

Agriculture and Jobs Fostering Productive Employment in the Food System

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Jobs Diagnostic

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EXECUTIVE SUMMARY

AGRICULTURE REMAINS THE KEY SOURCE OF EMPLOYMENT, ESPECIALLY FOR THE MOST VULNERABLE...

Agriculture continues to play a dominant role in the economy of Burkina Faso, both in terms of output, as well as employment. Burkina Faso's economy remains predominantly agriculture-based—over the last decades, farming has consistently accounted for between 30 and 40 percent of the GDP. More than 80 percent of its population is involved in farming, to various degrees, whereas 70 percent of the country's labor force reports that agriculture constitutes its main occupation.

The young and the elderly are more reliant on farming than the middle-aged groups. 73 percent of the people aged 15-24, as well as 76 percent of those aged 65 and above report agriculture as their main employment. The shares for the rest of the working age population range from 64 to 68 percent. As the middle-aged groups are more mobile, they are more likely to find alternative income opportunities, including salaried jobs.

...BUT IT REMAINS EXPOSED TO EXTERNAL SHOCKS AND SUFFERS FROM LOW PRODUCTIVITY

Burkina Faso's agricultural sector exhibits a rather narrow production base and various exogenous shocks have exposed its vulnerability. Cotton, sorghum, millet, groundnuts and cattle meat have accounted for more than 50 percent of the total sector output over the last decades. In 2013 cotton alone represented 20 percent of the agriculture's output and 60 percent of Burkina's agri-food exports. However, cotton revenues have been increasingly affected by waning international prices, exchange rate fluctuations and weather vagaries. More broadly, natural and human disasters—such as droughts, floods, and locust invasions, but also the civil wars in Cote d'Ivoire and the 2015 attack in Mali—have exposed the dangers of limited diversification as food production and security have repeatedly been negatively affected.

Historically, agriculture growth has been primarily driven by area expansion and yield increases. A basic decomposition of the growth in the crop sector, contrasting the average sector data of 1961-1965 and of 2009-2013, shows that its main drivers were area expansion (41 percent) and yield increases (55 percent). The change in the cropping pattern, or in other words, diversification, had a rather negligible impact (-1 percent).

Both labor and land productivity in farming are low. In the production of many key crops, Burkina's agriculture lags behind top regional and global producers, recording three to five times lower yields in some cases (e.g. cotton, sorghum, millet, dry onion, cattle meat).

Burkina also exhibits one of the lowest labor productivities in agriculture in the world with a gross value added per agricultural worker of only US\$323. While in line with data for low-income countries, Burkina's productivity represents only half of Africa's continental average and is 60 times below top performers among the high-income countries.

There is a significant gap between agricultural and non-agricultural labor productivity. Although agricultural productivity nearly trebled between 1994 and 2014, it is still seven times lower than in the services sector and ten times lower than in industry. The inter-sectoral gap has narrowed somewhat over the last decades, but this can be traced mostly to an uneven trajectory of labor productivity off-farm. Such a large inter-sectoral gap in productivity is not unique to Burkina and is—in general—much wider in less developed countries than in developed economies. While it persists, however, it should represent an incentive for labor to move out of agriculture and into more productive industries.

SUBSISTENCE FARMS ARE PREVALENT AND THEY USE LABOR DIFFERENTLY THAN MARKET-ORIENTED FARMS...

Subsistence farming dominates the agricultural sector. Most of the agricultural production in Burkina Faso is informal and conducted at household level; its main purpose is subsistence. In fact, according to the 2014 household survey, 93 percent of all people employed in agriculture are producing primarily with the intention to meet their own consumption needs.

Subsistence and commercial producers differ substantially in how they employ and use labor. Market-oriented producers are more likely to hire from the working age population groups (with a focus on the middle-age segment) and rely more heavily on seasonal labor. As a result, child or elderly labor is less prevalent on the holdings that are producing mainly for the market. Market-oriented producers are also more likely to use seasonal labor than subsistence farmers. This could reflect, on the one hand, the nature of their specialization—into cash crops, for example, that are more affected by seasonality than mixed production systems—and, on the other hand, a more efficient organization—they hire additional labor only when they need it and afford it.

...BUT BOTH SUBSISTENCE AND MARKET-ORIENTED FARMS ARE SIMILARLY AFFECTED BY, AND RESPOND TO, EXOGENOUS SHOCKS

There are no significant differences in how subsistence and commercial farmers are affected by, or respond to, exogenous shocks. Agricultural households in Burkina Faso report three types of shocks as most significantly affecting their livelihoods: (i) drought (reported by 36 percent of respondents); (ii) increase in food prices (16 percent); and (iii) increase in input prices (11 percent). The main negative impacts of the drought were manifested through reduced food production (96 percent of respondents affected), food

stocks (89 percent), revenues (83 percent) and assets (72 percent). The main coping mechanisms included selling livestock (25 percent of respondents) and reducing consumption (14 percent). Only 10 percent of those affected could respond to the shock by getting an additional job. The low levels of qualifications are one of the limiting factor affecting inter-sectoral mobility and farmers' ability to diversify incomes on- and off-the farm.

AGRICULTURAL LABOR IS MARKED BY SIGNIFICANT UNDEREMPLOYMENT, LOW EDUCATION LEVELS AND HIGH PREVALENCE OF SECONDARY JOBS

Agricultural labor exhibits high levels of underemployment. Underemployment, approximated through low working hours, is significant amongst Burkinabé farmers and it affects more strongly the term and seasonal employees, who account for 93 percent of the entire agricultural population. On average a person whose main occupation is farming works 1,108 hours per year, while a person involved in services works 1.9 times more, and one employed in manufacturing 1.6 times more. In turn, the hourly wage in services is 10 times higher than in agriculture, and in manufacturing it is four times higher. Seasonality is a contributing factor, but alone cannot explain the gap: the difference in education and skills is likely to be a more important impacting factor.

Low levels of education and skills among agriculture workers remain a challenge. Low education levels are prevalent amongst the Burkinabé in general but affect the rural population—which is predominantly involved in farming—much more: 47 percent of the urban population lacks any formal education, as opposed to 91 percent of the rural population. 63 percent of the Burkinabés employed in agriculture are illiterate, but there are significant differences across age and gender groups, as illiteracy affects women and the elderly to a much greater extent. However, the younger generations are now enjoying better access to education and are likely to turn the tide in the future

Nearly half of the people primarily engaged in agriculture have secondary jobs that secure a significant share of their income. 48 percent of the people primarily employed in agriculture have a secondary employment—the share among the general population is 36 percent—which provides about 37 percent of their income. This further emphasizes that there is considerable underemployment in the agricultural sector, pointing to significant scope for improvement through professionalization and specialization of farmers and agricultural workers.

THE CHALLENGES AHEAD: CREATE BETTER AGRICULTURAL JOBS AND INCREASE RESILIENCE

A potential future Jobs Strategy should focus on responding to the challenge of generating better jobs in the agri-food system, while, at the same time, increasing

resilience to exogenous shocks. There are several challenges that Burkina’s agri-food sector will have to face over the coming period. Faced with fast-growing population, it will need to continue creating jobs to keep employment high. However, in the absence of change, these jobs will remain concentrated in subsistence agriculture and will continuously be characterized by low productivity, and poverty, and vulnerability to external shocks. To ameliorate these, a potential future Jobs Strategy should focus on identifying measures that: (i) will support the creation of better quality jobs in agriculture, while increasing climate and market resilience, and, (ii) most importantly, generate employment in the food manufacturing sector and other industries connected to the agri-food system (e.g. delivery of agricultural inputs, repair shops for agricultural machinery, packaging and labeling, agri-food storage, transportation and delivery etc.). It is important to ensure that all this job creation is market-driven, and that the public sector creates the right enabling environment. Encouraging a healthy competition between firms within and across industries, rather than picking “winners”, needs to be a core principle to guide this development path.

INTRODUCTION

This report is part of a larger jobs diagnostic effort aimed at better understanding the labor market in Burkina Faso, its link to poverty reduction and prospects for the future.

A jobs diagnostic is an important tool for developing jobs strategies to unlock the economic potential, increase productive and inclusive employment opportunities, foster social cohesion, and provide a pathway out of poverty. Jobs are central both to translating economic growth into poverty reduction, as well as to boosting shared prosperity.

This report focuses on jobs generated in the agriculture sector, which remains the largest contributor to output and employment in Burkina Faso. The aim of the report is to provide policymakers with a comprehensive understanding of the nature of employment in agriculture, while noting data constraints and pointing to areas that require further research. The report highlights issues that should become key concerns for public policy in the future, with agriculture projected to retain its dominant role both in terms of output, as well as employment.

The report is accompanied by three further studies on the macro environment, supply and demand of labor. To support the Jobs Agenda in Burkina Faso, four perspectives on jobs challenges have been explored in parallel to help build a foundation for effective jobs strategies. In addition to the present report, there are important conclusions stemming from separate reports on: (i) *Growth and Jobs*; analyzing the drivers of economic growth and productivity from a macro-economic perspective; (ii) *Workers and Jobs*; looking at the supply side of labor markets and providing a profile of workers and their jobs to better target interventions; and (iii) *Firms and Jobs*; analyzing private sector labor demand outside agriculture and identifying main bottlenecks for further job creation. The combined ambition of these efforts is to provide the Government of Burkina Faso with evidence to consider when drafting policies for more jobs of better quality.

The data used to assess employment in the agriculture sector is mostly derived from the national Agricultural Census conducted in 2008/09 and from the 2014 Multi-Sector Household Survey (MSHS). The two main data sources were meant to provide valuable complementary perspectives on the profiling of the Burkinabé farmers. On the one hand, the Agricultural Census considers all people engaged in agricultural activities, regardless of the intensity of their involvement, and attempts to quantify and describe the entire labor effort that is committed to the sector. On the other hand, the MSHS focuses on the household members for whom agriculture is a primary (or even secondary or tertiary) occupation; while not the best tool to capture the extent of commercial farming, or the full scope of part-time employment in agriculture, it is very useful for cross-sector

comparisons. This data was used to characterize the size and the economic and demographic profile of the Burkinabé farming workforce, as well as some aspects of market-orientation of the Burkinabé holdings.

The design and quality of these data sets, and especially of the Agricultural Census, imposed some limitations on the analysis, notably on the discussion on labor productivity. The Census was designed along six distinct modules: (i) general agriculture household data (across the entire sector); (ii) rainfed agriculture¹; (iii) irrigated cultures (mostly vegetables); (iv) fruit trees; (v) livestock; and (vi) fisheries (not included in our analysis). Given its vertical (product-driven) structure, and due to how samples were drawn for each module, it was not possible to aggregate the results across modules, to calculate, for instance, employment, labor productivity or market participation for mixed production households, who, in fact, constitute the majority of the farm population. In some cases, relevant employment variables were defined differently from one module to the other, which made product-by-product comparisons difficult. Given these limitations, it was not possible to calculate the labor productivity in agriculture (based on total labor input into the sector), nor to apply several of the subsistence metrics discussed in this note. Instead, much of the profiling of farmers relies on data collected through the MSHS and focuses on the agricultural population for whom farming was the main occupation during the survey period. The MSHS allows for a grouping of farms into subsistence- or market-oriented, based on the motivation of the farm manager about the use of farm production. In this context, the report provides a broader discussion on the methodological approaches to subsistence farming, applied in the relevant literature and policy contexts. It thus also includes recommendations on how to improve data collection for better policy design and implementation.

The report is structured as follows. *Section 1* places agricultural employment and productivity within the broader economic and sectoral context and trends. *Section 2* examines the profile of the Burkinabé agricultural population, while capturing specifics pertaining to age, gender, education/skillsets and geography. *Section 3* offers some concluding thoughts on challenges facing policy-making on the path to better jobs in agriculture and opportunities off-farm.

¹ Covering cereals (e.g., millet, wheat, sorghum, rice, fonio), cash crops (e.g., cotton, peanuts, sesame, soya), and other staple crops (e.g., black-eyed pea, bambara groundnuts, yams, potatoes).

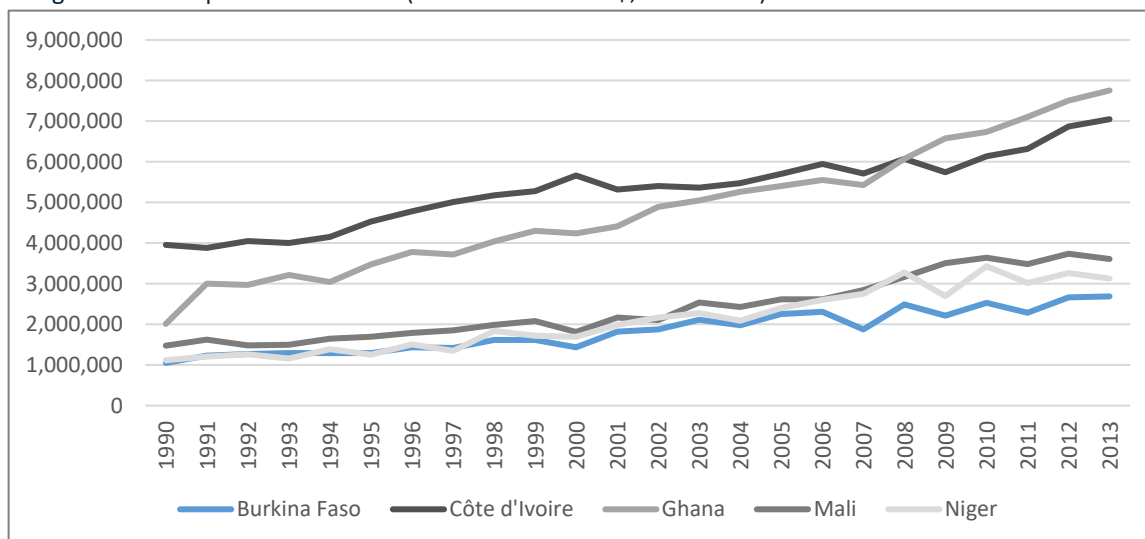
1. AGRICULTURE IN BURKINA FASO: PERFORMANCE AND TRENDS

Agriculture continues to play a dominant role in the Burkinabe economy, including in terms of employment, although the relative importance of other sectors has been growing. In recent years, various exogenous shocks have exposed the vulnerability of the farming sector, which was further exacerbated by a rather narrow production base. Historically, agriculture growth has been primarily driven by area expansion and yield increases, but both labor and land productivity in farming are low and have significant potential for improvement. Low education and skills as well as lower labor inputs in agriculture contribute to the perceived inter-sectoral productivity gap.

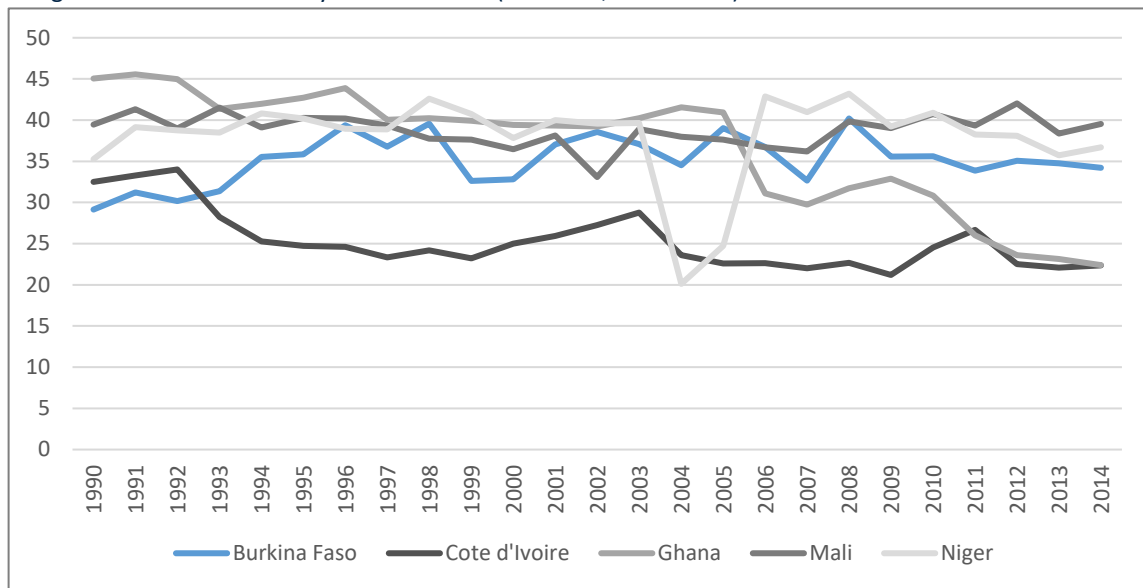
Agriculture has been a dynamic sector in Burkina Faso, just like in its neighboring countries. Its output has increased by 160 percent between 1990 and 2013, growing from 1 billion to 2.6 billion (*Figure 1A*), at a compound annual growth rate (CAGR) of 4.24 percent. Similar growth dynamics have occurred in the region, owing to a combination of strong demand, sustained economic growth, higher global agricultural prices and improved policy environment (Hollinger, 2015). The sector has remained consistently large in relative terms, fluctuating between 30 and 40 percent of the country’s GDP (*Figure 1B*). This suggests that Burkina remains an agriculture-based economy, despite its steady and positive economic growth (1998-2014 at a CAGR of 5.7 percent).

Figure 1
Agriculture in West Africa

A. Agricultural output in West Africa (constant 2004-06 I\$, 1990-2013)



B. Agriculture in the economy of West Africa (% in GDP, 1990-2014)



Source: FAOSTAT and World Bank (World Development Indicators)

However, the overall growth trend in agricultural output has been marked by several dips, illustrating sensitivity to exogenous shocks. A disastrous locust invasion affected the entire country in 2004, and especially its northern regions. The unfavorable 2007/08 harvest season caused a nearly 20 percent decline in the agricultural production. At the same time, the global food crisis intensified the food shortage and the impact of soaring food prices in this landlocked country, compromising food insecurity in some of the more vulnerable regions (FEWS.NET 2008). Severe flooding, and then a drought affected the farm production again in 2009 and 2011/12, respectively. Overall, natural and human disasters—such as the civil wars in Cote d’Ivoire and the 2015 attack in Mali—have impacted the country’s economy and trade, and especially its food production and security.

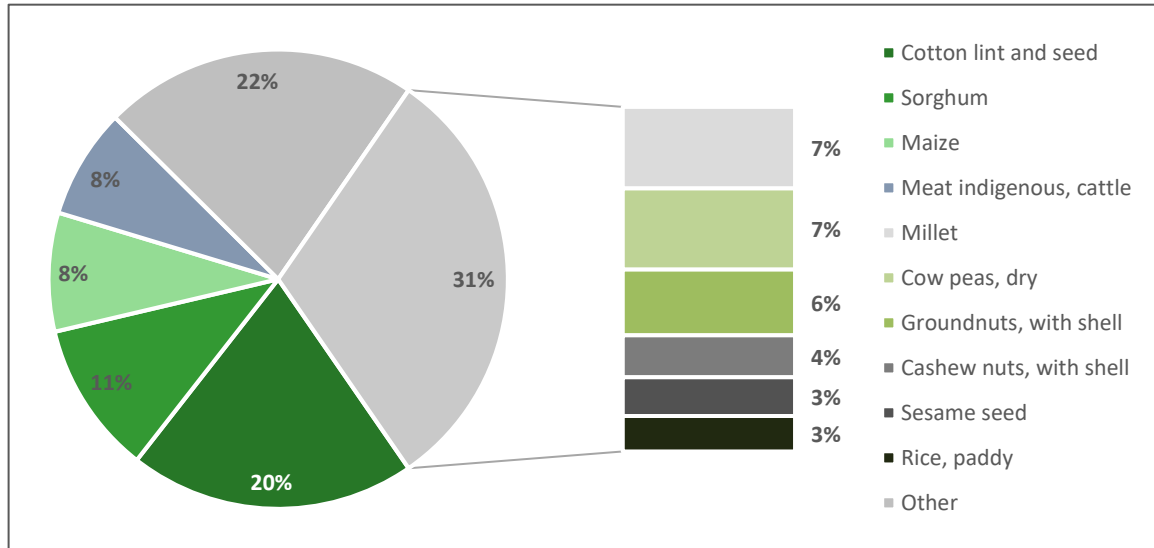
A narrow agricultural production base dominated by cotton further exacerbates the sector’s vulnerability. Crops represent the largest and growing share of agriculture output, and cotton continues to be one of the main engines of the economy. In 2013, crops generated 78 percent of the total agricultural output in Burkina, on a steady rise from little over 60 percent in the early 1990s. Collectively, cotton, sorghum, millet, groundnuts and cattle meat are the main agricultural commodities that have secured more than 50 percent of the total sector output in Burkina Faso over the last decades (*Figure 2*). Cotton (lint and seed) is at present the single most significant product in the country’s agricultural economy, generating 20 percent of the sector’s output and 60 percent of the agri-food export revenue (FAOSTAT 2013). Its importance for the overall economy has only been superseded by the recent gold boom. As the main cash crop,

cotton directly or indirectly impacts the livelihoods of about 3.5 million Burkinabés (World Bank 2017). However, structural cotton dependence carries its risks. The cotton revenues are being increasingly affected by waning international prices, exchange rate fluctuations and weather vagaries (IMF 2014).

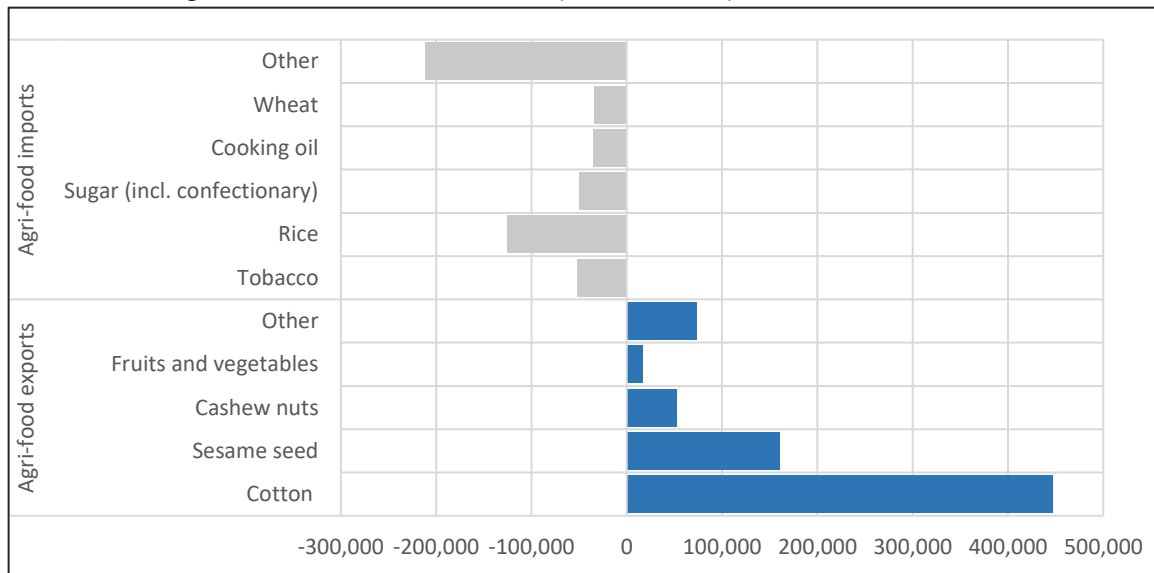
Figure 2

A narrow agricultural production base dominated by cotton exacerbates agricultures vulnerability

A. Composition of the agricultural sector (% in gross production value, 2013)



B. Value of the agri-food trade, main commodities (US\$ '000, 2013)



Source: FAOSTAT.

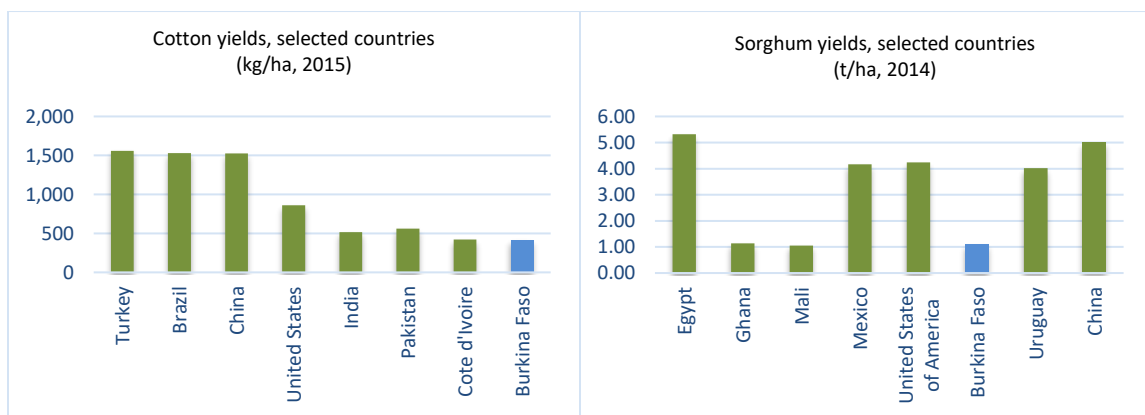
Overall, area expansion and yield increases, rather than diversification, have been the main drivers of agricultural growth. A basic decomposition of the growth in the crop

sector², analyzed by contrasting the average sector data of 1961-1965 and of 2009-2013, shows that its main drivers were area expansion (41 percent) and yield increases (55 percent). The change in the cropping pattern had a rather negligible impact (-1 percent). Indeed, arable land in Burkina trebled since the early 1960s, to reach about 6.2 million ha today. Land expansion was, in turn, influenced by two factors: (i) population growth, resulting in more people needing more farmland in absence of alternative (rural) employment; and (ii) climatic variability and poor soil fertility, causing farmers to clear more land to secure sufficient harvests. The increase of cultivated area was possible at the expense of reducing common grazing and wild-food gathering land, and by bringing fallow—and, often, marginal—land into the production circuit. In parallel, yields improved for several key crops. The productivity of staple foods (such as rice, corn, sorghum and millet) but also cash crops (mangoes, sesame) has increased 2-4 times since the early 1960s. Yet, for other crops, such as potatoes, cassava, groundnuts, and for most fruits and vegetables, yields have stagnated or worsened. Similarly, yields across the entire livestock sector (both meat and milk) have leveled or declined over the last decades.

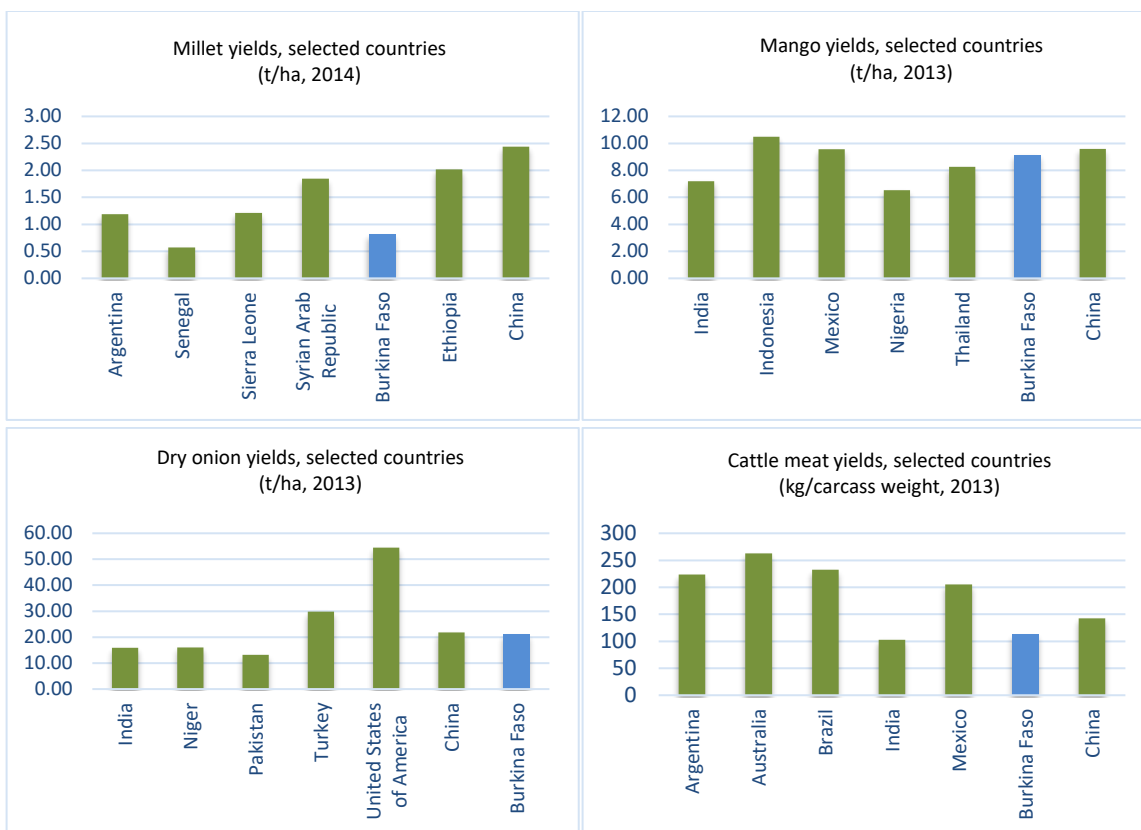
Still, yields remain low in a regional and international perspective. With few exceptions (mangoes, most notably), Burkina Faso lags behind top global and regional producers in terms of agricultural productivity (*Figure 3*). The gap is sometimes 3- to 5-fold.

Figure 3

Yields of selected agricultural commodities in Burkina Faso and selected countries (2014)



² Using the Minhas-Vaidyanathan method described in Allauddin and Tisdell (1986).



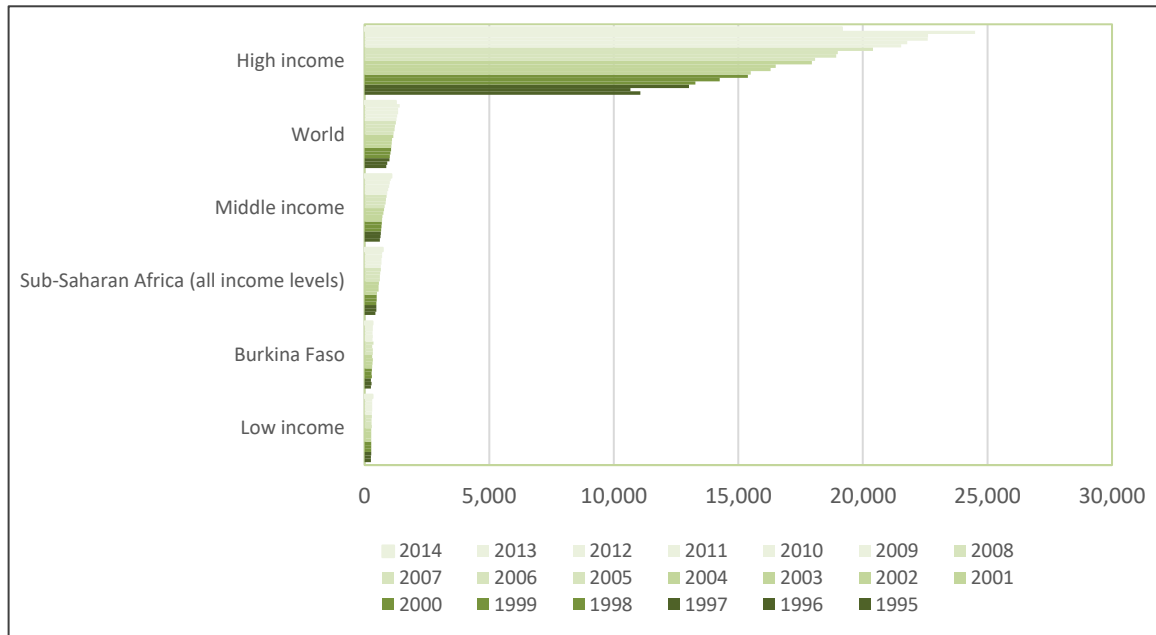
Source: FAOSTAT and Index Mundi (for cotton)

Labor productivity in agriculture is weak, although it has improved over time. Burkina Faso’s annual population growth is currently close to three percent, double the rates of the 1960s. Much of this rising population continues to be absorbed in the rural economy, especially farming, although urbanization picked up speed in the recent years. The rural population still accounts for 71 percent of the total population (World Development Indicators 2014), while agriculture employs 78 percent of the country’s labor (MSHS 2014). However, the labor productivity in agriculture, defined as agricultural gross value added (GVA) per agricultural worker, has been lagging both general economic growth, and regional and global comparators (*Figure 4*). With a GVA per agricultural worker at only US\$323 (constant 2005 US\$), Burkina Faso has one of the lowest labor productivities in agriculture in the world. While well fitting into the low-income country range, this number is only half of the continental average and 60 times below top performers in the high-income group.

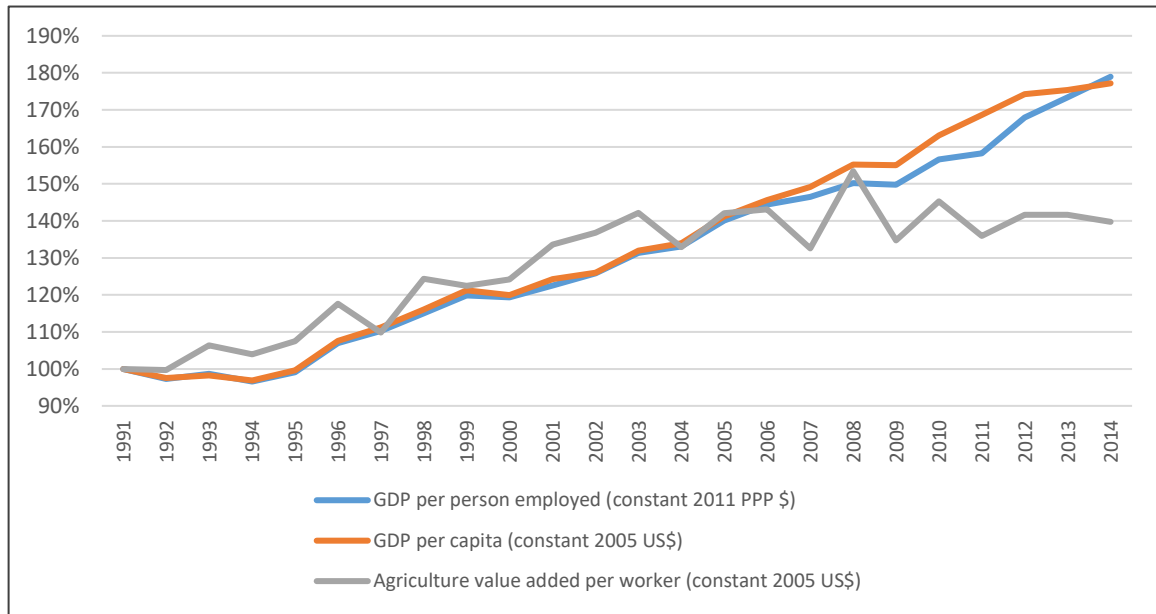
Figure 4

Agricultural added value is comparable with other low-income countries, but remains low

A. Agricultural value added per worker (constant 2005 US\$, 1995-2014)



B. GDP per capita, GDP per person employed, and agriculture GVA per worker (1991-2014, 1991 = 100%)



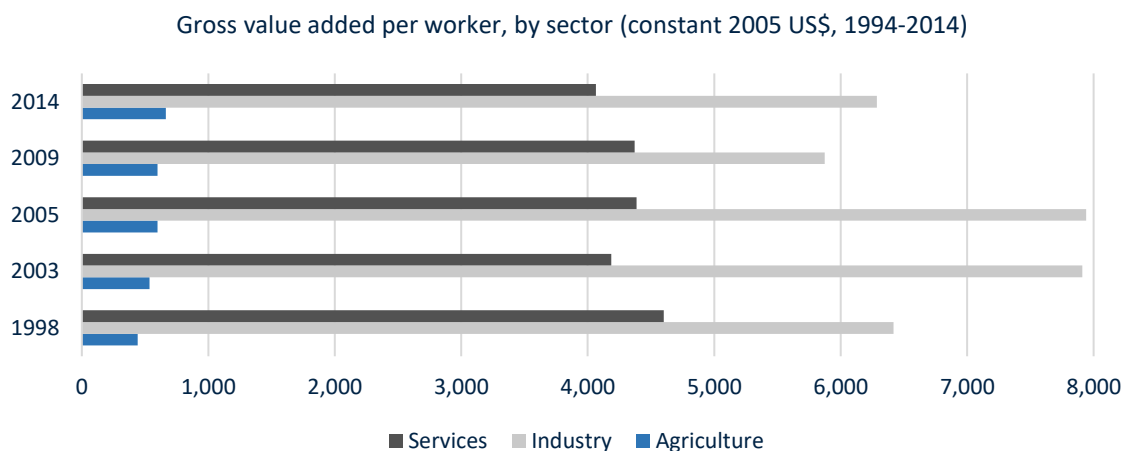
Source: World Bank, World Development Indicators (WDI)

The observed role and performance of the agriculture sector in Burkina Faso are in line with the country’s current development status. There is a strong link between a country’s income level and the relative importance agriculture holds in its economy; as countries develop, the concentration of labor force in agriculture decreases, while labor

productivity increases (World Bank 2008). Growth of the non-farm economy is essential for this, and so is inter-sectoral labor mobility. As labor is released from agriculture and the farming sector starts benefiting from the positive spillover effects of general economic development, labor productivity in agriculture also improves. This macroeconomic trend also mirrors people’s demand and behavior at micro-level, where higher household incomes are accompanied by a reduced share of food-related spending (Engel’s law).

However, differences in inter-sectoral productivity remain important. Using national accounts data to measure sector-specific labor productivity, there appears to be a significant gap between agricultural and non-agricultural labor productivity in Burkina (*Error! Reference source not found.*). Although agricultural productivity nearly trebled between 1994 and 2014, it is now 10 and 7 times, respectively, lower than in industry and services. The inter-sectoral gap has narrowed somewhat over the last decades, but this can be traced mostly to an uneven trajectory of labor productivity in the non-farm economy. Such an inter-sectoral gap is not unique to Burkina. On a general level, it seems to be much wider in the less developed countries, and it narrows as economies develop further. Gollin et al. (2014) show that the labor productivity ratio between the non-agricultural economy and farming is 4.5 in developing countries, 3.4 in middle income countries and 2.2 in high income countries. As such, it is to be expected that there would be an incentive for labor to move out of agriculture and into more productive industries.

Figure 5
Large differences in inter-sectoral productivity persist



Source: World Bank, World Development Indicators (WDI)

Measurement issues may exaggerate these inter-sectoral differences, but gaps persist even after controlling for some confounding factors. Recent research (Gollin et al. 2014), using micro-data, shows that the productivity gap is narrower if correcting for factors such

as inter-sectoral differences in time-input and differences in human capital, estimated through schooling and experience. However, even after such adjustments, the gap between agricultural and non-agricultural productivity is reduced only by one third, overall, and by half in the developing countries. To explain the remaining gaps, the authors find strong correlations with a country’s geographic features, institutional quality and labor mobility, but more research is needed to definitively conclude on the impact of these factors and existing causality. In either case, the implication of these findings is that there should be large income gains for people moving out of agriculture and into other economic activities.

Agricultural labor in Burkina Faso is affected by underemployment, seasonality and low education; while these challenges are also shared by the non-farm sector, they affect farmers much more. Underemployment, approximated through low working hours³, is significant amongst Burkinabé farmers (*Table 1*). It affects agriculture more strongly than other sectors. On average, a person whose main occupation is farming works 1,108 hours per year. A person involved in services works approximately 1.9 times more (2,140 hours), whereas one employed in manufacturing works 1.6 times more (1,768 hours). At the same time, underemployment impacts more the term and seasonal on-farm employees, who, in any event, account for 93 percent of the entire agricultural population (MSHS 2014). The hourly wage in services is 10 times more than in agriculture, whereas the hourly wage in manufacturing is four times more. The difference in education (and skills) is significant between the sectors and likely to be a very important factor explaining the hourly wage difference. Low education levels are prevalent amongst the Burkinabé but affect the rural population—which is predominantly involved in farming—much more: 47 percent of the urban population lacks any formal education versus 91 percent of the rural population (MSHS 2014). No data is available for elaborating on differences in skills level in more detail, however. These observations indicate that the time-input and human capital differences across sectors in Burkina are important but, as discussed above, additional factors are likely to also contribute to explaining the inter-sectoral productivity gap.

Table 1
Labor and time input by sector and time input in agriculture by type of employment (2014)

	Annual labor input, by main occupation		Annual time input, by main occupation		Annual time input per worker # of hours/worker
	# of workers	%	# of hours	%	
Sector:					
<i>agriculture</i>	4,579,689	70%	5,072,486,445	56%	1,108

³ Falling below a full time equivalent threshold of 2,080 hours annually (8 hours/day, 5 days/week)

<i>manufacturing</i>	572,244	9%	1,011,781,027	11%	1,768
<i>services and other</i>	1,392,662	21%	2,980,622,791	13%	2,140
<i>TOTAL</i>	6,544,595	100%	9,064,890,263	100%	1,385

Time input in agriculture			
	months/year	days/week	hours/day
Type of employment:			
<i>permanent</i>	7.13	6.36	7.39
<i>term</i>	5.04	6.32	7.68
<i>seasonal</i>	5.14	6.28	7.31

Source: MSHS

2. PROFILE OF THE BURKINABÉ AGRICULTURAL POPULATION

Burkina Faso's economy is dominated by agriculture, with more than 80 percent of its population involved in farming, to various degrees, and 70 percent of its labor force reporting that agriculture constitutes its main occupation. However, nearly half of the people primarily employed in agriculture also have a secondary employment, given that farming is generally associated with low pay, seasonality and underemployment. Most of the agricultural production in Burkina is informal and conducted at household level, with 93 percent of all people employed in agriculture producing to meet their own consumption needs. This is the only metric for quantifying subsistence farming that can be used with the available data. While the MSHS does not allow to explore the differences between the subsistence- and market-oriented farmers more deeply (e.g. in terms of specialization, yields, incomes etc.), it does allow to see that these groups employ and use labor differently; e.g. market-oriented producers are more likely to hire from the middle-aged population groups and rely more heavily on seasonal labor. However, there are no significant differences in how these groups are affected by or respond to exogenous shocks (of which droughts and food/input price increases are the most important). A striking and critical challenge facing agriculture labor is the low level of education and skills. This represents an obstacle not only to inter-sectoral mobility but also to farmers' ability to diversify incomes on- and off-the farm.

The population of Burkina Faso is extensively engaged in farming. The 2008/9 Agricultural Census indicated that 80 percent (or 1.4 million) of Burkina's households are agricultural households.⁴ Collectively, they hosted an agricultural population⁵ of nearly 13.1 million people, which accounted for 86 percent of the total population in 2009. Of these, almost 9.5 million were active in farming, meaning that they participated in any amount of agricultural activities at household level. Only 0.5 million of the agricultural population was active in non-agricultural activities, whereas another 3.1 million were considered inactive. Very few were identified as unemployed.

Most agriculture households have mixed production systems. On average, they agriculture households in Burkina Faso produce five commodities, 93 percent of them are

⁴ These are defined as households where at least one member is managing land parcels on behalf of the household.

⁵ Within the agriculture census in Burkina Faso, the agricultural population is understood rather broadly, as totaling all members of the household, regardless of their age or occupation status, who belong to an agricultural household.

producing rainfed crops, 81 percent have livestock, 60 percent grow vegetables, while only 27 percent are engaged in fruit production. Unfortunately, the vertical modular structure of the Agricultural Census and the inconsistencies between the respective questionnaires (e.g. different classification of types of employment, different units of observation – household manager versus parcel manager) do not allow for an aggregation or even a comparison by module/commodity groups, of the agriculture employment features across the entire agriculture sector.

The agricultural population is rather evenly distributed throughout most of the country, with a few exceptions. Boucle du Mouhoun concentrated 14 percent of the total agricultural population, while relatively smaller shares (in the range of 2-6 percent) were in the Center, Cascades, Sahel and South-West regions. The last three zones are also the most remote and least populous regions of the country, with agri-climatic conditions generally not too favorable for farming. In turn, the Center region is the most urbanized, hosting the capital city Ouagadougou.

Using another perspective (main occupation), the MSHS reveals a different headcount; it also brings out the importance of secondary employment in conjunction with agricultural activities. According to MSHS, only 4.6 million Burkinabé were engaged in farming *as their main occupation* during 2014.⁶ They represent 70 percent of the total labor force. Notwithstanding the time gap between the agricultural census 2008/9 and the MSHS from 2014, the two sources differ in their approach, as discussed in the *Introduction*. In the end, what the gap between them reveals is that for many people living in agricultural households (roughly, as many as half of those involved actively in agricultural activities) farming is *not* the main occupation. Indeed, the MSHS reveals that 48 percent of the farmers have a secondary employment—the average for the general population is 36 percent—which provides about 37 percent of their income. This further emphasizes that there is a significant degree of part-time work or underemployment in the agricultural sector, which leaves tremendous room for the professionalization and specialization of farmers and agricultural workers.

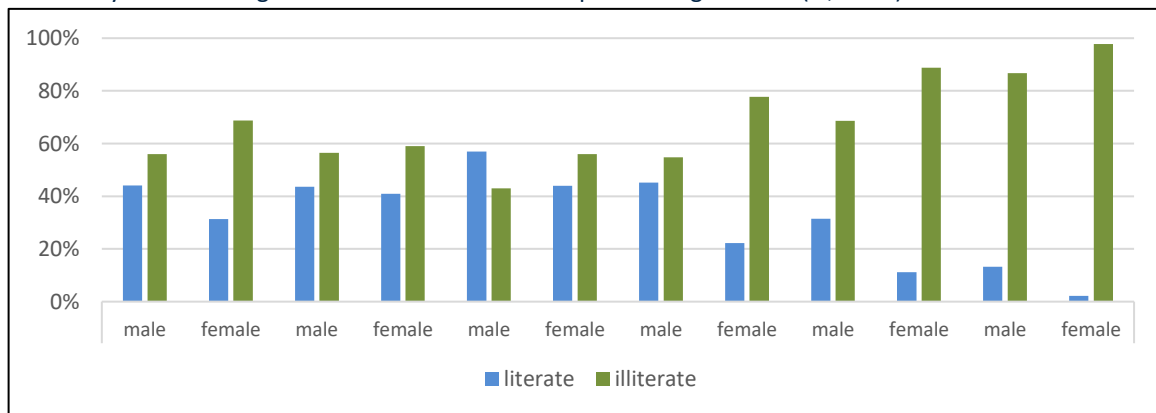
Farming is more important—as main occupation—for certain age groups than for others. The young and the elderly are more reliant on farming than the middle-aged groups. 73 percent of the people aged 15-24, as well as 76 percent of those aged 65 and above listed agriculture as their main employment, versus 64-68 percent for the rest of the working age population. As the middle-aged groups are more mobile, they are more likely to find alternative income opportunities, including salaried jobs.

⁶ From here onwards, the report refers to people reporting agriculture as their main occupation as “farmers”.

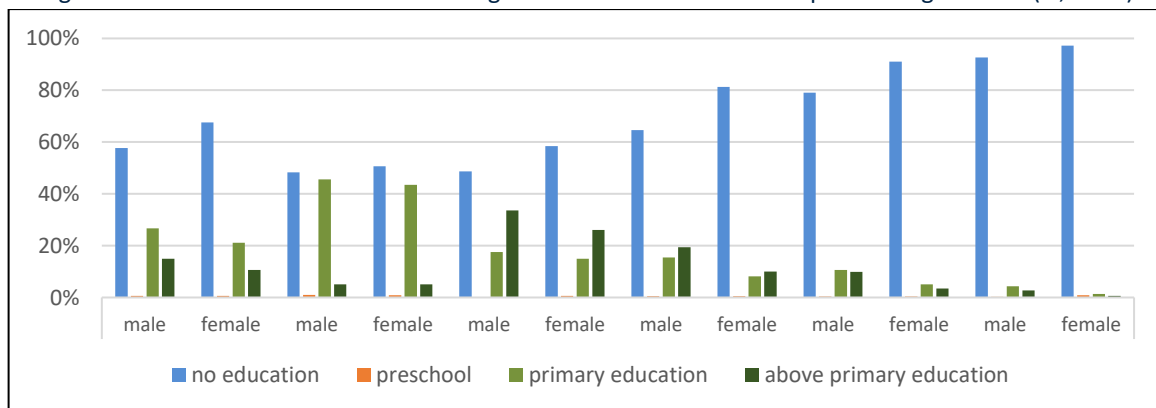
Agriculture labor is marked by low education levels, although this is likely to improve gradually over the next generations. As *Figure 6* shows, illiteracy levels are very high among the Burkinabé employed in agriculture, affecting, on average, 63 percent of them. Moreover, there are significant differences across age and gender groups, as illiteracy affects women and the elderly to a much greater extent. The younger generations are now enjoying better access to education and are likely to turn the tide in the future; however, closing the gender gap will remain a challenge. About educational attainment amongst those employed in agriculture, the same observations regarding age and gender differences hold true. However, no data is available to provide insights into the agricultural skill levels of this population. These refer to, among others, agronomic skills, agri-business skills and similar. With low levels of alphabetization and school attendance, and prevalence of traditional agricultural practices, it is safe to assume that technical skills are rather low. This is also confirmed anecdotally, by various partners involved in the sector.

Figure 6
Agriculture labor is marked by low education levels

A. Literacy levels among Burkinabé whose main occupation is agriculture (% , 2014)



B. Highest level of education achieved among Burkinabé whose main occupation is agriculture (% , 2014)



Source: World Bank staff calculations based on MSHS data.

Farm advisory and extension services could play a greater role in improving skills. These services have been in flux, moving from a top-down approach practiced until the early 2000 to a multi-partner and more demand-driven approach used at present. The setting up of a National System of Agricultural Extension in 2010, relying on increased participation, financial contribution and accountability of all the concerned actors, marked an important break from the past. However, the farm and advisory services remain in need of further strengthening and reform.

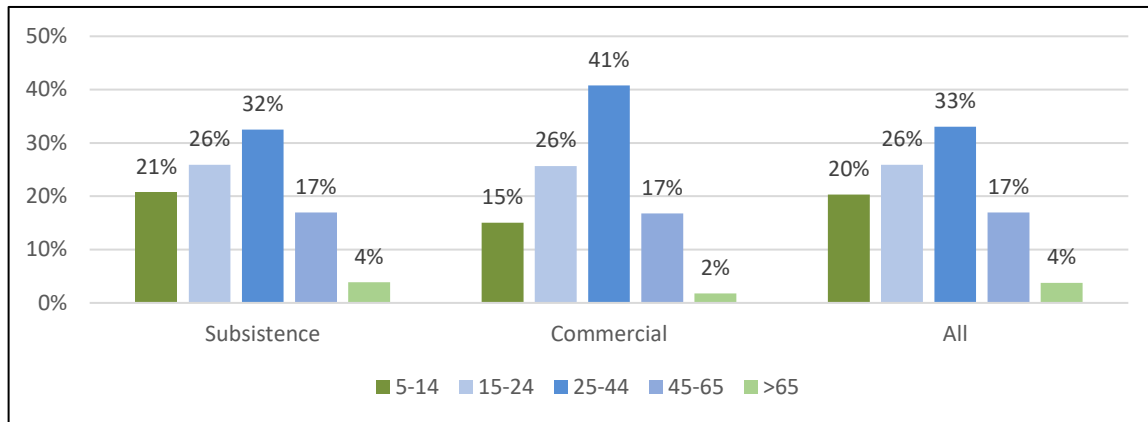
The majority of farmers in Burkina Faso are producing for subsistence. While the definition of a subsistence farmer is subject to many methodological nuances (detailed discussion is provided in *Annex A*), data constraints in Burkina will limit the discussion on subsistence farming to their self-reported market integration. The MSHS from 2014 only distinguishes between farmers who produce mainly for their own consumption and those who produce mainly for the market; the distinction is based on farmers' own perception. By this approach, 93 percent of the people employed in agriculture can be referred to as subsistence farmers. There are no significant differences in the age and gender profiles of them and those run commercially.

Subsistence and commercial farmers differ substantially in how they employ and use labor. Salaried labor represents less than one percent of the agricultural employment overall and most of it is concentrated in the commercial farm segment. Commercial farmers display a much larger percentage of self-employed than their subsistence peers and are much more likely to hire within the working age 15-65 population groups (*Figure 7*). As a result, child or elderly labor is less prevalent on the holdings that are producing mainly for the market. Compared to the general population, farmers depend much more on seasonal labor (93 percent versus 73 percent). Permanent labor represents only six percent, whereas term labor is marginal. This is fully reflective of the nature of agricultural activities. However, farmers producing commercially are even more likely to use seasonal labor than those engaged in subsistence activities, which could reflect, on the one hand, the nature of their specialization (cash crops are affected by seasonality), and, on the other hand, a more efficient organization (they hire additional labor only when they need it, such as for harvesting etc.).

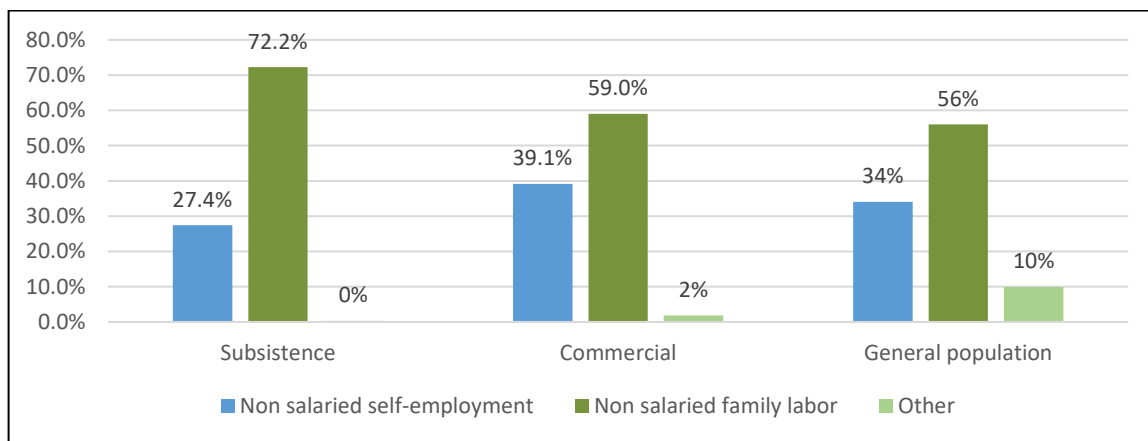
Figure 7

Types of employment and age structure in Burkina's agriculture

A. Distribution of agricultural employment, by age groups and type of farming (% , 2014),



B. Distribution of agricultural employment, by type of employment and type of farming (% , 2014)



Source: World Bank staff calculations based on MSHS data

Both subsistence and commercial farmers are greatly exposed and vulnerable in face of exogenous shocks. The impacts and the coping mechanisms reported by subsistence and commercial holdings did not differ significantly. During the survey year, there were three main exogenous shocks reported by agricultural households (MSHS 2014): (i) drought (36 percent); (ii) increase in food prices (16 percent); and (iii) increase in input prices (11 percent). The main impacts of drought, for those affected, manifested through reduced revenues (83 percent), assets (72 percent), food production (96 percent) and food stocks (89 percent). The main coping mechanisms included selling livestock (25 percent) and decreasing consumption (14 percent). Sale of livestock was also the main response to the increase in food and input prices; 20 percent of households resorted to this coping strategy when faced with food price increases, while 18 percent of the households used it when faced with input price increases. The increase in food prices triggered a stronger response than the increase in input prices in terms of adjusting, i.e. decreasing,

consumption (25 percent versus 6 percent). These findings reiterate that the majority of the agricultural population in Burkina Faso remain very vulnerable in face of shocks and lack the opportunity and the tools to break out of a vicious circle in which adverse climate and market conditions further exacerbate poverty. With limited savings and stocks, households are forced to choose the coping mechanisms that provide immediate relief, even though these may be unsustainable in the long run. Such responses are consistent with a situation in which agriculture continues to be a vocation of last resort, not having yet made the jump to a more sophisticated, capital and knowledge-intensive profession. Further specialization and professionalization of farmers should be able to provide them with a stronger response capacity to such adverse events.

Alternative employment is much less frequently used as a coping mechanism than the sale of livestock or reduction in consumption. Only about 10 percent of those affected by *drought* were able to respond to the shock by getting an additional job. Six percent of those impacted by *increased food prices* were able to do the same, while the share among those affected by *higher input costs* was even lower, a mere two percent. While the severity of the risk may impact motivation to seek employment outside agriculture, Burkina Faso exhibits high constraints affecting inter-sectoral labor mobility.⁷ These need to be addressed in conjunction with efforts to improve the quality and the performance of the agri-food sector.

Many agricultural households already have additional sources of income besides farming.⁸ The MSHS reveals that nearly a third of the household members were engaged in non-agricultural activities within the household, while nine percent worked for an employer outside the household. Of those reporting having household members running at least one family business, 56 percent were involved in trade, 37 percent in various other activities (e.g. transport, catering etc.), whereas 21 percent were involved in agri-processing.⁹ The vast majority of these family businesses are run as microenterprises, employing, on average, between one and two people, and virtually all are informal. Generally, they do not operate all year round, and 75 percent of them report that seasonality is the main reason for this. For instance, agri-processing activities operated for only 7.6 months, on average, over the survey year. While 75 percent were constrained by seasonality, another 12 percent of the family-run agri-processing businesses complained about lack of access to inputs as being the main reason that prevented them from operating year-round.

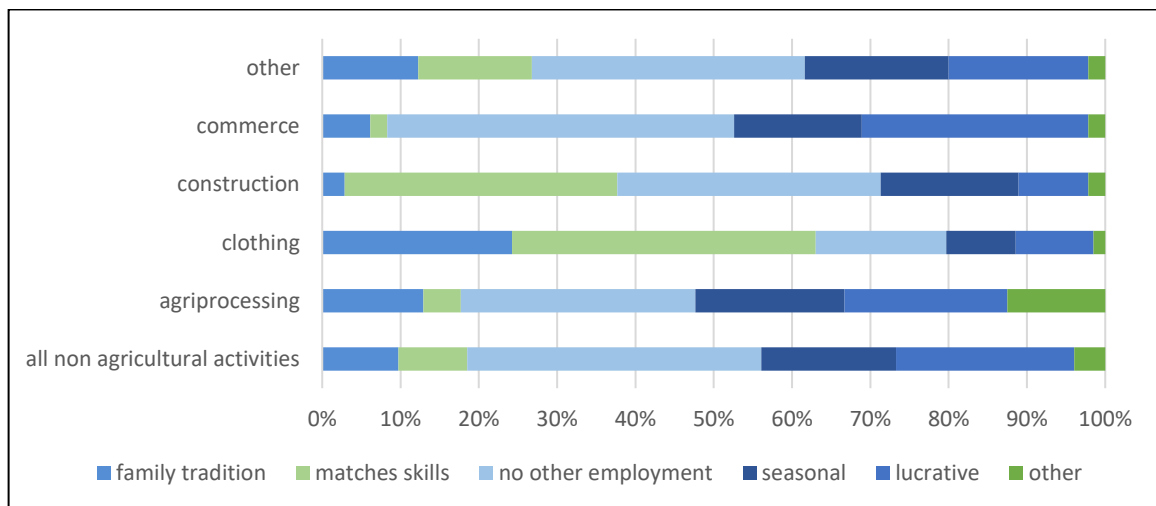
⁷ This issue is explored more in detail in the notes on labor supply and demand.

⁸ Remittances or social transfers are not discussed here.

⁹ Percentages may add up to more than 100 percent, as some households may engage in multiple activities.

Understanding the reasons why households undertake these complementary activities is very important. As *Figure 8* shows, the largest share (38 percent) of households that undertake complementary activities do so out of necessity, as no other employment—outside the household—is available. Family traditions and managing the cycle of seasonality are two other crucial factors (17 and 10 percent, respectively). However, rather few of these businesses (23 percent) report that the lucrative character of these complementary activities is the main driver. A relevant finding of the survey is that the skills match, other than for clothing and construction, is not the main factor determining the choice of the alternative line of business. This is very important in terms of identifying ways, including policy actions, to improve the performance and returns of these activities, as well as their contribution to a healthy rural economy.

Figure 8
Main drivers among agricultural households for getting engaged in other family businesses, by type of activity (% , 2014)



Source: World Bank staff calculations based on MSHS data.

CONCLUSIONS

Agriculture in Burkina Faso remains—and is expected to remain for the foreseeable future—the key provider of employment, but is characterized by subsistence production and limited earning potential. The current production model provides the benefit of ensuring a social safety net for most of the country’s population. Yet, at the same time, it keeps it trapped in a low-income situation, increasingly threatened by exogenous, most often climate or market shocks. Resilience, in these cases, is ensured mainly through adjustment (reduction) in consumption and selling of livestock (an important productive asset), rather than by pursuing more sustainable responses, such as seeking alternative income sources through additional jobs.

Strategic national documents already outline viable paths for achieving economic diversification, job creation and growth. Strategic national documents already indicate ways forward, while acknowledging that the agricultural production model must change to secure better jobs. The recent government policy documents (such as the Strategy for Accelerated Growth and Sustained Development 2011-15), and the new National Program for Economic and Social Development (including the National Investment Program for the Rural Development Sector) have recognized and prioritized the importance of promoting growth poles to support agribusiness and small and medium-sized enterprise development, jointly with pro-poor programs and structural reforms.

An integrated jobs strategy can guide interventions for better and more inclusive jobs. The jobs challenges facing Burkina Faso are numerous. A comprehensive and broad discussion that eventually focuses on the most effective actions will thus be key. This report gives only a partial assessment of which areas might be pivotal and is one out of four Jobs Diagnostic notes for Burkina Faso. Further accompanying notes are on macro-economic aspects, labor supply, and labor demand. The note provides an identification of constraints in the agricultural sector that—together with the other notes—can form the basis for informing a comprehensive Jobs Strategy. A separate note entitled *Jobs Diagnostic: Burkina Faso – Overview and Suggestions for a Jobs Strategy Framework*, summarizes all perspectives and provides a preliminary policy framework with initial suggestions to guide a potential future Jobs Strategy for Burkina Faso.

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Annex A: Defining farmers and subsistence agriculture: a brief discussion on methodology

There is abundant literature—but no consensus—on what constitutes farming, farmers, and, in particular, subsistence agriculture. In the same vein, there are several metrics, for measuring employment in agriculture, and the prevalence of subsistence farming, each with its own strengths and weaknesses. Especially as far as subsistence farming is concerned, some approaches are inherently reliant on collecting detailed farm-level information (such as farm accounting and market participation data), which is difficult to do in environments with high levels of informality and weak farm information systems. Nevertheless, collecting such information has clear benefits especially for guiding policy goal-setting and targeting.

There is a wide variety of labor market situations in agriculture. Standing at the border of traditional lifestyle and economic modernity—with many degrees of transition in-between—farming presents great diversity. Leaving aside variations in production choices and technology, among others, that reflect specific agri-climatic conditions or development levels, people get involved in agriculture in multiple ways and capacities: as permanent or seasonal labor, as full-time or part-time sector contributors, or as formal or informal market participants.

Globally, agriculture stands out in terms of informality and vulnerable employment. The ILO estimates that 1.1 billion people were engaged in agriculture in 2013¹⁰ globally, of which most informally (reliable numbers are difficult to pinpoint). At the same time, working in agriculture is associated with higher levels of poverty, with two thirds of the extreme poor worldwide employed in agriculture (ILO 2016). Moreover, 60 percent of the global child laborers work in agriculture (UNDP 2015). Self-employment and unpaid family labor are the norm in the sector, especially in developing countries that host about 475 million smallholder farm *families* (FAO 2016). In addition, many of the poor involved in agriculture are increasingly and disproportionately being affected by adverse weather conditions and climate change (Hallegatte et al. 2016).

¹⁰ The FAO and ILO figures for the economically active population involved in agriculture differ, because ILO only includes employees (wage and salary earners) and excludes the self-employed and contributing family members.

The definition of farms and farmers remains elusive. A farm is generally understood as an area of land where crops are grown and animals are reared for producing food; by the same token, a farmer is a person who owns or manages a farm. Yet, in practice, there are many different perspectives that call for a more nuanced discussion. Country traditions and cultural context are key factors that determine what constitutes a farm. The lines are particularly blurry when it comes to defining family farms, which, according to FAO (2014) are the most common form to organize agricultural activities: there are more than 500 million family farms worldwide (of which the majority in the developing countries), producing over 80 percent of the global food output. The conclusion, however, is that family farms need to be seen beyond their reliance on family labor and recognized for the important linkages they create with environmental, social, cultural and broader economic functions in the rural landscape.¹¹

Policy logic further shapes and contextualizes the understanding of farming. Depending on the sector and country context, as well as on the chosen policy goals, additional defining criteria usually apply. For agriculture policy purposes, decision makers may set thresholds based on farm size (economic or physical) or based on the degree of participation in farming activities, e.g. measured through the importance of agricultural activities within a business unit's portfolio of activities.¹² Such distinctions should present great importance for purposes of articulating agricultural public support with various other policies, and, in particular, with social protection. Furthermore, a different logic may apply from a fiscal policy standpoint. To a great extent, this perspective needs to respond to the reality of farm-level informality in each country and provide pragmatic solutions to

BOX A.1: DEFINITION OF A FARMER OR PERSON EMPLOYED IN AGRICULTURE FROM A TAXATION PERSPECTIVE (SELECTED EXAMPLES)

Kenya: a farmer is anyone engaged in agriculture as a business, with proper registration number

United States: agriculture taxation provisions apply to all physical or legal persons who derive at least two thirds of their annual gross income from agriculture

France: all legal or physical persons deriving revenue from agriculture are taxed, but progressive taxation applies

India: no agricultural income is taxed, not even for the large holdings

Source: tax legislations in the respective countries.

¹¹ A detailed discussion on various concepts and definition is available in Garner and Campos (2014).

¹² For instance, the European Union recently introduced the concept of “active farmer” to its policy vocabulary and toolkit, to avoid granting aid to companies or individuals for which farming may be a marginal activity (e.g. business who operate sports or recreational grounds).

it. In many countries revenue from agriculture is subject to more permissive taxation, but, even so, the definition and identification requirements may differ widely (*BOX A.1*).

In addition to the diversity of views on farm definition, there are also different statistical approaches to quantifying labor in agriculture. Labor statistics usually reflect agriculture employment based on people's main occupation, which is defined by time use. Agriculture statistics (such as agricultural censuses) tend to consider all people engaged in agricultural activities, regardless of the intensity of their involvement, and attempt to quantify and characterize the entire labor effort that is committed to the sector. Since farming often involves seasonal and/or part-time activities, it is generally useful to consider both headcount and full-time equivalent employment numbers when analyzing agriculture census data, to get a more accurate picture of the agriculture employment landscape.

Subsistence farming needs to be, therefore, placed in this wider conceptual context. Basically, the only consensus about subsistence farming, in the relevant literature, is that there is no consensus about how to define and measure it. There are several approaches to understanding and describing subsistence farms, each with its own strengths and weaknesses, and these are discussed further below.

i.) Market integration

Conceptually, subsistence agriculture holdings/households are often defined through the lens of their *market integration* or of measuring their standard of living. Market integration can be measured from the point of view of *production* but also from the point of view of *consumption*. This perspective looks either at how much of the production is self-consumed on the farm, or, conversely, at how much of the consumption is secured through own farm production rather than through the market. Of the two, the production-centered definition is more commonly used, especially for statistical purposes. This approach looks at the distribution of agricultural production between market and farm/household consumption (IAMO 2003), and relies on a certain threshold (often 50 percent), to determine whether the agricultural unit in question is predominantly oriented towards the market or towards self-consumption.

However, there are intrinsic difficulties with using this concept, stemming from the fact that production and consumption are intertwined, and multi-crop production is common. The situation of a monoculture farmer, who sells most of his/her production, but buys the rest of the food to meet household needs, differs from that of a household with a mixed agricultural production system

whose output meets most of its consumption needs (although it may produce some crops purely for cash), and both are different from the situation of a hobby farmer, who produces nothing for the market but has a significant alternative income that allows him/her to procure most of the food he/she consumes (IAMO 2003). These nuances are important, especially for targeting public expenditure in agriculture towards its most effective uses, and in ways that promote better jobs and greater growth in agriculture.

Furthermore, the treatment of stocks merits attention. Most farmers store a smaller or a larger part of their output, for a variety of reasons. Keeping stocks can be a strategy to maximize revenues, by avoiding selling during times of market glut (when prices take a dive), or it can be a strategy for minimizing household vulnerability, especially in face of food insecurity. In either case, stocks are a way to reduce the negative effects of seasonality on farmers' incomes and livelihoods. Stocks can be used either for the market or for own-consumption, but at some point in the future. Sometimes, their final use may even be determined by the future events, hence cannot be established *ex ante*. This ambiguity raises pertinent methodological questions when determining whether an agricultural holding is market- or subsistence-oriented.

In addition, applying a market-orientation concept to subsistence farming, for purposes of agriculture policy implementation, must rely on sound information systems that are able to reveal farm-level accounting data. In face of a high degree of informality in agriculture in many countries, coupled with a still weak digitization of farm data collection and farm information systems in most agriculture public administrations, this concept is rather rarely applied, as such, for policy targeting purposes.

However, several countries, usually with more advanced statistical and information systems, periodically measure the market orientation of their agricultural households or holdings through surveys that include dedicated questions. For instance, the European statistical agency Eurostat in its farm surveys, distinguishes between households who consume more (or less) than 50 percent of the *value* of the final production of the holding. In this case, the total agri-food consumption of the holding is not relevant, what matters is how the agricultural production is used. At the same time, the challenges stemming from multi-culture are resolved by converting farm output into monetary value.

ii.) *Motivation for using agricultural production*

Even for a production-centered approach, a distinction can be made based on the *motivation for using agricultural production*. This approach is trying to capture the original intention of farmers to produce for the market or for own consumption (*ex ante*), rather than track the actual destination of the farm output, i.e. market or self-consumption (*ex post*). It is, by design, more subjective and less precise than the previous but it presents the advantage of simplicity and cost-effectiveness. It is used in some of the household surveys, such as the MSHS in Burkina.

iii.) Size criteria

Finally, subsistence farms are often defined based on *size criteria*, be these physical or economic. As shown above, determining the extent of a farm's market orientation may be difficult, especially in a data constraint environment and when informality is high. To circumvent this, some policy makers choose to establish limits based on the size of agricultural holdings. Farm size can be expressed in at least two different ways. The physical size is usually determined by the acreage that a farm manager operates, or the number of livestock in his/her herd. In turn, the economic size of a farm can be gauged based on the monetary value of its output or gross margin in any given year. Rankings based on these two size measurement criteria do not necessarily overlap. For instance, a farm may specialize in a high value crop that necessitates little land (such as gourmet mushrooms, spices or herbs). As a result, the farm may be small in physical size, but large in economic size. By the same token, a smallholder does not always have to be a subsistence farmer, or vice versa. There is abundant literature covering this topic, and, for instance, a discussion on what constitutes smallholder can be found in OECD (2015), whereas Shenggen et al. (2013) discuss the typology of smallholder farmers based on their market participation.

Despite all these caveats, the use of physical farm size is much easier than that of economic farm size for agricultural policy targeting purposes. Depending on the country context, farms operating on less than one or two hectares are oftentimes characterized, collectively, as subsistence holdings. In some policy contexts, such as in the European Union, sophisticated farm data collection systems allow for the use of economic farm size to target agricultural income support or investment programs.

It is important to keep in mind that subsistence farming is a dynamic continuum, with gradients from 0 to 100, and involving changes over time. Subsistence does not equal autarchy, and market participation of farmers or agricultural households is present, albeit

at different degrees. Most farmers are not—and cannot be—self-sufficient for all agricultural goods and services they need and use, hence exchange, in some form or another, is a necessity.

Farmers, depending on their profile and production choices, may leave different footprints on their surrounding environment. There is ample literature on the virtues and failings of small farmers, as opposed to large holdings, for example:

- i.) *From an economic and social perspective*, small holdings are generally recognized for their economic and, in particular, poverty reduction and food security role (Shenggen et al. 2013). They provide over 80 percent of the food consumed in the developing world (IFAD 2013), and many studies prove a strong link between agricultural growth and poverty reduction (Christiaensen et al. 2011). While in many developed economies some small farms may be fulfilling functions related to hobby/lifestyle preferences, their main economic role remains a welfare one (European Parliament 2013). They tend to be mostly present in remote/marginalized areas, help bridge rural-urban poverty gaps, and allow the more vulnerable households to better navigate through the perils of economic downturns. This was, for instance, observed in Italy, Greece and Portugal during the recent economic crisis.
- ii.) *From an environmental perspective*, the answers may be even more nuanced and context-specific. As a whole, the agricultural activity both impacts and is impacted by the environment; both ways, these effects can be positive or negative. While some literature may focus on the large/small scale farm dichotomy to argue the superiority of one farm model over the other, it is important to recognize that neither group of farms is homogeneous, and members of each group may have wide-ranging impacts on the environment. As regards small farmers, they can, on the one hand, generate positive effects. By often relying on mixed production systems, they tend to produce more farmed biodiversity than their larger peers and constitute valuable stewards of the rural landscape. Organic farming is often touted as a successful model of sustainable small-scale farming. On the other hand, small farmers, particularly in contexts characterized by high poverty and/or poor regulation, often compounded by demographic pressure, may be driven to engage in environmentally damaging agricultural practices, resulting in soil erosion, nutrient depletion, water scarcity, and pollution; “slash and burn” agriculture, practiced in many parts of the world, including Africa, is one such example.

Oftentimes, the lines between (subsistence) farmers and agricultural households are blurry. Among others, this holds true both for labor allocation, and for income generation and use. The “farm” component of a household’s economic profile may be elusive, especially when informality is high, farm and non-farm incomes and resources are combined, and important shares of farm output do not reach the market. Particularly in such contexts, it is challenging to define what a (semi-)subsistence farmer is. Household budget surveys do provide important clarifications on the farm and non-farm components of a family budget, but they typically do not go into sufficient depth as far as the needs of an agricultural policy maker are concerned. However, the “farm” component is particularly important to policy makers when considering its performance and its contribution to a farmer’s welfare.

Farming families and policy makers need to carefully balance the pros and cons of non-farm income diversification versus increased farm specialization. For many (if not most) families, subsistence farming is merely a coping strategy; often, the diversification of income sources outside farming is seen as a generally beneficial and desirable path. However, it is important to recognize that increased farm specialization and higher market participation (resulting in increased monetary revenue from farming) can also be highly rewarding for a subset of agricultural households with good productive and market potential. The development of commercially-oriented, specialized smallholders needs to be actively promoted as a switch over from farming seen as a coping mechanism to farming as a lucrative economic activity. This needs to be an important direction and policy consideration, particularly for countries with large agriculture populations, such as Burkina.