100***
Natural	-0.010	0.179	-0.025			
Price	-0.207***	-0.215*	-0.196***			
Employment	0.012	0.014	0.116*			
Death and illness	0.024	0.105	0.031			
Security (crime, theft)	0.034	-0.002	0.041			
Social issue	-0.153**	-0.193*	-0.122			
Other shock	-0.048	-0.089	-0.042			
<b>Social capital</b>						
Association (yes)	0.041**	0.062	0.024	0.045**	0.072	0.025
<b>Geographic variables</b>						
Boucle du Mouhoun	-0.136**	-0.147	-0.150**	-0.090	-0.100	-0.103
Sahel	0.833***	0.366***	0.855***	0.856***	0.419***	0.878***
Est	0.123*	-0.164	0.130	0.130*	-0.119	0.138
Sud-Ouest	0.123	0.418**	0.109	0.157	0.465***	0.148

	Model 1: Shock in detail			Model 2: Shock grouped		
	National	Urban	Rural	National	Urban	Rural
Centre-Nord	0.257***	0.310*	0.237***	0.312***	0.384***	0.292***
Centre-Ouest	0.016	-0.200	0.017	0.031	-0.149	0.033
Plateau-Central	0.020	-0.090	0.021	0.056	-0.034	0.060
Nord	-0.038	-0.205	-0.041	-0.022	-0.159	-0.026
Centre-Est	0.296***	-0.031	0.343***	0.310***	0.026	0.359***
Centre	0.322***	0.252**	0.224*	0.328***	0.231**	0.251**
Cascades	0.241***	0.089	0.296***	0.278***	0.114	0.337***
Centre-Sud	0.093	-0.053	0.109	0.122	0.009	0.142
Rural	0.016	0.000	0.000	0.014	0.000	0.000
<b>Constant</b>	3.906***	6.170***	2.514***	3.927***	6.204***	2.528***
R <sup>2</sup>	0.336	0.395	0.275	0.331	0.392	0.264
# observations	9901	3718	6183	9901	3718	6183

*Source:* Author's calculation using the 2014 EMC.

**TABLE A7 Regression on the Dynamic Food Insecurity**

	National		Urban		Rural	
	Chronically food insecure	Transient food insecure	Chronically food insecure	Transient food insecure	Chronically food insecure	Transient food insecure
<b>Household demographics</b>						
Household size	0.325***	0.211***	0.647***	0.319***	0.282***	0.186***
Household size (squared)	-0.005**	-0.003***	-0.013***	-0.006***	-0.004**	-0.003***
Dependency ratio	0.438	0.613***	0.644	0.233	0.484	0.781***
Head female (yes)	-0.226	-0.142	0.188	-0.006	-0.403	-0.254
Single	-0.070	-0.236	0.317	-0.126	-0.534	-0.604*
Polygamous	-0.207	-0.394	-0.357	-0.525	-0.564	-0.693**
Divorced	-1.254	-0.626	-0.387	-0.065	-2.007**	-1.269**
Widower	0.286	-0.135	0.547	-0.081	-0.169	-0.460
<b>Human capital</b>						
Household head age	0.040**	0.045***	0.004	0.058*	0.045**	0.043***
Squared head age	-0.000	-0.000**	0.000	-0.000	-0.000	-0.000**
Primary	-0.088	-0.151	-0.111	0.045	-0.152	-0.259*
Low secondary	-0.299	-0.322*	-0.225	-0.330	-0.332	-0.150
Upper secondary	-0.326	-0.666**	-0.697	-0.485	-0.042	-1.002**
University	-1.130	-1.011**	-22.129***	-0.895*	-0.032	-1.920**
<b>Household assets</b>						
Electricity (yes)	-1.290***	-0.692***	-1.362***	-0.800***	-0.950*	-0.467*
Toilets with flush (yes)	-0.700	-0.244	-2.449***	-0.655*	0.100	0.235
Automobile (yes)	-1.531**	-0.643*	-1.914**	0.141	-1.969**	-1.902***
Motocycle (yes)	-0.979***	-0.484***	-1.392***	-0.686***	-0.929***	-0.437***
Bicycle (yes)	0.107	0.109	0.153	0.223	-0.026	0.014
Refrigerator(yes)	-0.036	0.158	0.410	0.165	-22.201***	-0.819
<b>Access to infrastructure</b>						
Transport < 30 min (yes)	0.223*	-0.006	-0.046	-0.009	0.259*	-0.006
<b>Shocks</b>						
Shocks	0.452***	0.235***	1.071***	0.354**	0.274*	0.156
<b>Social capital</b>						
Association (yes)	-0.141	-0.002	0.129	0.153	-0.182	-0.034
<b>Geographic variables</b>						
Boucle du Mouhoun	0.950***	1.000***	-0.272	0.237	1.114***	1.065***
Sahel	-4.218***	-1.562***	-2.583***	-0.157	-4.274***	-1.687***
Est	-0.431	0.322	0.724*	0.859***	-0.491	0.194
Sud-Ouest	-0.356	-0.690**	-0.957	-0.804**	-0.331	-0.745**
Centre-Nord	-1.842***	-1.019***	-2.702***	-1.066***	-1.776***	-1.070***
Centre-Ouest	-0.119	0.385*	-0.134	0.372	-0.082	0.344
Plateau-Central	-0.664*	-0.507**	-0.308	0.456	-0.686*	-0.631**
Nord	0.559*	0.427*	0.679	1.025***	0.537	0.278
Centre-Est	-0.869***	-0.536**	-0.264	-0.418	-0.998**	-0.631**
Centre	-0.713**	-0.681***	-0.696*	-0.627**	-0.570	-0.682**

	National		Urban		Rural	
	Chronically food insecure	Transient food insecure	Chronically food insecure	Transient food insecure	Chronically food insecure	Transient food insecure
Cascades	-1.680***	-0.667***	-2.130***	-0.290	-1.679***	-0.826***
Centre-Sud	-0.376	-0.338	0.005	0.555	-0.425	-0.504
Rural	0.144	0.184	0.000	0.000	0.000	0.000
<b>Constant</b>	-3.915***	-2.218***	-5.502***	-3.481***	-2.928***	-1.279***
# observations	9,901		3,718		6,183	
log pseudo likelihood	-14770424		-2574393.7		-12016265	

*Source:* Author's calculation using the 2014 EMC.

**TABLE A8 Regression on the Agricultural Productivity**

Productivity (output value/hectare)	All		No cotton		Cotton	
	Coef.	P > t	Coef.	P > t	Coef.	P > t
<b>Household demographics and education</b>						
Female	0.14	0.00	0.12	0.00	0.11	0.54
Dependence ratio	0.06	0.02	0.06	0.03	0.11	0.18
Square dependence ratio	-0.01	0.08	-0.01	0.10	-0.01	0.47
Household head age	0.01	0.02	0.01	0.01	0.01	0.63
Square household head age	0.00	0.02	0.00	0.02	0.00	0.55
Handicap (yes)	-0.05	0.32	-0.07	0.16	-0.02	0.92
Primary school years	0.00	0.49	-0.01	0.24	0.00	0.74
Square primary school years	0.00	0.11	0.00	0.04	0.00	0.58
Secondary school years	0.00	0.79	-0.01	0.40	0.11	0.00
Square secondary school years	0.00	0.51	0.00	0.16	-0.01	0.01
<b>Capital</b>						
Land surface	-0.03	0.00	-0.03	0.00	-0.03	0.00
Equipment	0.07	0.00	0.07	0.00	0.07	0.00
<b>Labor use</b>						
Family workers (men)	0.07	0.00	0.08	0.00	0.09	0.05
Family workers (women)	0.04	0.00	0.05	0.00	-0.06	0.15
Family workers (kids)	0.01	0.05	0.01	0.19	0.06	0.01
Nonfamily workers	0.06	0.00	0.06	0.00	0.06	0.01
<b>Inputs use</b>						
Organic fertilizer use	0.00	0.84	-0.01	0.55	0.02	0.78
Chemical fertilizer use	-0.03	0.64	-0.26	0.00	0.34	0.25
Pesticide use	-0.12	0.15	-0.39	0.00	0.09	0.66
Seeds	0.20	0.00	0.18	0.00	-0.12	0.79
Organic fertilizer quantity	0.00	0.56	-0.01	0.39	0.00	0.98
Chemical fertilizer quantity	0.02	0.00	0.05	0.00	0.00	0.97
Pesticide quantity	0.02	0.03	0.06	0.00	-0.02	0.45
Seed quantity	-0.01	0.01	-0.01	0.02	0.00	0.75
<b>Income (nonfarm and other)</b>						
Nonagricultural wage	-0.06	0.06	-0.03	0.33	-0.25	0.04
Nonfarm income	-0.01	0.78	0.00	0.98	-0.01	0.86
Transfers	-0.04	0.11	-0.03	0.29	-0.08	0.35
Other income	0.00	0.99	-0.07	0.36	0.42	0.04
<b>Products</b>						
Cereals	-0.11	0.00	-0.11	0.01	-0.09	0.32
Corn	0.04	0.12	0.07	0.01	-0.13	0.18
Rice	0.16	0.00	0.13	0.00	0.27	0.00
Cowpeas	0.04	0.14	0.04	0.15	-0.01	0.93
Peanut	0.00	0.99	0.00	0.84	0.02	0.77
Sesame	0.18	0.00	0.24	0.00	-0.02	0.76
Cotton	0.69	0.00				

Productivity (output value/hectare)	All		No cotton		Cotton	
	Coef.	P > t	Coef.	P > t	Coef.	P > t
Tubers	0.19	0.05	0.26	0.01	−0.18	0.60
Fruits and vegetables	0.02	0.66	0.03	0.35	−0.08	0.54
<b>Economic environment</b>						
Distance to market	−0.03	0.31	0.01	0.81	−0.10	0.22
Distance to transportation service	0.04	0.18	0.01	0.74	0.10	0.24
Distance to the closest road	0.00	0.99	0.00	0.95	−0.01	0.89
Household own account	0.11	0.00	0.06	0.10	0.30	0.00
<b>Shocks</b>						
Shocks	−0.09	0.00	−0.06	0.02	−0.22	0.00
<b>Region</b>						
Boucle du Mouhoun	−0.42	0.00	−0.22	0.00	−0.61	0.00
Sahel	0.08	0.23	0.29	0.00		
Est	−0.74	0.00	−0.55	0.00	−0.98	0.00
Sud-Ouest	−0.49	0.00	−0.35	0.00	−0.54	0.00
Centre-Nord	−0.23	0.00	−0.03	0.69		
Centre-Ouest	−0.48	0.00	−0.24	0.00	−0.75	0.00
Plateau-Central	−0.38	0.00	−0.16	0.02	−0.83	0.00
Nord	−0.40	0.00	−0.18	0.01		
Centre-Est	−0.38	0.00	−0.16	0.01	−0.87	0.00
Centre	−0.68	0.00	−0.45	0.00		
Cascades	−0.34	0.00	−0.29	0.00	−0.25	0.06
Centre-Sud	−0.71	0.00	−0.43	0.00	−1.41	0.00
<b>Constant</b>						
R <sup>2</sup>	10.01	0.00	9.75	0.00	11.44	0.00
# observations	0.3403		0.287		0.2716	
	5671		4786		885	

Source: Author's calculation using the 2014 EMC.



**TABLE A9 Regression on the Transfers**

Probability (transfers = 1)	Coefficient
<b>Household demographics</b>	
Household size	-0.025***
Household size (squared)	0.001**
Gender (female)	0.619***
Household head age	-0.013*
Squared household head age	0.000***
Monogamist	-0.245**
Polygamist	-0.200*
Divorced	-0.314
Widower	-0.341**
<b>Household head education</b>	
Primary	0.195***
Low secondary	0.104
Upper secondary	-0.089
University	0.290**
<b>Handicap</b>	
Handicapped (yes)	0.218***
<b>Shocks</b>	
Natural	-0.068
Price	-0.027
Employment	0.329***
Death and illness	0.135***
Security (crime, theft)	-0.001
Social issue	0.189
Other	-0.093
<b>Income</b>	
Income before transfers (log)	-0.039**
<b>Region</b>	
Bouclédu Mouhoun	0.247**
Sahel	-0.069
Est	-0.017
Sud-Ouest	-0.347***
Centre-Nord	0.333***
Centre-Ouest	0.218**
Plateau-Central	0.056
Nord	0.132
Centre-Est	0.01
Centre	0.05
Cascades	0.465***
Centre-Sud	-0.142
<b>Residence area</b>	
Rural	0.033
<b>Constant</b>	
	-0.09
# observations	9,423

(\*) Significant at 10%; (\*\*) Significant at 5%; (\*\*\*) Significant at 1%.

Source: Author's calculation using the 2014 EMC.

