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Strategies for Addressing Smallholder Agriculture and Facilitating Structural Transformation

Dalila Cervantes-Godoy

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Abstract

**STRATEGIES FOR ADDRESSING SMALLHOLDER AGRICULTURE
AND FACILITATING STRUCTURAL TRANSFORMATION**

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This report aims to identify the main constraints that limit smallholders in emerging countries from accessing markets. It does this first through a literature review of economic development theory and findings from past empirical studies. It then looks at different policy instruments currently used in five countries: Brazil, Chile, Indonesia, Mexico and South Africa. The results suggest that the focus of agricultural policies in these five countries has been on input use subsidies, whether these are for variable input use, fixed capital formation, or on-farm services. Agricultural policies that strengthen the broader enabling environment (general services or public goods) are very limited in most countries covered in this report. Empirical evidence suggests that policies that best support the integration of smallholders into markets include investments in general services for the sector, as well as policies that reinforce land tenure systems or those that promote farmer associations.

Keywords: Smallholders, agricultural policy, emerging economies.

JEL classification: O13, Q1, Q18

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Executive summary

Many emerging economies are characterised by dualistic agricultural sectors, in which large numbers of small-scale farms accounting for different proportions of total production coexist with a small number of modern large-scale farms. That characterisation applies to many developed as well as developing countries; dualism does not itself signal a problem that would potentially benefit from policy intervention. The problem is rather the existence of a large number of people in emerging and less developed countries that depend on farming for a living but whose farms do not generate enough income to attain a minimally acceptable level of income. This paper aims to identify the main obstacles that constrain smallholders in emerging countries from improving their standard of living. The study begins with contextual information about dualism, and then goes on to focus more specifically on the challenges and constraints facing smallholders, including through five country case studies.

The report is divided into two parts. The first part is a literature review of economic development theory and findings from past empirical studies. The concepts of dualism and smallholder are defined, as well as the main constraints for smallholders to develop and access markets. The second part is carried out through a review of data identifying and classifying agricultural policy interventions in different case studies: Brazil, Chile, Indonesia, Mexico and South Africa, all of which have large numbers of small-scale farmers that have low levels of development, produce partially or totally for their own consumption, have low productivity levels and scarce resource endowments and live in disadvantaged conditions.

A range of major constraints faced by smallholders to access markets and to develop their farms are identified, including access to resources/assets, technology and financial services, capacity to meet product volume and standards required by purchasers, and structural deficiencies such as rural infrastructure and land tenure systems. In terms of opportunities outside of the farm, evidence suggests that in many countries, especially as the economy develops, farmers gain significant income from off-farm wages, non-farm self-employment and other commercial activities in local manufacturing and services sectors. Rural non-farm income is positively correlated with level of development. Furthermore, the growing reliance of many smallholders on off-farm income activities is linked to the provision of public good such as rural roads and better access to rural education.

The absence in most countries covered by this study of a systematic policy impact evaluation system makes it difficult to draw anything but reasonably general conclusions about the likely effectiveness of the agricultural policies they have implemented to support smallholders. However, the evidence does suggest a gap between the kinds of policies posited by the literature as likely to be more effective in supporting small-scale farmers and the sorts of agricultural policies actually in place. Indeed the focus of agricultural policies in these five cases has been on policies that research has shown tend to be less effective in the longer term. Most of the programmes directed to smallholders

fall into the PSE categories of input use subsidies. These subsidies in the short-run tend to increase output and can generate surpluses that can allow market participation. But it is known that, even when they try to address market imperfections, this type of support tends to crowd out private markets and distort markets and in the long-run turns out to be highly costly. Furthermore, input subsidies have been found to perform poorly in terms of raising the incomes of farm households.

The policy objective of most of the programmes in each of the five countries is to help smallholders to improve productivity and ultimately create surpluses for the market. However, while the programmes in place could achieve their objectives in the short term, it is likely that in the long term they do not contribute to structural transformation as this type of support encourages agricultural activities regardless of whether they are economically viable or not. Furthermore, for the majority of programmes in these countries an “exit mechanism” does not exist in which farmers can “graduate” from the programme, which may create a condition where farmers benefit from the resources allocated by the government even if they do not meet the requirements anymore (i.e. do not need it). This can lead to situations where farmers lack incentives to diversify their income or to increase their productivity.

More could be done in all five countries covered to support the broader enabling environment for a sustainable agricultural development. For most of the countries general services (GSSE) expenditures are relatively low, particularly when compared with the levels of input subsidies allocated to small-scale agriculture. More outlays to general services to the sector would be consistent with the findings in the literature about their key role in supporting smallholder market integration and structural transformation. As well as policies that reinforce land tenure systems and promote commercial farmer associations. And since not all small-scale farms are economically viable, further attention could be paid to territorial development to create new economic opportunities that support the structural adjustment process.

1. Introduction

Many emerging economies are characterised by dualistic agricultural sectors, in which large numbers of small-scale farms accounting for different proportions of total production coexist with a small number of modern large-scale farms. However, that characterisation may apply to developed as well as to developing countries. That is to say, dualism does not itself signal a problem that would potentially benefit from policy intervention. The problem is rather the existence of a large number of people in emerging countries that depend on farming for a living but whose farms do not generate enough income to attain a minimally acceptable level of income. This paper aims to identify the main obstacles that constrain smallholders in emerging countries from accessing commercial structures and, ultimately, improving their standard of living. The study begins with contextual information about dualism, and then goes on to focus more specifically on the challenges and constraints facing smallholders, including through five country case studies.

The approach to addressing this question has two parts: 1) identify the constraints that limit smallholder access to markets and 2) identify and examine current government policies for agriculture that are meant to address smallholders' constraints. The first part is addressed mainly through a literature review of economic development theory and findings from past empirical studies. The concepts of dualism and smallholder are defined, as well as the main constraints for smallholders to develop and access markets. The second part is carried out through a review of data identifying and classifying agricultural policy interventions in different case studies. The five case study countries – Brazil, Chile, Indonesia, Mexico and South Africa – have a significant number of subsistence and semi-subsistence smallholders within their agricultural structure. Some of these countries have made a clear distinction between small and large farms in their policy design. They are in addition all included in the PSE database which provides information about spending on related policy instruments. After comparing the five countries and analysing how each distributes resources among its programmes, main findings are drawn and policy conclusions are presented.

2. Literature review

2.1. *Dualism in agriculture*

Dualism in the context of economics describes two distinct but coexisting sectors of activities that differ significantly in organisation, incentive structures and, importantly, level of development. The term is often used to differentiate traditional, small-scale activities which provide little more than subsistence to households, alongside modern, capital-intensive, large-scale activities and industries, which provide at least comfortable incomes in the form of wages and returns to investments. The traditional sector is most often associated with smallholder agriculture, poorly capitalised and with relatively unsophisticated levels of specialisation (Chaudhuri, 2007; Pietrobelli, 2008).

Dualism in economic sectors often has a geographical dimension: the dynamic formal sector flourishing in a modern, technologically-advanced area, linked to international input and output markets, and enjoying appropriately high incomes; the informal sector meanwhile evolves sluggishly in the hinterland. Sometimes this geographic dualism also reflects some historical division between social classes or ethnicities, additional barriers

to the integration of the sectors and to the stimulation of modernisation of traditional activities (Dwivedi and Chaudhuri, 2009).

In a dualist system, although the traditional sector might encompass many households, the division of labour within the sector is underdeveloped in comparison with the commercial sector: farmers tend to generate their own intermediate inputs, trading little with specialists in the production of feed, seed, and mechanical power. The use of non-family labour is likewise negligible and informal. The cost advantages of specialisation are left uncaptured and returns to scale are out of reach to the permanently small-farm family, which is only able to reproduce the same conditions year after year. By contrast, capital-intensive sector farms are larger and are integrated into both input and output markets. Chemical fertilisers are purchased in bulk from specialised intermediaries, perhaps importers. Seeds and genetic material are acquired from large, international suppliers. Machinery replaces animal and human power, and imported petroleum fuels replace calories grown onsite. And importantly the availability of markets for contracted labour allows the individual farm proprietor to reach a scale of operations beyond that which only family labour would permit.

Small farms employ family labour but few hired workers, if any. Perhaps the most important difference between the two systems from a welfare perspective is that the first system produces good incomes for farmers and the second is often characterised by poverty. One characteristic of dual agricultural systems is certainly the uneven distribution of land, with large holdings accounting for a large share of total land.

2.2. *Definition of smallholders and global trends on farm sizes*

The definition of small-scale farmer¹ varies enormously, taking into consideration different characteristics like revenues, socioeconomic features, land size, regions, countries, etc. For instance, Narayanan and Gulati (2002), say that “a small farmer is a farmer (crop or livestock) practicing a mix of commercial and subsistence production..., where family provides the majority of labour and the farm provides the principal source of income”. An FAO study (2004) defines smallholders as farmers with limited resource endowments, relative to other farmers in the sector. The World Bank (2003) defines smallholders as those with a low asset base and operating in less than 2 hectares of cropland.

For the purpose of this paper, a defining characteristic of smallholders is that they struggle to be competitive and hence to provide an income to support themselves and their families, they often live in poverty and produce at least part of their product for self-consumption; they also possess limited resource endowments, in particular land, and normally confront missing or under-developed input and output markets. For the case studies, national definitions of smallholder will be considered.

The emphasis on the definition of small farmers has evolved from being a concern for large-scale, development strategies toward a concern for its utility in designing policies to assist farm families at the micro level. These definitions emphasise income sources and the ability of farm households to transition either into commercially successful farm operations or out of farming altogether.

1. In this paper the terms of smallholder, small-scale farm, family agriculture and small-scale agriculture are used indistinctly.

Broadly speaking, however, most official statistics define small-scale farms in terms of the physical size of the farm (hectares usually), setting an upper limit on the land area own and/or operated by individual farmers and their families. Sometimes the definition includes a minimum share of farm labour that is contributed by the farmer's family (FAO, 2014). Official definitions of small-scale farm categories can be based not only on hectares and family labour but also on other factors: off-farm activities, being a member of a co-operative, having farm-based food processing using own-sourced raw materials, and others characteristics. For example, the Brazilian categorisation of small farms is based on several conditions, although broadly aimed at restricting the official definition to less wealthy farmers (IGBE, 2006).

FAO (2014) defines farms in terms of all family-based agricultural activities: “a means of organising agricultural, forestry, fisheries, pastoral and aquaculture production which is managed and operated by a family and predominantly reliant on family labour, including both women's and men's. The family and the farm are linked, co-evolve and combine economic, environmental, social and cultural functions”. FAO (2014) defines a broad category of farms based on their relation to markets and their capacity to innovate, include:

- Subsistence or near-subsistence smallholders who produce essentially for own consumption and with little or no capacity to generate surplus production for a market.
- Small farms that are either already market-oriented and commercial, generating surplus production for a market (local, national or international); or have the potential to become market-oriented and commercial and generate production for a market, given the right incentives and access to markets for their production.
- Large farms which, although managed by a family and using mostly family labour, have more of the characteristics of industrial ventures.

The last category is likely to be dominant in several high-income countries, but can also be found in low- and middle income countries. All of the other categories are likely to be present in most low- and middle-income countries. Usually official definitions hinge on farm size and the almost-exclusive dependence on family labour. But the implementation of definitions is constrained by the information available. Some agricultural censuses, for example, only report information on ownership, not on who is operating or managing the farm. And in fact most simple counts of farms do not adjust for the possibility of two or more physically distinct plots being owned and/or managed by the same person or family. Moreover, in higher income countries, some censuses do not distinguish between surveyed operating units according to their importance in family income. Sometimes a farm might be a secondary activity or even a hobby rather than the principal source of family livelihood.

There is clear evidence that smallholdings continue to be present in most emerging and developing countries and, as Proctor and Lucchesi (2010) suggest, this prevalence will not change in the short or medium term. For instance, in Asia farms often are considered small when they are under 1 or 2 hectares. Worldwide 72% of farms are less than one hectare and 12% are between 1 and 2 hectares. But in terms of farmland, farms over 100 hectares in size occupy more than half of the world farmland, while the share of farms up to 2 hectares is only about 12% (FAO, 2014). Anriquez and Bonomi (2007) tried to estimate long-term farming trends by creating a database with 17 countries using 43 different agricultural censuses (from 1970 to 2002). They found that agricultural land appears to be in expansion in Latin America and Africa, while expansion limits have been

reached in Central, and South East Asia. They also estimated that 9 out of 10 farms in the world are small, that is, smaller than 2 hectares; and that these farms are specialised in staple crops and exhibit slow productivity growth (Table 1).

Table 1. Average farm size by region

Region	Mean size (ha)	% =< 2 ha
Central America	10.7	63
South America	111.7	36
East Asia	1	79
South Asia	1.4	78
Southeast Asia	1.8	57
West Asia/North Africa	4.9	65
Sub-Saharan Africa	2.4	69
Europe	32.3	30
United States	178.4	4
Canada	273.4	6.8
Australia	3 601	..
New Zealand	222	6.8

Source: Eastwood, et al. (2010) based on FAO estimations.

The FAO maintains the World Census of Agriculture, a database of agricultural censuses, stretching back in some cases to 1930. The FAO census data are for 114 countries, representing 83% of the world's population and 64% of the world's surface area. Lowder, Skoet and Singh (2014) report data on 167 countries, representing 97% of the total farm population and 90% of agricultural land worldwide. From the wider coverage, there are at least 570 million farms globally,² 500 million of these are family farms. Unsurprisingly, nearly 475 million – or about 95% – of all family farms are less than 2 hectares. LSS (2014) estimate from the FAO data that family farms – not necessarily small – make up approximately 90 of all farms, representing about 70% of the land area. Another study carried out for 81 countries by CIRAD in 2013 estimated that 85% of farms had less than 2 hectares.

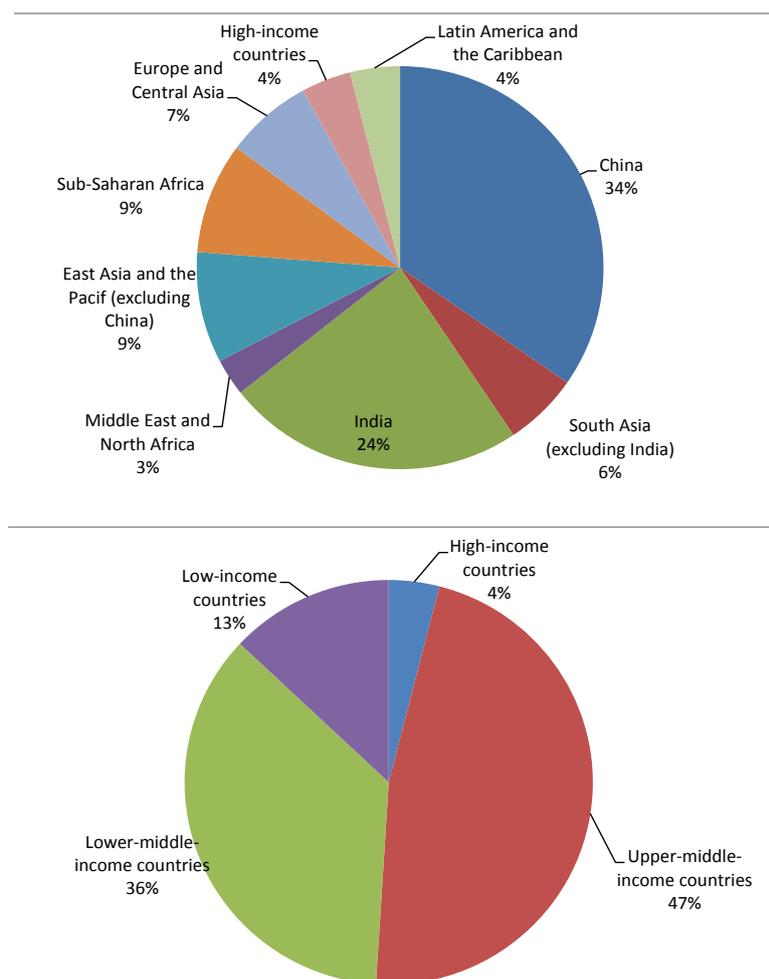
Although their numbers are large, what do smallholders represent in terms of the world's agricultural land and potential food production? The FAO-SOFA report (2014) briefly summarises the answer (pp. 4-5):

The vast majority of the world's farms are small and medium-sized. Around 85% of them are below 2 hectares and almost 95% are below 5 hectares. But these small and medium-sized farms only account for a small share of the world's land. Globally, more than 50% of the world's farmland is occupied by large farms of more than 100 hectares while the share of farms below 2 hectares is only around

- Lowder, Skoep and Singh (2014) note that, "For numerous reasons, it is expected that the actual number of farms in the world is larger than this 570 million estimate." The reasons include an absence of information at all for a number of countries, a current farm count based on old census in low- and middle-income likely to have seen an increase in farm population.

12% and that of farms below 5 hectares less than 20%. This pattern is largely due to the dominance of larger farms in high-income countries and upper middle-income countries, in particular in Latin America. In low- and lower middle-income countries, on the other hand, small and medium sized farms are significant also in terms of share of land and food production. In low-income countries, farms smaller than 2 hectares occupy about 40% of the farmland and farms smaller than 5 hectares about 70%. In lower middle-income countries, these shares are about 30% and 50%, respectively.

Figure 1. 570 million farms in 161 countries, by region or country (up) and by income group (down)



Source: Lowder, Scoet and Singh, 2014.

Where are the world's small farms located? As can be observed in Figure 1 (from Lowder, Scoet and Singh, 2014), most farms are in East Asia, South Asia and the Pacific. More than a third of the world's farmers live in the People's Republic of China (hereafter "China") and slightly less than a quarter live in India. Sub-Saharan Africa is home to about 9% of the world's farmers, Latin America about 4%, and the Middle East and North Africa 3%. High income countries have about 4% of the world's farms.

FAO's World Census of Agriculture classifies holdings into three size classes (0-5 ha), (5-50 ha) and above 50 ha (Table 2). Overall 94% of the world's farms are less than five hectares. In Asia, 97% are less than five hectares. Only in the world's zones of non-tropical, commercial and export-oriented agriculture, does larger scale farming have a significant presence. In Oceania (most prominently Australia and New Zealand) farms above 50 hectares represent almost 36% of the total. In North America, large farms represent about 26% of the total, and that figure would be even higher if only Canada and the United States are included. South America has about 15% of its farms larger than 50 hectares. In the other regions, there are practically no farms larger than 50 hectares. Table 3 shows the wide variation in farm sizes across world regions.

Table 2. Percentage of farms by size class by major geographic region

Region	Number of censuses	Size class		
		0-5 ha	5-50 ha	> 50 ha
Africa	14	91.9	7.9	0.1
North and Central America	10	41.2	32.1	26.7
South America	7	43.9	40.6	15.5
Asia	19	97.1	2.8	0
Europe	29	72.5	23.4	4
Oceania	6	34.6	29.5	35.9

Source: 2000 World Census of Agriculture: Analysis and International Comparison of Results 1996-2005, FAO.

Table 3. Average farm size by major world region

World region in 2000	Average farm size, hectares
Africa	1.6
Asia	1.6
Latin America and Caribbean	67
Western Europe	27
North America	121

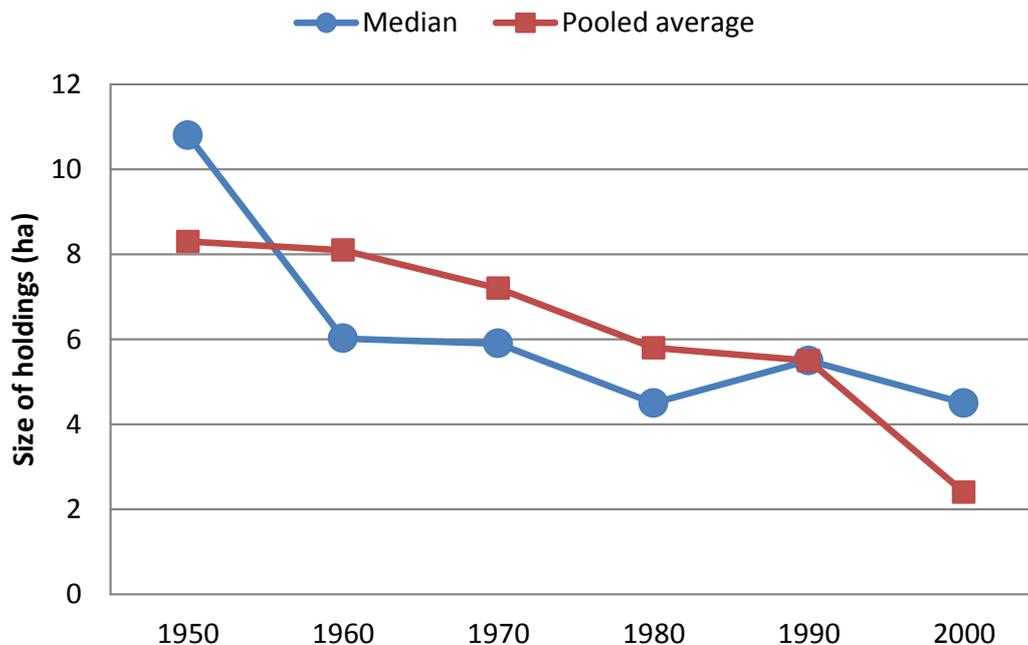
Source: von Braun 2005 based on FAO's World Agricultural Census 1997.

Most of the world's small farms are located in Asia and Africa. The long-term view of what has happened to agriculture in those regions during the last fifty years is summarised by Hazell's (2013, p. 6) description that "the overwhelming story is one of more small farms, shrinking farm sizes and increased income diversification". Despite growth, sometimes quite rapid growth, in national per capita incomes, there is little sign yet of a shift to the patterns of farm consolidation that occurred during the economic transformation of most of today's industrialised countries. Rather, relatively few workers are leaving their farms for the cities and instead are diversifying into non-farm activity from a small farm base.

Over time the average size of farms worldwide has been declining (Figure 2), falling from a median of slightly under 11 hectares in 1950, to slightly over 5 hectare in 2000. This declining trend, however, is an average, and particular countries – typically, of higher incomes – have seen an increase in farm sizes. The FAO data show that farm sizes

are declining in Africa and Asia, increasing in Europe, Argentina and Uruguay, the USA, Canada, Australia and New Zealand. In Asia, farm sizes have declined since the 1950 from 2.5 hectares to about one hectare more recently; meanwhile European farm sizes grew from 10 to 15 hectares. Elsewhere in South America, such as in Mexico and Brazil, it is important to note that average farm size is declining there as well.

Figure 2. World average farm sizes in decline since the 1950s



Source: 2000 World Census of Agriculture: Analysis and International Comparison of Results 1996-2005, FAO, Rome.

Lowder, Skoet and Singh summarise the counts of countries showing changes in average farm sizes between 1960 and 2000 (Table 4). As noted previously, higher-income countries have tended to have farm size increases, while lower-income countries show declines. It is notable that of the lower-income countries, average farm size increases have occurred in Latin America and the Caribbean.

The trends in farm sizes in developed countries are linked to the rapid development of off-farm employment opportunities. An illustrative case, West Germany, has been examined by Kuhnen (1980). Following the Second World War, Germany experienced dramatic changes in farm sizes and the number of farms. Between 1949 and 1976, while the country was rapidly developing, the number of farms in Germany declined by 50%, while the average size of farms jumped from near 8 hectares to more than 30 hectares. With economic growth in non-farm sector, rural labour migrated to cities but also had access to non-agricultural work in industries located in rural areas. Technological changes on the farm allowed farmers to expand production with fewer workers.

Table 4. Count of countries showing a change in average farm sizes, 1960 to 2000

Country groups	Decrease	Increase	No clear change
High-income countries	6	25	4
Low- and middle-income countries, by income group			
Low-income countries	12	2	1
Lower-middle-income countries	24	2	0
Upper-middle-income countries	19	5	1
Low- and middle-income countries, by regional grouping			
East Asia and the Pacific	9	1	0
Latin America and the Caribbean	18	7	2
Middle East and North Africa	10	0	0
South Asia	5	0	0
Sub-Saharan Africa	15	3	1

Source: Lowder, Skoet and Singh (2014), based on FAO census compilation.

In the two most populous countries, the decline in farm size is dramatic. Between 1971 and the 2005, average farm size fell by 50% in India from 2.3 to 1.2 hectares, with a doubling of the number of smallholders from 49 million to 108 million. Average farm size in China has been at slightly more than half a hectare for some time around 0.6 hectares. More interestingly and important in terms of improving family welfare, the average dependence of farm families on production income has steadily declined in China, and now represents less than a third of household total income (Huang, Wang and Qiu, 2012). Non-farm income shares for Chinese farm households increased from 33.7% in 1985, to 63% in 2000, to 70.9% in 2010 (Table 5). For more populous African countries, average farm sizes are also falling (Jayne, 2012, and Djurfeld and Jirstrom, 2012), with households diversifying off-farm income sources as the farm shrinks in its ability to support the family. As a general rule non-farm income shares have grown everywhere, reaching beyond 40% in many Asian and sub-Saharan African countries.

2.3. *What constrains the small farmer from growth and accessing markets?*

Within agriculture, there are opportunities for some smallholders to establish commercially viable operations (OECD, 2012a). However, this implies that some less productive smallholders will move on to other activities outside the sector, which suggests a need to strengthen opportunities outside as well as within farming (OECD, 2012a). Previous work on smallholder development has stressed the need to improve the competitiveness of potentially viable farms (Brooks, 2010; Brooks, et. al, 2009 OECD, 2008; OECD, 2012a). Therefore, for the small-scale farmers that could continue within the sector, the question is then, what constrains their agricultural growth? And more specifically, what constrains smallholders from accessing markets?

The literature review here provides a broad overview of the constraints to small farm productivity growth and access to markets. Developing the potential of small holders requires sustainable access to markets. Wiggins and Keats (2013) suggest that poor farmers are not linked to markets for a variety of reasons: remoteness, low production, low farm-gate prices, and lack of information, to name a few. Although technically remoteness and low productivity and prices are not necessarily market failures, they could be symptoms of remediable underdevelopment linked to a poor enabling environment:

poor provision of public goods, and obstacles to investment in the development of credit and input markets due to regulations or uncertain property rights associated with weak governments, etc. Sometimes, however, the natural environment can be uncondusive to rapid growth in all types of agriculture, and some out-migration is inevitable. Nevertheless, certain key factors should be promoted: property rights, roads, electric power provision, education and health.

As discussed earlier, the world of smallholder agriculture is highly heterogeneous, encompassing subsistence, semi-subsistence and, in more developed areas, commercial farmers. And small farmers who are commercially active sell into diverse markets. As an example of the importance of knowing the details for addressing the bottlenecks to market access for smallholders, Van Schalkwyk et al. (2012) investigate the institutional and technical constraints to small-scale agriculture in selected areas of South Africa. This emphasis on disaggregation helped to tailor policy recommendations for each region and product.

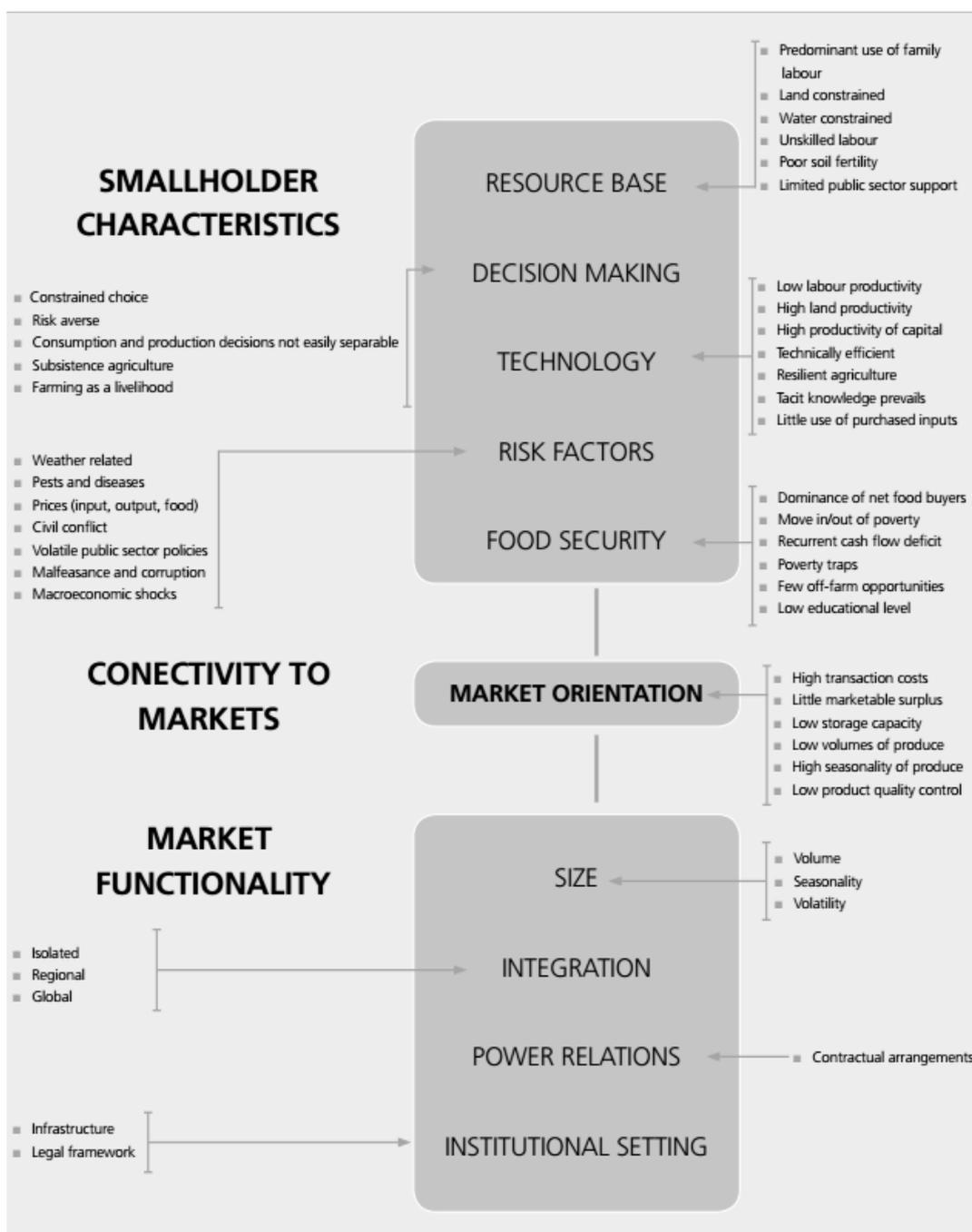
In terms of improving the productivity and income-generating ability of small farms, FAO (2013) emphasises three dimensions of smallholder heterogeneity: access to productive assets, connectivity to different markets, and the functionality of those markets. Figure 3 presents FAO's (2013) useful overview of the details of these three dimensions, which provide possible entry points for diagnostic analyses of specific cases and for possible policy interventions. As the FAO (2013) notes, "The first challenge for governments is to determine which factors to target, namely, which constraint or risk is holding back smallholder market participation. The second challenge is the sequencing of policy measures during the process of market transformation."

At the level of how smallholders make use of resources, there are often significant constraints to their resource base, their information and decision-making abilities, their access to technologies, their attitudes toward and ability to adapt to risks, and their vulnerabilities to food insecurity. The degree to which these constraints to the most productive use of resources are important depends on smallholder characteristics. The resource base for an individual farm family is defined by the amount of family labour available and access to assets such as water and the amount and fertility of land. Natural soil fertility is particularly important, determining the true impact of marginal changes in additional land on household welfare. In fact, although not well accounted for in the literature on the inverse relationship between farm size and productivity, soil quality variables are likely the major source of such a relationship (Bhalla and Roy, 1988). The adoption of more advanced technologies could overcome natural soil deficiencies, but often access to those technologies is limited by human capital, credit constraints and perhaps even the lack of related input markets. And low fertility areas might not allow the accumulation of surpluses that can be reinvested in new technologies, completing a vicious circle.

Turning to the potential role of product markets in resolving problems of low productivity and income, there have been significant changes in market conditions over the course of the last few decades: globalisation and urbanisation have produced radical shifts in food and input supply chains. New market chains are more sophisticated, requiring in underdeveloped regions the managerial and logistical talents once thought characteristic of only developed countries. Continuity of supplies, food safety and quality requirements, and basic traceability act as filters to the participation of smaller-scale operations due to the associated high fixed costs, even if the farm manager himself has the sophistication to meet those requirements. In the case of most agriculture in

developing countries, smallholders face both high fixed costs linked to satisfying more-demanding commercial buyers and the human capital and information barriers of poor, low-income farmers, many of whom are ageing and most of whom have low levels of formal education. And it should be underlined that women head of households in some areas might face even higher barriers.

Figure 3. Smallholder characteristics affecting market participation



Source: FAO, 2013.

Reardon, et al. (2009) review an extensive literature on the transformation of the agro-food industry and its relation to small farmers in developing countries. A transformation in technology and marketing has indeed taken place in food processing and in the retail sector, but there is mixed evidence of the net impacts on small farmers. Sometimes this rapid evolution in the agro-food industry has worked toward the inclusion of small farmers, particularly as “resource-providing contracts” have proliferated. But often changes in the food markets have worked toward the exclusion of smallholders due to scale-constraints related to “inadequate” non-land assets – human and knowledge capital, access to credit, and geographical location.

In any case, the shift in almost all developing countries from self-provisioning and informal markets to a greater commercial orientation will continue as a natural corollary of the development process. The FAO (2013) emphasises that the combination of growing demand induced by high consumer incomes and of the response of commercial supplier will finally reach a scale that will provoke a transformation in marketing channels, which affects all potential food producers, from large to small scale. Nevertheless, while markets become more formal and demanding in terms of quality control, informal markets will likely remain relevant for some time to come for millions of small farmers in developing countries.

In this context, it is important to understand the complementarity of market access (requiring innovations) and the adoption of new technologies and management techniques (which permit market access). As the FAO (2013), pointed out “In the past, much focus on agriculture development has been on supply side issues without sufficient attention paid to how the farmer is going to market the new surplus. Basically, if a farmer cannot sell a product that is surplus to subsistence requirements, why grow it? In times of a strong and sustained market demand farmers will also more actively seek and adopt productivity-enhancing technology and management methods”. The small subsistence family farms are likely to have less capacity for innovation in farming. Without potential to produce for a market, the incentives and the scope for innovating remain more limited (FAO, 2014).

FAO (2013) makes use of the work of Barrett (2012) to illustrate the complexity of any process that might attempt to integrate new smallholders into modern commercial markets. Farmer contracting is a process involving many geographically-dispersed smallholders, who have to be co-ordinated over space and time. Barrett identifies four stages to this process. The first stage is to address the question of geographic sourcing, an “assessment of candidate supply.” Entrepreneurial buyers thinking in terms of new venture must determine the agronomic suitability of regions reliably to produce supplies in the quantities and levels of quality desired. One common problem is a selection effect: poor small farmers are poor and small because they are often located in agronomically and geographically disadvantaged areas, remote from ports and cities, and without reliable communications and transport infrastructure. Sometimes a problem could be the low level of human capital available to deal with some of the more demanding commercial practices. Farmers in already advantaged areas have easier access to new, high-value market opportunities. Trying to integrate new smallholders into commercial markets would likely have to begin with this initial location problem of expanding the attractive areas for buyers to capture more small farmers. In terms of policy, the success at this stage of involving smallholders is a problem more likely to depend on the provision of public goods in other sectors: roads, connectivity, and education. A more basic problem is how to improve the state’s capacity to deliver these public goods (Birner and Reswick, 2005).

The second stage involves the selection of individual farmers for contracts. Does the farmer have reliable access to inputs? For example, can irrigation water be cut off? Is the farmer a reliable manager? What credible signals can a farmer send to buyers that the contract quantities and qualities will be forthcoming? If the buyer finds a potential supplier the third stage is the evaluation of the contract arrangement by the smallholders. As Barrett asks, "Why would farmers choose to accept an offered contract?" With a contract, while the buyer is purchasing a product, the small farmer is purchasing all the services the intermediary has to offer. For example the buyer's logistical capacity comes from economies of scale and scope obtained by co-ordinating many smallholders. Another service is the intermediaries' quality assurance role, not only aiding the farmer in improving quality but providing more credible quality signals to downstream buyers. Contracts also reduce risk, and invite increased output and investments, in turn making the farmer more attractive to the buyer.

The fourth stage is the where decisions to complete the contract are made. Is the contract easily enforceable? If not, perhaps the contract process would never reach this stage. Sometimes contract enforcement is not a matter of legal systems, but of the longer-term reputational advantages of following through with a contract, even though in the short term reneging on the agreement would be profitable. Establishing a good credit history, for example, might be more profitable in terms of future contracts with both buyers and bankers than the marginal short term gain from a contract breach.

In terms of accessing higher-valued markets and making use of more sophisticated non-labour and non-land inputs, small operations face significant obstacles. Foster and Rosenzweig (2012) have revisited the evidence of an inverse relationship between size and productivity, focusing on profitability of small farms in India. Their findings suggest that farms may indeed be too small. They found that despite an almost two to one cost disadvantage per unit of work arising from supervisory-cost differentials for family and hired work; larger farmers have higher profitability per acre and, up to about 10 acres, a greater return to acquiring land than their smaller counterparts. Their evidence indicated that this profit advantage of larger farms arises both from scale-dependent mechanisation, which displaces labour, and from lower capital costs and better protection from adverse income shocks.

Economies of scale are of growing importance in marketing to increasingly demanding buyers. In some cases, small farms can be co-ordinated, either via co-operative or entrepreneurial middlemen, in order to reach sufficient scale to meet the stricter requirements of sophisticated marketing chains. But in some regions (in South America and parts of Africa) large, corporate operations bring to bear modern technologies at the field level and modern marketing and quality control. For example, as Hazell (2013) notes, the model associated with the Cerrado region of Brazil is being transplanted to parts of Africa. Where land is relatively abundant such expansion is likely to contribute to overall economic development with reduced impact on traditional farmers. But especially in land-scarce regions, small farm families are unlikely to be able to compete with these state-of-the-art operations.

Table 5 is adapted from FAO (2013) and summarises five major categories of constraints affecting small farms. Small-scale farmers are likely to face several constraints in each category if not all of them at once. The resource category comprises the initial endowments the household has; it includes land, water, education and health. The technological category relates to either lack of on-farm infrastructure, machinery and equipment or training and technical assistance. The financial category implies cash flow

deficits, lack of credit and risk management tools like insurance. The product category refers to problems with volume, quality or marketable surpluses. The structural category is concerns with broader issues affecting the household like poor or lack of off-farm infrastructure, climate conditions, remoteness from major markets, and legal aspects. The comparison matrices used for each case study country in section 3, take into account some of these constraints.

Table 5. Major categories of constraints affecting smallholder access to markets

Resource	Technological	Financial	Product	Structural
Land, land quality	Land productivity	Cash flow deficit	Volume	Infrastructure
Water access	Technical efficiency	Credit	Product quality	Weather
Education	Know-how, training	Insurance	Seasonality of production	Geography
Health	Storage capacity		Lack of associativity	Legal
Low income				Land tenure

Source: Adapted from FAO, 2013.

2.4. *What constrains smallholder adjustment?*

The agronomic productivity advantages of small operations are not enough for their growth. This is due to the increasingly strict requirements of the marketing chain, of quality control and traceability, of the continuity and the scale of deliveries, and of sophisticated management and marketing. These requirements are associated with high fixed costs and scale is the only means of overcoming such costs to assure survival of the firm (Reardon, 2009). Therefore, many small farms will have to access other opportunities, to supplement their farm income or eventually to replace it entirely. That means labour income in the form of working for others or self-employment outside of farming, or non-labour income in the form of remittances from family workers or transfers from taxpayers.

Certainly the evidence suggests that in many countries, especially as the economy develops, rural households gain significant income from off-farm wages, non-farm self-employment and other commercial activities in local small manufacturing and services. Rural non-farm income is positively correlated with development. As a proportion of total employment in rural areas, non-farm employment averages approximately 25% in Latin America and 44% in Asia. But non-farm income usually represents a higher share of total income.

In Latin America the rate of non-farm employment in rural areas has been growing. In absolute terms, rural non-farm employment has grown in the region, and grown significantly more rapidly than farm employment, which in many cases has declined in absolute terms. As a regional average, the percentage of the rural population having rural non-farm activity as their principal economic activity increased from 24% to 29% during the 1990s. Reardon, Berdegúe and Escobar (2001) report that surveys show non-farm income represents more than 40% of total household income in nine of 12 countries in the region – and more than 50% in six countries. This share of total income deriving from off the farm has been increasing generally, with farm-based employment declining and non-farm employment increasing, but leading to a net increase in the level of total rural employment.

Taylor, Yúnez-Naude and Cerón (2004), examining the Mexican National Rural Household Survey, find that the key to economic livelihood in rural Mexico is the management of diverse income-generating assets, which are heterogeneously distributed. The heterogeneity of asset portfolios leads to a more equitable income distribution across rural households than would otherwise be expected from simply looking at individual asset distributions. More importantly, the main assets for Mexico's rural households are increasingly human and migration capital, both having the effect of reorienting households away from agricultural production and toward the non-farm economy. In fact, the Mexican evidence suggests that total rural household income is much more sensitive to human capital and migration than to land or other agricultural assets. This is apparently due to the reduction of off-farm income associated with higher stocks of agricultural assets, while more human capital generates greater off-farm income and has a much smaller effect on shifting resources from the generation of on-farm incomes.

The pattern of non-agricultural income sources seen in Mexico is confirmed in the case of El Salvador with respect to the micro-level determinants of farm and non-farm labour participation and income growth. Tannuri-Pianto, et al. (2004) examine a panel dataset of rural households for the period 1995-2001 and find strong evidence of the significant contribution of off-farm employment to rural income growth. Agricultural income grew at only 1.2% annually (in part due to the poorly performing coffee sector in the late 1990s), but non-agricultural income grew at 18.5% annually. Remittances and transfers from relatives grew at 42.9% annually.

Ellis and Freeman (2004, p. 1) compare and contrast rural livelihoods in some African countries and conclude: "Better off households are distinguished by virtuous spirals of accumulation typically involving diverse livestock ownership, engagement in non-farm self-employment, and diversity of on-farm and non-farm income sources." They suggest that policies to reduce poverty should emphasise a public sector environment that facilitates, rather than blocks, non-farm enterprises, in addition to the spread of technical advice to farmers.

The growing reliance of smallholders on off-farm income activities is linked to the provision of rural roads and better access to rural education, as well as to the diversification strategies of individual households. The Tannuri-Pianto et al. (2004) study, for example, finds that electricity and proximity to markets (e.g. through better roads) increases the probability of relying primarily on off-farm work. Families without access to this infrastructure, also typically have much lower access to informal credit, and tend to remain in farming. What is notable about the Tannuri-Pianto et al. study is focus on the potential welfare benefits deriving from the complementarities between public investments, such as roads, and individual households' productive endowments (including education). Lanjouw (2000, 2003) draws similar conclusions from his analyses for Brazil, Ecuador and El Salvador: the evidence shows greater non-agricultural activities in areas with better rural infrastructure, and for households with higher levels of education.

The conclusion from the development literature is that the activities of smallholders and their degree of specialisation or diversification depend on their assets. Obviously farming will continue to be in the developing world a major rural economic activity, and so improving the welfare of the rural poor has focused on access to land and productivity gains to smallholders. But rural households are also involved in a range of economic activities, and in some areas farming is not the principal activity of the poor. The rural development literature now puts a greater emphasis on the "livelihoods approach,"

recognising that households use a range of assets in a variety of activities, including farming and non-farming. Thinking in terms of assets and livelihoods suggests that there are multiple paths out of poverty (Ellis, 2000; OECD, 2010).

A basic conceptual model of the relationships between poverty and access to assets (e.g. in Reardon et al., 2007, and Lanjouw, 2007) provides a framework for examining rural household surveys, such as those in the FAO RIGA database. As summarised in Foster et al. (2011), a simple rural household decision model begins with a family's capacity to generate income from a variety of sources, given three sets of short-to-medium term constraints. The first set of constraints involves household assets, such as land, livestock, machinery and related productive assets, and less-flexible assets such as education levels and health of family members. The second set of constraints define the environment of opportunities the household has in which the family might make best use of its land, capital, and labour. Within this second set, it can be found the level of uncertainty in climatic conditions, the local infrastructure, and the location of the household in terms of marketing products, of selling family labour, as well as in terms of reaching inputs and services, such as healthcare and schools. In longer-term, the household might be able to change this environment, via at least migration, in effect creating new opportunities.

The third set of constraints comprises the relative prices (and their stochastic behaviour) that the smallholder household faces when deciding on its activities and the mix and level of resources to devote to these activities. It should be noted that even though price changes might arise exogenously (e.g. due to domestic demand shocks or international price changes), the set of marginal benefits and marginal costs eventually facing the household will be mediated by the family's location and infrastructure and other aspects of the environment. For example, in remote areas, the price transmission of a more easily transported input might change faster in the short-term than a low-price-transmission input, although in the longer-term relative prices would tend to converge to those observed in less-remote or higher-infrastructure areas. Even the pattern of relative price changes due to exogenous shocks, therefore, might depend in the long-term household decision regarding location, distance and access to infrastructure.

Services provided by community-scale infrastructure investment, such as electricity, water and sewage, serve as factors in non-farm production, even small-scale production in the home. Proximity to markets – determined in part by road and rail investments – enhances both the profitability of self-employment and opportunities for non-agricultural wage labour. One problem in assessing the correlation of access to infrastructure with household activities and income is that there are varying definitions of “access” related to differences in measuring “infrastructure,” such as roads, travel time, electricity, piped water, and so on. Nevertheless, even with the differences in measures of access, the results of many studies point to a strong connection between the proximity to urban areas and having access to infrastructure, and a positive correlation between such access and rural non-farm employment, especially non-farm wage labour: Ferreira and Lanjouw (2001) for Brazil, Elbers and Lanjouw (2001) for Ecuador, Corral and Reardon (2001) for Nicaragua, De Janvry, Sadoulet and Zhu (2005) for China and Winters, Davis and Corral (2002) for Mexico.

2.5. *Agricultural policies and smallholders*

This part of the literature review looks at agricultural policies addressing smallholders' problems. OECD countries agree on some basic principles with respect to the pursuit of income-related objectives in member countries (OECD, 2012a). Some general advice has been that countries should use social policies to protect incomes in the short term and provide support for farmers who are unable to adjust, while correcting market failures and investing in public goods in order to strengthen agricultural incomes (OECD, 2012a). This approach contrasts with market distorting interventions, such as price supports and input subsidies, that are found to perform poorly in terms of raising the incomes of farm households (OECD, 2001; 2003) and often have perverse distributional effects, providing the lion's share of financial benefits to larger and richer farmers than to smaller and poorer ones, and taking money away from consumers and taxpayers to boost incomes for households whose incomes are already above average (OECD, 2012a).

When discussing the improvement of the welfare of smallholders, the usual focus is on enhancing productivity. The World Bank's World Development Report of 2008 discusses "three rural worlds" which determine the relative importance of the goal to better smallholder productivity (p. 1): "Agriculture operates in three distinct worlds – one agriculture-based, one transforming, one urbanised. And in each the agriculture-for-development agenda differs in pursuing sustainable growth and reducing poverty." Especially for agriculture-based countries, a group which includes most of sub-Saharan Africa, the World Bank (2008) has six basic recommendations for making smallholder farming more productive and sustainable: Improving the productivity, profitability, and sustainability of smallholder farming is the main pathway out of poverty in using agriculture for development. What will this take? A broad array of policy instruments, many of which apply differently to commercial smallholders and to those in subsistence farming, can be used to achieve the following:

- improve price incentives
- increase the quality and quantity of public investment
- make product markets work better
- improve access to financial services and reduce exposure to uninsured risks
- enhance the performance of producer organisations
- promote innovation through science and technology
- make agriculture more sustainable and a provider of environmental services.

These recommendations are more generally applicable to all country categories if agricultural development is the objective. Other international development organisations also promote farm-specific policies that centre on productivity enhancement. For example, FAO (2014) is particularly focused on technology and innovation for small farms. FAO's recommendations include a sustained public investment in agricultural R&D given the high rates of returns incompletely captured by private investors. An accompanying recommendation is to engage small farms and other organisations in defining research priorities that would produce technologies and practices appropriate to circumstances of the small farm. Also appropriately designed rural advisory services would assist innovation, perhaps involving public and private actors and NGOs. Sometimes the public nature of environmental goods (even related to greenhouse gas

emissions) should be accounted for. Of particular concern is to provide these advisory services to small farms in remote areas, jointly with social support services.

Valdés and Foster (2010, p. 1 371), suggest that productivity is usually conceived in terms of new plant varieties or irrigation as productivity enhancers. However, these sources of productivity gains usually do not have much connection to what is going on in the rest of the economy, and often can be utilised by relatively small number of farmers. They are like donations, better to have than not, but they depend less on a dynamic non-farm economy. However, agricultural productivity is also driven in some sub-sectors by dynamic developments in the non-farm sector, for example due to increasing demand for higher value-added products (especially in the context of the supermarket revolution), and due to reduced marketing and transaction costs from improved financial, transport and telecommunications markets. Often, these types of productivity drivers found in the rest of the economy have implications for scale in farming, requiring investments and fixed costs that influence the structure of farming in the distribution of farm sizes and returns. The rest of the economy is changing, producing a flow of new opportunities for farmers. A major question for policy makers is to what extent small farmers can participate both as producers and workers in taking advantage of this flow of opportunities. What can be done to encourage their participation? (Valdés and Foster, 2010).

In order for R&D and advisory services to be effective, the incentives for the demand for farmer innovation must be there. That is where improved access to markets (both to buy modern inputs and to sell the surplus) enters the discussion (FAO, 2014). Being able to reap the rewards of investments in new technologies – and in the traditional factors necessary to take advantage of technologies – is a basic requirement for productivity gains. For that farmers have to have the local availability of credit, inputs and the downstream marketing chain. An infrastructure policy would play a role in reducing marketing costs and co-ordinating decisions along the marketing chain. A sustainable farm credit policy could be of special interest, because the farmer has to first attain the increased productivity to reach marketable surpluses for sale that in turn generates the resource for investment. The role of credit is to jump-start the process.

Other barriers to innovation are related to risk, including the insecurity of property rights and other “rules of the game,” they remedying of which should be one of the first priorities of policy. Both production risks (say rainfall and pests) and price risks can be overwhelming for the small farmer trying to specialise and scale-up for entering product markets. In trying to overcome these barriers, in some regions, women face higher hurdles to access resources, including land. In any event, there will be many small farm families who would remain at semi-subsistence farming, if they are unable to find other livelihoods or unable to exit.

But is the sectoral/productivity view enough? What about the wider conditions in the overall economy for organisation, business, investments and dynamic markets? For Latin America and with policy recommendations in mind, Berdegué and Fuentealba (2014) distil the heterogeneity of smallholders to facilitate the design and implementation of development strategies and programmes:

- the asset-poor in territorial contexts uncondusive to economic growth and social development
- those with limited assets but in territorial contexts of economic growth and social development

- the asset-rich in territorial contexts conducive to economic growth and social development.

Due to the heterogeneity of smallholders, policies should go beyond giving productivity-enhancing assistance which is more easily accessed by the better endowed smallholders. The key question is, what should be the strategy to deal with the large number of farmers in the semi-subsistence category in regions with poor development prospects? If the solution for this group is unlikely to be via improved productivity alone, important as might be for other farmers, then the agricultural component of policy should be integrated with social safety nets, as has been implemented in some Latin American countries, such as Chile (Chile Solidario), Mexico (Oportunidades) and Brazil (Bolsa Família) (e.g. World Bank, 2003).

OECD (2010) distinguishes between short-to-medium-term policies and long-term priorities: the former comprises policies such as conditional cash transfers (which have been increasingly popular among developing countries and which usually demand some level of investment in human capital in exchange for cash), price supports and input subsidies (both of which are usually implemented in countries without the bureaucratic and/or financial structure to create a cash transfer programme). As show by OECD (2010), all these policies have limitations. Although cash transfer programmes have a positive influence on consumption levels, they have unclear impacts on education and health if they are not operated “in conjunction with complementary investments”, such as schools, hospitals, training for teachers and doctors, etc. Price support and stabilisation may be the only way of protecting producers and consumers against the volatility of food prices, but it is extremely costly and financially unsustainable. Input subsidies are difficult to target and may crowd out the private market. Moreover, price supports and input subsidies programmes may benefit actors other than those intended, but also harm smallholders, who are net buyers of food (OECD, 2010). The long-term priority, according to OECD, is smallholder adjustment. That is to say smallholders are to find the optimal way of improving their income, either through higher competitiveness, or income diversification, or even leaving the farm to other sector of the economy.

Thapa and Gaiha (2014) examine the case of small farms in Asia, finding that many small farmers “have integrated successfully into high value chains through intermediation (e.g. public-private co-operation in ensuring food safety standards) and internalisation (e.g. through producers’ association in meeting quality standards).” They note also the incentives that lead to large-scale investments and competition for land. In terms of policy recommendations, they take an approach that involves direct government involvement for enhancing smallholders’ competitiveness by playing an active role in co-ordinating the delivery of inputs, technical know-how and output marketing services to small farms. Support is also needed to enable them to adapt to climate change and market volatility. Often government involvement in markets crowds out private decision makers and can lead to the distortion of price signals regarding resource allocation. Some interventions could correct market failures and the government provision of public goods is called for. But it is possible that distorting interventions are less likely to provide the policy environment needed for the transition of smallholders, either to commercial agriculture or to non-farm activities.

More generally the enabling environment as a broad policy objective should be thought of in terms of promoting growth and poverty reduction overall, not just the small farm. This means thinking beyond agriculture to the rural economy, and beyond saving the small farms on which the poor now reside to generating sustainable employment. This

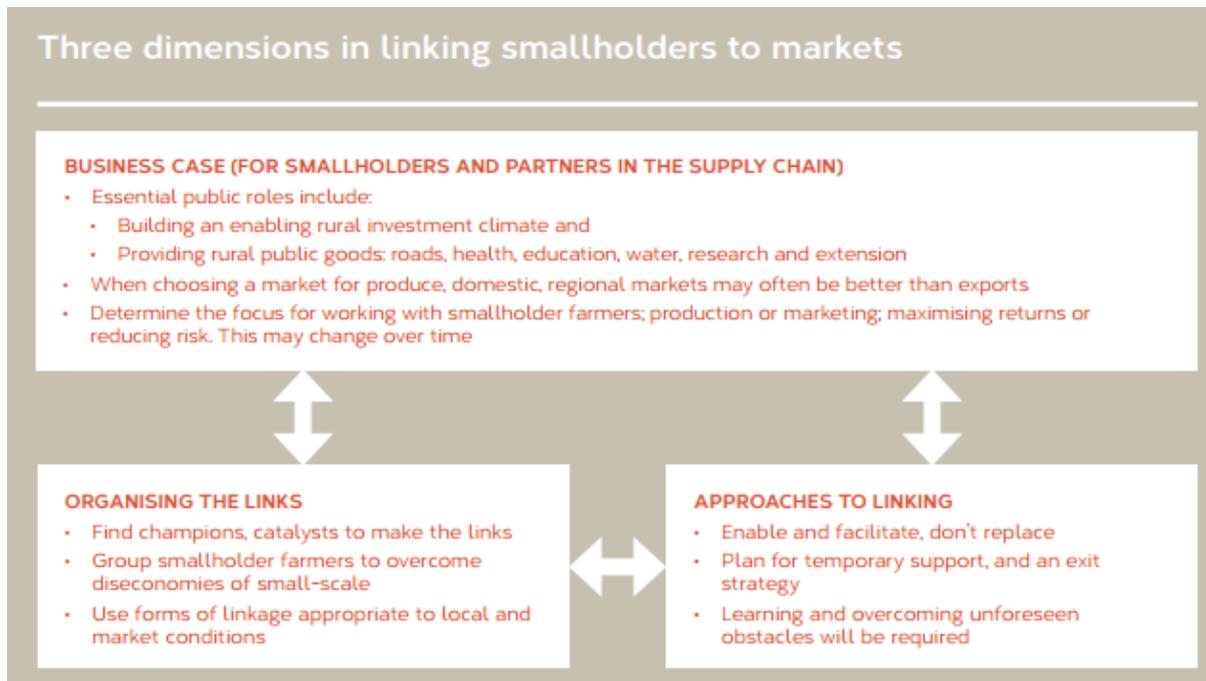
does not imply ignoring agriculture or small farmers in poverty and ignoring policies directed at smallholders, but it does imply not obsessing over saving the small farmer forever and everywhere (Valdés and Foster, 2010).

Diaz-Bonilla, Orden and Kwieciński (2014) develop an Agricultural Growth Enabling Index (AGEI) and apply it to twenty emerging and developing countries. The index is constructed from data on a variety of variables related to four main components: political governance, a general indicator of capital available to the broad economy (social indicators and infrastructure), quality of markets generally, and indicators related to the agricultural sector (factor markets, R&D and infrastructure). The authors apply a simple weighting scheme to the various indicators and build an index which is correlated with income per capita and agricultural value-added per worker. The components of the index do vary, although they tend to be positively correlated. The AGEI ranks Chile, Brazil and China as the top three countries out of twenty, with Senegal, Pakistan and Ethiopia as the bottom three countries.

Gardner's (2005) perspective on the enabling environment reviews evidence from 1960 to 2001 for 85 countries and concludes that where growth in the rural household income has been achieved, five factors are present: macroeconomic and political stability, property rights and incentives, productivity-enhancing new technology; access to competitive input and product markets; and, importantly, real income growth in the non-agricultural economy. Gardner (2005) emphasises labour income and the real average income growth in the economy as a whole because of its effect on labour income. Tsakok (2011) echoes Gardner when presenting five conditions "common to all successful agricultural transformations." These conditions are: framework of macroeconomic and political stability (government able to enforce peace and order), effective technology transfer system for a majority of farmers, access to lucrative markets, ownership system that reward individual initiative, and an employment-creating non-farm sector. Underlying everything is a long-run commitment, which transcends the particular political faction in power, to government investment in public goods.

Although extremely important as guiding principles to overall policy making, the Gardner and Tsakok perspective is a very broad view of the enabling environment. In practice, policies also have to deal more specific strategies, such as those involved with the policy recommendation to link of smallholders to markets. For example, Wiggins and Keats (2013) summarise three dimensions to policies that might address this challenge (Figure 4). One dimension is simply to build the case for government involvement based on public-good arguments, where the driver for building successful links between small farmers and markets would be found in private enterprise. A second dimension is to identify the participants: farmers and farm group who can transition to commercial operations, and sponsors or champions who can maintain the linkages with smallholders. In doing so, it is important to find associations and contracting strategies that are appropriate to the community. The third dimension relates to the exit strategy, which, sometimes, policy makers do not anticipate. These dimensions are meant to organise the construction of individual, practical, in-the-field programmes to improve smallholder access to markets. This approach from Wiggins and Keats (2013) was based on 31 major case studies with thousands of smallholder participants across Africa.

Figure 4. The Wiggins and Keats approach to linking smallholders to markets



Source: Wiggins and Keats (2013).

3. Case studies

In view of the constraints on smallholders discussed previously, this section provides five case studies which look into the specific agricultural policy instruments used in Brazil, Chile, Indonesia, Mexico and South Africa. The aim is to see the extent to which policy instruments align with major smallholders' constraints. In order to carry out this exercise, a questionnaire was sent to the five participant countries asking questions regarding national definition of small-scale agriculture; main constraints for accessing markets identified by governments; policies aiming at solving those barriers; among others³. It is important to note that not all questions were fully addressed by the countries; particularly the ones related to how effective the policies have been or which proportion of the programmes is being directed towards smallholders.

3. The full set of questions is: Q1. National definition of small-scale agriculture. Q2. The total number of smallholders in the country. Q3. Main barriers or constraints (identified by the government) that smallholders encounter to access markets and to improve productivity. Q4. What are the agricultural programmes that have tried to address the constraints? Q5. Are programmes part of a bigger strategy (for example, broader rural economic development)? If yes, how? If not, why not? Q6. Is the government targeting agricultural policies to small-scale agriculture (based on the national definition)? Why yes? or Why not? Q7. If the country does not specifically target small-scale agriculture, please provide an estimation of how much each programme implemented for the agricultural sector is allocated to smallholders. Q8. Have the policies been effective to address smallholders' constraints? How this effectiveness is measured? Q9. What have been the major problems (bottlenecks) of these policy instruments? Is the implementation process working efficiently? Are the programmes reaching the desired population?

The matrices are a compilation of the main public policies addressing smallholders set against key constraints. These matrices have also been revised and filled out by the participant country. The first column consists of the main constraints hindering the development of small-scale agriculture. The subsequent columns have information on the name, the institution responsible for, the description of the programme, its budget (initial and most recent budget), the number of beneficiaries (initial and most recent number), its PSE categorisation, whether or not the programme is targeted to small farmers based on the country's definition of small farm; some limitations (based on evaluation programmes carried out by the country itself) and whether or not the programme allows market access and structural transition. These two last aspects are answered based on past empirical evidence that suggests that certain type of agricultural policies like price support or input subsidies tend, in the long term, to perpetuate agricultural activities regardless of whether they are economically viable or not, situation that does not contribute to the structural transformation (OECD, 2010; OECD, 2012a). These policies can however, in the short term, boost production by sending erroneous market signals but normally end up delinking farmers from market developments and turn out to be financially unsustainable (OECD, 2010). For example, an input subsidy like on fertilisers, can help farmers to generate production surpluses for the market and reduce artificially production costs, so farmers are able to “integrate” to the market; but this policy also reduces the incentives for farmers to diversify their income or to leave the farm to more remunerative sectors of the economy. In this sense, the way the last two columns are addressed. If matrices are not completely filled out is due to lack of information.

The structure of the matrices is the same for all five countries Brazil, Chile, Indonesia, Mexico, and South Africa. The matrices list programmes that were designed for smallholders in the cases of Chile and Brazil. For Indonesia, Mexico and South Africa, programmes applied to the sector as a whole are considered as these reach a great number of smallholders. This section first sets out a brief description of each country agricultural characteristics and policy instruments, it finishes with a matrix of constraints and its corresponding policy.

3.1. *Brazil*

Brazilian land structure

Brazil's agricultural area is vast, with more than 300 million hectares (IBGE, 2007). Agriculture accounts for 5.5% of GDP, but for 32% of total exports and 17% of employment. Brazil is consistently a net exporter of agricultural products with a surplus of USD 70.7 billion in 2012 (OECD, 2013b). Brazil has approximately 5 million farm holdings, with nearly 90% with fewer than 100 hectares (Table 6).

Farm units with less than 10 hectares represent 50% of total holdings. The concentration of these small farms is highest in the Northeast region of the country, where they represent 68% of all farm units (Table 7). Even in the Centre West, well-known for its extensive agriculture and lower population density, small and medium size farms represent the majority of holdings. In terms of legal status of all farm units, 97% are owned by civil persons versus 2.7% owned by corporations. Corporations, however, have about 16% of land area (IBGE, 2003).

Table 6. Brazil: Distribution of the number and size of farm holdings

	Number of holdings	Hectares	% in holdings	% in hectares
Total	4 859 865	353 611 246	100%	100%
Under 1 ha	512 032	280 956	10.50%	0.10%
1 and under 2 ha	471 298	637 186	9.70%	0.20%
2 and under 5 ha	796 723	2 543 527	16.40%	0.70%
5 and under 10 ha	622 320	4 420 526	12.80%	1.30%
10 and under 20 ha	701 417	9 799 204	14.40%	2.80%
20 and under 50 ha	814 695	25 438 629	16.80%	7.20%
50 and under 100 ha	400 375	27 455 753	8.20%	7.80%
100 and under 200 ha	246 314	32 919 190	5.10%	9.30%
200 and under 500 ha	165 243	50 436 030	3.40%	14.30%
500 and under 1 000 ha	58 407	40 186 297	1.20%	11.40%
1 000 ha and over	49 359	159 493 948	1.00%	45.10%
Not classified by size	21 682	-	0.40%	-

Source: IBGE, Agricultural Census 2007.

Table 7. Brazil: Distribution of the size of farm holdings by region

Region	Range in hectares				
	<10	10 to 100	100 to 500	500 to 2000	> 2000
	Percentage				
North	30.4	48.3	17	2.8	0.9
Northeast	68.1	26.2	4.8	0.8	0.1
Southeast	34.1	51	12.6	2	0.3
South	37.7	55.4	5.6	1.2	0.1
Centre West	13.4	45.8	25.9	10.8	4.1
Total Brazil	49.7	39.6	8.5	1.8	0.4

Source: (IBGE), 2003.

Brazil has a dual policy as the country targets agricultural policies to small-scale and large-scale farms separately. The Ministry of Agriculture, Livestock and Procurement (MAPA) deals with commercial agriculture, while the Ministry of Agrarian Development (MDA) is concerned with small-scale family farming. The country has a system of defining smallholder farms⁴ using an official (MDA) definition of a family farm as a production unit managed by the owner, with fewer than four fiscal modules. A fiscal module is a tax-related measure based on the potential income generation from the land, ranging from between 5 and 110 hectares, depending on the geographical area. Moreover a family farm must use principally family labour. Using this definition, 84% of Brazil's farms are family farms, averaging 18.4 hectares. By contrast the non-family farm averages 309 hectares. Given this small average size, unsurprisingly family farms together only hold about 24% of all land and produce about 38% of the total value of agricultural production. While commercial large-scale farms dominate export-oriented agricultural production, family farms accounts for 70% of the food consumed domestically (FAO, 2014).

4. The terms of smallholder, family agriculture, small-scale farm and small-scale agriculture are used indistinctly throughout the paper.

Brazil has a relatively well-functioning land market system, underpinned by a constitutional right to land ownership and a range of supporting legislation. Land ownership is a constitutional right in Brazil, where traditional private property, indigenous customary tenancy and unchallenged possession of land are recognised by the government. The four most important pieces of legislation concerning land rights in Brazil are the 1964 Land Statute, which regulates land tenure and specifies how the land reform programme is to be organised, a law from 1966 that establishes land reform based on the former legislation, the 1981 Law of Occupation that recognises squatter rights and finally the 2002 Civil Code, which organises family, inheritance, possession and property rights. These laws have helped to develop a relatively well-functioning land market system.

Policies addressing smallholders in Brazil

Policies to address smallholder constraints and to promote agricultural production and productivity among small family farms are closely integrated with broad-based social protection and development measures aimed at strengthening the inclusion of vulnerable populations in economic growth and improving their access to food. These policies are part of the umbrella of the Zero Hunger programme created in 2003 and subsequently of the Extreme Poverty Plan of 2011. These programmes are an integrated set of actions across 19 ministries that link social protection actions to policies for promoting family farm production, income equality, employment, and nutrition. Economic policies and social protection programmes, such as the Family Allowance cash transfer programme (*Bolsa Familia*), combined with innovative programmes for family farming have created links between productive support and social protection (FAO, 2014).

In general terms, regardless the type of farmers, smallholders or commercial farms, agricultural policies are characterised by three main components: minimum price guarantees, rural credit and agricultural insurance subsidies. Other important programmes that contribute to the shaping of agricultural policy include agricultural land zoning and the promotion of biofuels and organic production. Key programmes addressing smallholders are outlined below.

The National Programme for the Strengthening of Family Farming (**PRONAF**) was created by the Federal Government in 1996 and its main objective is to provide credit for small-scale farmers, beneficiaries of land redistribution programmes and indigenous people at preferential interest rates (OECD, 2013b). PRONAF offers twelve different credit lines targeted to specific groups: women, young people, people interested in developing biofuels, people living in the Semiarid Region, etc. The Crop **Guarantee** Programme, created in 2002 by the MDA, is an insurance against bad weather hazards (droughts, floods, etc.) that affect small farmers' output. The programme consists of a fund to which farmers, local and central government contribute and that can only be used when more than 50% of the municipality output is lost. Only farmers whose revenues are equivalent to up to one and a half minimum wage are eligible to receive the benefits from this programme. **PROAGRO-Mais** created 2005 in is an insurance programme targeting smallholders and covers partial or totally the insurance premium costs of small-scale farmers (OECD, 2013b).

The Technical Assistance and Rural Extension Programme (**ATER**) aims to provide small farmers with technical and technological assistance throughout the whole productive process, promoting improvements in productivity, income, and, more recently, supporting migration to more sustainable models of production. The programme provides financial support to individual smallholders for the acquisition of technical assistance or

extension services. Another programme that targets small holders created by the MDA is the National Education Programme for Land Reform (**PRONERA**). This programme, created in 1998, aims to improve the academic and practical capacities of small farmers. Among the activities organised by the PRONERA are literacy studies for children, teenagers and adults and technical courses for young people and adults (OECD, 2013b).

The **Land Programme**, created in 2013, aims to increase the revenues of small farmers who have benefited from land redistribution programmes through the creation of associations aiming to modernise the productive process. The government offers financial help for different types of managerial and technical training. The Productive Organization for Rural **Women** Programme was created in 2006 and its main objective is to strengthen women associations and to empower women in rural areas through financial support specially targeted to them. The programme identifies women's associations, offers technical formation, supports the creation of women trade fairs and finances their initiatives. These policies aim to help women gain access to the market, since many scholars point out that a higher level of female labour has a positive impact on family revenues. The main purpose of the Rural Infrastructure and Services Programme (**PROINF**) is to finance on and off-farm infrastructure that help farmers produce, stock and sell their output. It also stimulates and facilitates the installation of new businesses in rural areas by financing local infrastructure programmes (OECD, 2013b).

The Food Purchasing Programme (**PAA**) targets small farmers, indigenous populations and beneficiaries of land redistribution programmes. The PAA is a programme through which the Brazilian government buy the product of smallholders and uses those products to serve free or low cost meals in public institutions like schools. The PAA also supports the formation of stocks, with products from small farmers, for food security purposes. The National School Feeding Programme (**PNAE**), created in 2009, stipulates that at least 30% of the food served in public schools must be bought from small producers (based on the MDA definition). Government buys output from smallholders located in different areas of the country, usually the poor ones. The **Legal Land** Programme, created in 2009 by the MDA, aims to regulate the occupation of federal land in the "Legal Amazon" region through the granting of documents and to legalise land ownership, it also aims to improve the infrastructure of the occupied land by providing financial support to farmers. Created in 1998 by the MDA, the National Programme for Land Credit (**PNCF**) offers credit for people with no land or for people with farms that do not allow an economic activity due to its reduced size. The money must be used to purchase land, to invest in the farm's infrastructure or to preserve the environment. It can also be used to buy machinery and equipment or to contract technical assistance services aiming to increase farmers' productivity (OECD, 2013b).

On social policies also received by smallholders, The Family Allowance Programme (*Bolsa Família*) was created in 2003 by the Ministry of Social Development (MDS) and the MDA, is a conditional **cash transfer** programme which targets low revenue families (those whose monthly revenue per capita varies between BRL 70 and BRL 140, or USD 31 and USD 62). The cash transfer does not have a fixed value or a limit, but it is not lower than BRL 32 (around USD 14). It is conditional because in exchange for financial help, families must make sure that their children attend school and be vaccinated. The programme has great social and economic impacts in rural areas because it fights against child labour and because it stimulates the local economy by increasing families' revenues (OECD, 2013b).

Brazil has a great number of smallholders many of which are partially commercial while others continue to produce for auto-consumption. Agricultural policies addressing smallholders' constraints are part of broader strategy for addressing poverty and food security problems, characteristics found in a majority of smallholders in the country. Policies for strengthening family farming were central in parallel with cash transfer programmes. Other policies, as the provision of crop insurance against food price risks and extreme climatic events, minimum price guarantees, specific support to women, rural development and technical assistance, all aim to increase productivity and incomes while also responding to specific needs in different regions of the country.

Results of these combined efforts suggest a positive outcome; poverty fell from 24.3% to 8.4% of the population between 2001 and 2012, while extreme poverty dropped from 14% to 3.5% (FAO, 2014). A study analysing the impacts of Zero Hunger programme suggests that more than 5 million people in rural areas were lifted out of poverty between 2003 and 2009. However, it is actually difficult to disentangle the effects on the development of small-scale agriculture of each policy instrument whether is agricultural policy or social policy. For instance, the provision of agricultural credit through PRONAF (from BRL 2.3 billion in 2003 to BRL 24.1 billion in 2014) may have had an important impact in the development of the smallholders and their access to markets. Nevertheless, the same can be said about the positive effects of *Bolsa Familia* (cash transfer programme) that could have helped to free resources within the household for investments in the farm. Impact assessment evaluations of each policy instrument are key to attribute the individual effect and contribution to the development of small-scale agriculture.

Table 8 is a compilation of the above described main public policies addressing smallholders set against key constraints. For Brazil, it is clear that the key barriers to be overcome for the small-scale agriculture are lack of credit and lack of agricultural risk management tools and to a lesser extent lack of extension and technical assistance. Limitations of some agricultural programmes have to do with the implementation process and allocated budget. Certain programmes are concentrated in some regions of the country; furthermore, beneficiaries seem to be the same year after year with limited opportunities for newcomers. For other programmes, the budget is relatively small and consequently so is the number of beneficiaries.

Most of the programmes are designed to help smallholders to improve productivity and ultimately create surpluses for the market. While these programmes could achieve their objectives in the short term, it is likely that in the long term they do not contribute to structural transformation as this type of support encourages agricultural activities regardless of whether they are economically viable or not. Exceptions exist, like the ATER programme that provides technical assistance and rural extension services and has a component that promotes income diversification by providing support for the starting up of micro businesses in rural areas, or the Women programme that provides training to women on managerial aspects not only for agricultural activities but also for other economic areas.

Table 8. Matrix of agricultural policies for smallholders in Brazil

Constraint	Name of the programme	Responsible Institution	Description	Budget**		Beneficiaries		PSE/GSSE categorisation***	Targeted small-scale agriculture	Limitations	Likely to allow output market participation	Likely to allow structural transition?
				Beginning of the project	Latest year	Beginning of the project	Latest year					
Lack of credit	National Programme for the Strengthening of Family Farming (PRONAF) (1996)*1	MDA	Facilitates the access to credit for small-scale farmers, beneficiaries of land redistribution programmes and indigenous and traditional peoples.	USD 200 million (1996)	USD 1 billion Implicit credit subsidies from preferential interest rates (2014)	295.7 thousand contracts (1996)	1.9 million contracts (2014)	B1PIV	YES	There is a regional concentration of beneficiaries.	Yes	No
Lack of agricultural risk management tools	Crop Guarantee Programme (2002)*2	MDA	Agricultural insurance	USD 17 million (2003)	USD 410 million (2014)	200.2 thousand people (2003)	900.5 thousand people (2014)	C	YES	Recurrent list of beneficiaries.	Yes	No
	PROAGRO-Mais (2004)	MDA	Agricultural insurance	n.a.	USD 1.4 billion (2014)	n.a.	n.a.	B1PIV	YES	Recurrent list of beneficiaries.	Yes	No
Lack of extension and technical assistance and training	Technical Assistance and Rural Extension Programme (ATER) (2002)	MDS and MDA	Provides technical assistance, promotes gains in productivity and supports the migration to more sustainable models of production.	USD 23 million (2002)	USD 472 million (2014)	n.a.	890.8 thousand people (2012)	B3PIS	YES		Yes	Yes
	National Education Programme for Land Reform (PRONERA) (1998)	MDA	Improves farmer's academic and practical capacities, organises literacy studies and offers technical courses.	n.a.	USD 5 million (2014)	63.3 thousand people (2003)	12.4 thousand people (2013)	GSSEH2a	YES	Limited budget	Yes	Yes
	Land Programme (2013)*3	MDA	Funds the modernisation of the productive process and the elaboration of a business plan.	USD 25 million (2013)	USD 25 million (2014)	5 thousand families (2013)	5 thousand families (2014)	B3PIS	YES	Limited budget	Yes	No
	Productive Organization for Rural Women Programme (2006)	MDA	Strengthens women associations, offers technical formation and finances their initiatives.	n.a.	USD 10 million (2014)	294 people (2006)	4.2 thousand people (2013)	B3PIS	YES	Limited budget	Yes	Yes

Weak on-farm infra-structure	Rural Infrastructure and Services Programme (PROINF) (2003)	MDA	Finances on and off- farm infrastructure and facilitates the installation of new businesses in rural areas.	USD 21 million (2003)	USD 30 million (2014)	n.a.	n.a.	B2PIF	YES	Limited budget	Yes	Yes
Limited access to output markets	Food Purchasing Programme (PAA) (2003)*4	MDS and MDA	Buys small farmers' output, increasing their revenues and serving free or low cost meals in public institutions.	USD 61 million (2003)	USD 516 million (2014)	41.4 thousand farmers (2003)	213.7 thousand farmers (2013)	--	YES		Yes	No
	National School Feeding Programme (PNAE) (2009)*5	ME	Buys small farmers' output and use it to feed children in public schools.	USD 842 million (2009)	USD 1.6 billion (2014)	n.a.	n.a.	--	YES		Yes	-
Land re-structuring	Legal Land Programme (2009)*6	MDA	Regulates the occupation of federal land and improves its infrastructure of the occupied land.	USD 10 million (2009)	USD 20 million (2014)	246 people (2009)	5 thousand people (2013)	GSSEJ4	YES	Limited budget, limited number of beneficiaries.	Yes	Yes
	National Programme for Land Credit (PNCF) (1998)*7	MDA	Offers resources for small farmers to purchase land.	USD 70 million (2003)	USD 5 million on implicit subsidy (2014)	9.9 thousand families (2003)	1.4 thousand families (2013)	B2PIF	YES	Limited number of beneficiaries.	Yes	Yes
Low income	Family Allowance Programme (2003)	MDS and MDA	The <i>Bolsa Familia</i> is a conditional cash transfer programme.	USD 1.3 billion (2003)	USD 10.3 billion (2014)	3.6 million people (2003)	14.1 million people (2013)	--	Likely that small-holders receive it	Regional concentration	Yes	Yes
These programmes also cover: *1 - lack of technology, limited access to inputs, weak on-farm infrastructure and environmental protection. *2 - lack of associativity. *3 - lack of associativity and low income. *4 - low income. *5 - low income. *6 - weak on/off-farm infrastructure. *7 - weak on-farm infrastructure and land tenure system. **Credit loans allocated, not the implicit subsidies estimated in the PSE.*** From the PSE classification: B1PIV: Payments based on variable input use (e.g. fertiliser or seed subsidies). B2PIF: Payments based on fixed capital formation (e.g. on-farm infrastructure and equipment). B3PIS: Payments based on on-farm services (e.g. on-farm training). "C payments" are those based on current Area/Animal numbers/Receipts/Incomes, production required. "D payments" are those based on non-current Area/Animal numbers/Receipts/Incomes, production required. "GSSEH2a expenditures" are those spent on agricultural education. "GSSEJ4 expenditures" are those spend on land restructuring.												

3.2. Chile

Chilean land structure

In Chile, agriculture's contribution in 2013 to GDP was 3.4% and 10.3% to employment. The sector also makes an important contribution to exports, with agro-food exports (excluding fish and forestry products) accounting for 16% of all exports in 2013. Chile is a net exporter of agricultural and food products with a net surplus of USD 5.9 billion in 2013 (OECD, 2013a).

In terms of farm structure, Table 9 shows the evolution of land structure in the country since 1965. According to the last agricultural census, by 2007 large farms (over 1 000 hectares) made up about 70% of the total farm land. Generally, this shows high levels of land-size inequality across farmers: very few (1-2%) large farms hold over two-thirds of all farm land, but this is in terms of physical hectares, not of productivity.

Table 9. Chile: Total and proportion of farm area by size category (physical hectares), census data, 1965 to 2007. (excludes forestry)

Farm size class	1965	1976	1997	2007
Less than 10	217 604	520 107	593 444	552 923
%	0.80%	1.80%	2.23%	1.85%
10-99	1 833 720	2 857 844	3 325 939	2 769 274
%	6.60%	9.90%	12.54%	9.30%
100-1000	5 365 040	6 181 398	4 966 942	4 275 792
%	19.40%	21.50%	18.74%	14.35%
Over 1000	20 295 944	19 199 814	17 617 042	22 183 702
%	73.20%	66.80%	66.46%	74.48%
Total	27 712 308	28 759 161	26 502 364	29 781 691
%	100%	100%	100%	100%

Source: INE, Census data. Data for 1965 are from Bellisario (2006).

Chile has a system of classifying land according to a productivity standard that accounts for soil slope, fertility, irrigation and some other factors. A reference hectare is of basic irrigated land in the Maipo valley. This standardised measure is called a HRB⁵ (*hectáreas de riego básico*). When accounting for the productivity of land using the HRB measure, the inequality of land distribution is less stark than when observing physical hectares. The evolution of farm sizes (in standardised units HRB) appears to have been toward medium-larger farms with 59% of the land in HRB terms (Table 10).

- Basic Irrigation Hectares (*Hectáreas de Riego Básico, HRB*), are the area equivalent to the potential production of an irrigated hectare from the Valley of the river Maipo (Metropolitan Region), classified as Class I according to its carrying capacity. To determine the HRB, each hectare is multiplied by a conversion coefficient estimated, based on soil conditions and water availability, for each community and region across the country.

Table 10. Total hectares by type of exploitation

Type of exploitations	Gross Value of Production (GVP) in UF* (Million CLP)	Total land in HRB	%	Total land (physical has)	%	Usable land (physical has)	%
Small-scale multi-activities	0-100 (0-2)	142 725	9%	2 908 094	13%	1 189 413	12%
Commercial small-scale (1)	100-200 (2-4)	75 888	5%	1 600 892	7%	606 219	6%
Commercial small-scale (2)	200-600 (4-12)	143 599	9%	2 595 531	11%	1 077 868	11%
Small-scale business (1)	600-1 200 (12-24)	151 336	10%	2 623 889	11%	756 710	7%
Small-scale business (2)	1 200-2 400 (24-48)	125 285	8%	1 975 157	9%	828 958	8%
Sub-total small-scale	0-2 400 (0-48)	638 833	41%	11 703 563	51%	4 459 168	44%
Medium size farms	2 400-25 000 (48-500)	552 295	36%	7 175 145	31%	3 060 922	30%
Big farms	>25 000 (>500)	353 164	23%	4 045 046	18%	2 648 264	26%
Sub-total medium-large scale		905 459	59%	11 220 191	49%	5 709 186	56%
Total		1 544 292	100%	22 923 754	100%	10 168 354	100%

UF* is a unit of account. The Unidad de Fomento (UF) is an indexed unit of account used to price items for sale or to specify amounts to be repaid in the future. The exchange rate between the UF and the Chilean peso is constantly adjusted to inflation so that the value of the Unidad de Fomento remains constant. In 2014, one UF was around CLP 23 958 (USD 42).

Source: Adapted from INDAP-Qualitas Agroconsultores (2009) from agricultural census 2007.

Table 11. Chile: Average farm sizes by farm type

Type of exploitations	Gross Value of Production (GVP) in UF* (Million CLP)	No. of exploitations	%	Average total land (physical has)	Average usable land (physical has)	Average land in HRB
Small-scale multi-activities	0 – 100 (0-2)	156 185	58%	19	8	1
Commercial small-scale (1)	100-200 (2-4)	38 332	14%	42	16	2
Commercial small-scale (2)	200-600 (4-12)	36 903	14%	70	29	4
Small-scale business (1)	600-1 200 (12-24)	14 402	5%	182	53	11
Small-scale business (2)	1 200-2 400 (24-48)	9 084	3%	217	91	14
Total small-scale	0-2 400 (0-48)	254 906	94.5%	46	17	3
Medium size farms	2 400-25 000 (48-500)	13 184	5%	544	232	42
Big farms	>25 000 (>500)	1 225	0.5%	3302	2162	288
Total		297 558	100%	85	38	6

UF* is a unit of account (USD 42 in 2014).

Source: Adapted from INDAP-Qualitas Agroconsultores (2009) from agricultural census 2007.

Chile makes a clear distinction between agricultural policies directed to large commercial farms and those targeting small family farms. The Agrarian Development Institute (INDAP) created in 1962, is an agency of the Ministry of Agriculture responsible for the policies targeted to small famers. According to Organic Law of INDAP the operative governmental definition of smallholders in Chile is: 1) farmers with less than 12 HRB, 2) with farm assets less than USD 150 000, 3) income generated mainly from farm activity and 4) works directly in the farm. The government also considers another differentiating factor to characterise smallholders: the gross value of production (GVP) of each farm unit. Smallholders are defined as those with less than 2 400 UF, under this criterion, the estimated number of smallholders for 2007 is 255 000 and represent 94.5% of total number of exploitations (Table 11). Furthermore, small-scale agriculture contributes to 22% of total gross value of production of agriculture, 44% of total agricultural usable land and 61% of total agricultural employment (INDAP-Qualitas Agroconsultores, 2009).

In terms of land tenure, Chile has undertaken a land reform that began in the early 1960s and partially finished with the abolition of the agricultural reform corporation (CORA) at the end of 1978 and by the end of the 1980s virtually all land had been assigned. Reforms to the legislation that regulated land rentals and land subdivisions in 1980 added flexibility to the rural land market, as did the separation of water rights from the land itself, and the legal possibility of transferring water titles independently of land transactions. Private ownership of land is recognised in Chile today and the land market is well developed.

Policy instrument addressing smallholders in Chile

The Chilean government has identified key restrictions to market access for smallholders in three areas: 1) quality and food safety; 2) commercial (product characteristics, prices, delivery calendars, varieties, etc.); and 3) logistics (refers to distribution and access to consumer's centres and/or buying centres, such as wholesale terminals, agroindustry, etc.). Furthermore, constraints related to productivity improvement have also been identified: 1) production technologies (technological packages in general); 2) deficient on-farm infrastructure (warehouse, machinery equipment, places for processing and adding value, etc.); 3) water and irrigation systems; 4) climate adverse effects (risk management); 5) access to knowledge/extension services; and 6) innovation financing. These areas are considered major priorities and policy instruments or programmes have been created to address them.

Policies directed to small-scale agriculture in Chile are imbedded in a broader strategy of poverty reduction, inclusive development and social inclusion; these strategies are overseen by different ministries, like Social Development, Economic Ministry, etc. This indicates that social policies are sometimes hand-to-hand with agricultural policies. Other key strategies for the development of small-scale agriculture are the sectorial export strategy and production incentives for domestic market, which are under auspices of the Ministry of Agriculture, particularly INDAP. Next a brief description of major policy instruments directed to smallholders are described.

INDAP administers a **Credit** Programme which provides short and long term credits exclusively for small farmers at preferential interest rates. The agricultural and Livestock **Insurance** Support Programme facilitates access for producers of crops, fruits and livestock to insurances related to climate risk or livestock diseases. The insurance indemnifies the beneficiary up to two thirds of the insured annual production. The Indigenous Territorial Development Programme (**PDTI**) helps indigenous people improve their productivity through technical and financial support, but respecting the environment and indigenous

traditions. Beneficiaries receive technical advice and financial support for their projects. The main purpose of the Technical Training Services (**SAT**) is to provide small farmers with technical support in order to improve their productivity and their responsiveness to technical and climatic challenges. The Management and Productive Development Services (**PROGYSO**), aims to improve small farmer's communication with both public and private sectors and to promote extension activities (OECD, 2013b).

The **INDAP-PRODEMU** programme aims to empower women in rural areas and seeks to support women to increase their income by consolidating economic and productive initiatives. The programme creates a business unit and conducts a training plan, which consists of technical training, personal development, organisational development and business management. The **Productive Partnership** Programme corresponds to a technical advice service delivered by an agribusiness company or a commodity processor. The objective of the programme is to provide a counselling plan aimed at overcoming the technological and commercial barriers that farmers face when selling to big companies. This programme targets small businesses capable of producing goods or services that may interest the food industry and that meet their quality standards. The **irrigation** programme aims to facilitate the access to in-farm or associative irrigation. The programme also comprises financial resources for minor works programme. There is also a **soil recovery** programme that benefits both, small and large scale farmers, but the part administered by INDAP is targeted only to smallholders. It is an instrument that allows access to non-repayable financial incentives aimed to co-finance those activities and practices that avoid soil degradation (OECD, 2013b).

The Local Action Development Programme (**PRODESAL**) consists of technical and financial support to small farmers. The programme aims not only to support small farmers and their families develop agriculture and forestry activities, but also to strengthen their production systems as to increase their income and improve their quality of life. The programme includes technical advisory, co-financing of investment projects and co-financing of working capital. It also includes funding for specialised counselling, training, tours and workshops. Technical teams carry out a diagnosis of each farmer and then divide them into two segments in order to elaborate a more detailed business plan. The **Farm Investment** Development Programme aims to co-finance investments responsible for modernising productive processes of rural enterprises. It is a tool that allows access to non-repayable financial incentives and that is intended to co-finance investment projects in areas such as agriculture, food processing and livestock development. The **Supplemental Prairies** Programme finances the development of pastures in farms where livestock is the main output. Fund for Indigenous Land and Water (**CONADI**). The programme provides financial support for the land acquisition by indigenous people. It also subsidises water and irrigation infrastructure as well as land investments. **Chile Solidario** overseen by the Ministry of Social Development offers financial support to families in extreme poverty through conditional cash transfers, subsidies for potable water, and specific payments for elder people, children and people with disabilities.

Table 12 summarises the previously described policy instruments used in Chile. Chile has created programmes to deal almost every constraint faced by small-scale farmers. Most of the programmes have different sub-components that aim to overcome many different constraints.

Inserting smallholders into commercial structures has been an important objective of agricultural policies in Chile. There have been significant investments in a number of key areas. These programmes include measures that are not directed to specific farmers, for example on general infrastructure and irrigation. Some of these measures are targeted

regionally, so that their main beneficiaries are poorer farmers. Even more important, the support delivered by INDAP has been targeted to farmers individually in order to improve their productivity. The majority of this support involves the provision of on-farm assets, including on-farm infrastructure, irrigation, soil improvement and inspection services, and managerial skills. These expenditures are the largest component of the PSE.

Chile targets smallholders quite clearly, part of the national budget directed to agriculture is constrained (by budget law) to be allocated to family farms. In average, 50% of the budget of the Ministry of Agriculture has to be directed to small-scale agriculture. This principle has the main core action of including smallholders in the “*development train*” and to help them to overcome their barriers. The Budget Department (DIPRES) carries out regular evaluations to see if some programmes have positive results. Some key bottlenecks identified in most of the programmes have to do with the wide typology of farmer, which limits the possibility to target in a more effective way. Furthermore, the wide range of specific requirements to access the programme and the large demand from farmers are also found to be key limitations. The requirements are not only very diverse in terms of project types and business types, but also very high and demanding in terms of budget. Moreover, the budget is limited and normally does not meet demand.

3.3. *Indonesia*

Indonesian land structure

In Indonesia, agriculture accounts for 15% of national GDP and 36% of total employment. Indonesia is a net exporter of agro-food products, with palm oil and rubber accounting for 60% of total exports (OECD, 2013b). In Indonesia there are more than 100 million people living in rural areas (Statistics Indonesia, 2014). As of the 2013 census, there were approximately 22 million land holdings. Indonesian agriculture is characterised by very small farm units, more than 85% of total holdings (or 18.8 million) have less than 2 hectares (Table 13).

According to Law No. 19/2013 on the protection and empowerment of farmers, smallholders are farmers who operate farms of less than 0.5 hectares. However, this definition is commonly used in the context of food crop farmers. For farmers growing perennial crops (such as oil palm) a smallholder is defined as having less than 2 hectares.

Table 13. Indonesia: Number of land holdings by size range (000)

Size range of holding	Number of holdings
Under 1 ha	15 078
1 and under 2 ha	3 726
Greater than 2 ha	3 232
Total	22 036

Source: Central Bureau of Statistic, 2013 Indonesian Agricultural Census.

Table 12. Matrix of agricultural policies for smallholders in Chile

Constraint	Name of the programme**	Responsible Institution	Description	Budget**		Beneficiaries		PSE/GSSE categorisation***	Targeted small-scale agriculture	Limitations of the programme	Likely to allow output market participation	Likely to allow structural transition?
				Beginning of the project***	Latest year	Beginning of the project	Latest year					
Lack of credit	Credit Programme (1962)	INDAP	Offers credit in the short (up to one year) and long run (up to ten years).	n.a.	USD 11 million on implicit subsidy (2014)	n.a.	47 thousand people (2014)	B1PIV	YES		Yes	No
Lack of agricultural risk management tools	Agricultural and Livestock Insurance Support (2009) Original year 2000	INDAP	Agricultural insurance	USD 360 thousand (2009)	USD 1.5 million (2014)	8 thousand people (2009)	17 500 people (2014)	B1PIV	YES	Doesn't cover all potential beneficiaries.	Yes	No
Lack of extension and technical assistance and training	Indigenous Territorial Development Programme (PDTI) (2007)*1	INDAP	Improves productivity through technical and financial support.	USD 270 thousand (2007)	USD 30.2 million (2014)	2.9 thousand people (2007)	33.3 thousand people (2014)	B1PIV B2PIF B3PIS	YES	Cuts on budget.	Yes	Yes
	Technical Training Services (SAT) (1997-Original year 1983)*2	INDAP	Provides technical support as to improve the responsiveness to technical and climatic challenges.	USD 16.4 million (1997)	USD 16.3 million (2014)	34 thousand people (1997)	10 thousand people (2014)	B3PIS	YES	The number of technical assistance providers is not enough.	Yes	No
	Management and Productive Development Services (PROGYSO) (2009)	INDAP	Optimises communication channels as to improve small farmer's communication with public and private sectors.	USD 1.4 million (2009)	USD 1.9 million (2014)	n.a.	n.a.	B3PIS	YES	Limited budget	Yes	Yes

	INDAP-PRODEMU Programme (1991)*3	INDAP	Empowers women in rural areas through the consolidation of working groups.	n.a.	USD 2.8 million (2014)	3.6 thousand people (1991)	3 thousand people (2014)	B1PIV B2PIF B3PIS	YES		Yes	Yes
Lack of associativity for the commercialisation of the output	Productive Partnership (2007)*4	INDAP	Creates a communication channel between farmers and companies.	USD 200 thousand (2007)	USD 10.8 million (2014)	550 people (2007)	6.8 thousand people (2014)	B3PIS	YES	Limited budget	Yes	Yes
Weak on-farm infrastructure	Irrigation Programme (1991)*5	INDAP	Facilitates the access to on-farm irrigation and to associative irrigation.	USD 580 thousand (1991)	USD 21.2 million (2014)	n.a.	4.8 thousand people (2014)	B2PIF	YES	Lack of performance standards.	Yes	No
	Soil recovery programme (1995)*6	INDAP	Offers support to soil recuperation.	USD 590 thousand (1995)	USD 32.5 million (2014)	2.2 thousand people (1995)	18.3 thousand people (2014)	B2PIF	YES		Yes	No
Access to input markets	Local Action Development Programme (PRODESAL) (1997)*7	INDAP	Offers inputs, technical and financial support for small farmers.	USD 455 thousand (1997)	USD 68 million (2014)	15 thousand people (1997)	79 thousand people (2014)	B1 PIV B3PIS	YES	Needs to improve the targeting and should respect the needs of each farmer.	Yes	No
	Farm Investment Development Programme (2004)	INDAP	Offers inputs to improve small farmers' output.	USD 2.3 million	USD 15.4 million (2014)	n.a.	6 thousand people (2014)	B2PIF	YES		Yes	No
	Supplemental Prairies Programme (1997-Original year 1995)*8	INDAP	Finances the development of pastures.	n.a.	USD 4.7 million (2014)	n.a.	12.3 thousand people (2014)	B1PIV B2PIF B3PIS	YES		Yes	No
Land restructuring	Fund for Indigenous Land and Water (1993)	CONADI	Land infrastructure for indigenous people.	USD 27 million (2000)	USD 75 million (2014)	n.a.	n.a.	GSSEJ4	YES		Yes	Yes

Low income	Chile Solidario (2002)	MDS	Offers financial support to families in extreme poverty through conditional cash transfers.	USD 2 million (2002)	USD 359 million (2014)	13 thousand people (2003)	n.a.	--	Likely that smallholders receive it.	Yes	Yes
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The names of the programmes correspond to the last "title" of older strategic lines of the development of smallholders. * The year of the beginning of the projects are not exactly correct for all the programmes, as These programmes also cover: *1- lack of credit, technology and environmental protection. *2 - lack of technology and lack of agricultural risk management tools. *3 - lack of associativity and lack of market information. 4* - lack of access to output markets. *5 - lack of agricultural risk management tools. *6 - lack of technology, limited access to inputs and environmental protection. *7 - *lack of extension and technical assistance and training and lack of market information. *8 - weak on-farm infrastructure.**Credit loans allocated, not the implicit subsidies estimated in the PSE. *** From the PSE classification B1PIV: Payments based on variable input use (e.g. fertiliser or seed subsidies). B2PIF: Payments based on fixed capital formation (e.g. on-farm infrastructure and equipment). B3PIS: Payments based on on-farm services (e.g. on-farm training). "C payments" are those based on current Area/Animal numbers/Receipts/Incomes, production required. "D payments" are those based on non-current Area/Animal numbers/Receipts/Incomes, production required. "GSSEH2a expenditures" are those spent on agricultural education. "GSSEJ4 expenditures" are those spend on land restructuring.

Average farm sizes vary by region, with the highly populated island of Java (59% of all Indonesian farm households) having an average holding of only 0.3-0.4 hectares in 2007 (Table 14). Only on the island of Kalimantan (Indonesian Borneo) did holdings reach significantly above 2 hectares, but the average remains below 3 hectares. Most recent information shows that the average size of holdings has been declining, especially on Java. The percentage of agricultural households on Java without land represents 12.4% of all households, and those having a quarter-hectare or less represent 40.5%; that is, slightly more than half of all agricultural households on Java hold less than a quarter hectare. The proportion of farmers on Java who hold more than two hectares is trivial. In other islands agricultural households with no land or less than a quarter hectare represent almost 30% of all households. Almost 13%, however, hold two or more hectares.

Table 14. Indonesia: Proportion of all agricultural households by farm size and region, 2007

Size class (hectares)	% of households	
	Java	Off-Java
Landless	12.4	7.1
0-0.25	40.5	20.8
0.25-0.50	16.5	16.6
0.50-1.00	21.5	19.5
1.00-1.50	5	16.2
1.50-2.00	4.1	7.1
Above 2	0	12.9

Source: OECD (2012), from ICASEPS, 2008, adapted from Sudaryanto et al., 2009.

There are large landholders, but they represent a small proportion of all holdings. About 30% of the land in perennial crops is owned by large operations, either private or state-owned. These approximately 2 300 large operations have on average 2 600 hectares (OECD, 2012).

The Basic Agrarian Law (BAL), adopted in 1960, is considered to be the most important legislation governing land rights in Indonesia. This law not only stipulates the rights of landowners (individuals or organisations) vis-à-vis their land, but also the role that the State has in regulating land. In 1967 the Basic Forestry Law was adopted and replaced the BAL as the main legal mechanism applied to forests, which was then replaced by the 1999 Forestry Law. These two pieces of legislation eliminated almost all protections contained in the BAL with regards to land rights based on customary law of communities living in forested areas. Laws on forests, that cover about half of the territory of the country, are particularly important in Indonesia, since such legislation impacts large part of the population. Although systematic land registration has been happening in Indonesia for the last 40 years, it's neither fast enough nor comprehensive enough partly due to high registration costs. The government has been registering an average of 1 million holdings per year, but at this pace it will take around 60 years to register all farms in Indonesia (USAID, 2010). Farmers with unregistered land are not legally secure and inheritance of unregistered land can be questioned. Moreover, rules on government expropriation are ambiguous, which creates a certain degree of legal insecurity with regards to land tenure in Indonesia.

Policy instrument addressing smallholders in Indonesia

Perhaps as a result of the preponderance of small farms, the Indonesian government (Ministry of Agriculture) does not have policies exclusively designed to address

smallholders as in the cases of Brazil and Chile. Smallholders represent almost 90% of the total number of farmers and any policy targeting the sector as a whole is likely to have an impact on small-scale agriculture. The Indonesian government has identified some major barriers faced by smallholders to access market and develop, these are: a) poor infrastructure that limits the connection with traders and processors; b) low capacity to access information and to bargain with traders; c) weak farmer organisations; d) traditional or obsolete technology use; e) limited working capital to finance necessary inputs. Although efforts have been made to address these barriers, they are still far from being resolved.

Agricultural policies in Indonesia can be seen as part of bigger strategies like the Food Security (Food Law of 2012), Poverty Alleviation Strategy, Master Plan on Acceleration of the Indonesian Economy and the Rural Community Empowerment Initiative; these strategies try to improve living conditions of the people in both rural and urban areas. In a very broad way, programmes to address constraints faced by smallholders are: fertiliser subsidies; investments in agricultural infrastructure, particularly irrigation; the provision of various credit programmes with subsidised interest rate; advice and market information provided through extension services; the development of partnership between farmers and traders/processors and the creation of farmer organisations; and technology development and dissemination. Some of these programmes are described briefly below.

Through the **Credit Provisions of Agriculture Programme**, the central government provides credit with subsidised interest rates for farmers. The **Agricultural Disaster Insurance**, created by the Ministry of Agriculture aims to minimise the negative effects that pests, diseases, earthquakes, tsunamis, floods and droughts may have on small farmers. The government has different programmes that provide monetary support for the construction/maintenance/renovation of **infrastructure** like irrigation, farm roads, land conservation and post harvesting and processing facilities. The Ministry of Agriculture also offers different type of **variable input subsidies** like fertiliser, seeds and livestock subsidies. **Fertiliser subsidies** remain by far the most important programme through which the government provides budgetary support to agriculture. This subsidy is received indirectly by farmers as is channelled through fertiliser companies. These companies are responsible for lowering the price of their final product, which in turn benefits farmers (OECD, 2013b).

The Rural Agribusiness Development Programme (**PUAP**), created in 2008 by the Ministry of Agriculture, provides financial support to farmers willing to develop local agricultural potential. To ensure the success of the programme, beneficiaries also receive technical guidance from a local agriculture extension officer. The grant is based on a proposal prepared by groups of farmers. The Indonesian government, through the **Raskin Programme**, buys a given percentage of the total output of rice produced by small-scale farmers. In 2013 USD 1.6 billion were spent by the government for the Raskin programme. The stock of rice procured by the government is used for two purposes: to feed poor families and stabilise prices at the retail level. This indicates that domestic farmers have enjoyed a relatively high level of protection but at the expense of consumers, including almost two-thirds of farmers who are net consumers of rice (N. McCulloch, 2008). Indonesia as well as many other countries have a **cash transfer** programme that is provided unconditionally and is given to 25% poorest rural and urban households.

Table 15. Matrix of agricultural policies for smallholders in Indonesia

Constraint	Name of the programme	Responsible Institution	Description	Budget		Beneficiaries		PSE/GSSE categorisation***	Targeted small-scale agriculture	Limitations of the programme	Likely to allow output market participation	Likely to allow structural transition?
				Beginning of the project	Latest year	Beginning of the project	Latest year					
Lack of credit	Credit Provisions of Agriculture Programme	Ministry of Agriculture	Provides credit with subsidised interest rates for small farmers.	n.a.	USD 34 million (2014) (implicit credit subsidy)	n.a.	n.a.	B1PIV	Implicitly yes	Administrative requirements are difficult to follow by ordinary farmers.	Yes	No
Lack of agricultural risk management tools	Agricultural Disaster Insurance (2008)	Ministry of Agriculture	Insurance against climatic threats losses caused by pest and disease infestation.	n.a.	USD 85 million (2014)	n.a.	n.a.	B1PIV	Implicitly yes	-	Yes	No
Lack of extension and technical assistance and training. Lack of technology. Lack of market information. Lack of associativity	Extension services**	Ministry of Agriculture	Extension services	n.a.	USD 7 million (2014)	n.a.	n.a.	B3PIS	Implicitly yes	Limited budget	Yes	Yes
Weak on-farm infrastructure	Support for farm irrigation, farm roads, land conservation and post harvesting and processing facilities			n.a.	USD 551 million (2014)	n.a.	n.a.	B2PIF	Implicitly yes	Limited budget	Yes	No
Limited access to inputs	Fertiliser	Ministry of Agriculture	Fertiliser subsidies	n.a.	USD 2 billion (2014)	n.a.	n.a.	B1PIV	Implicitly yes	Important part of the benefits may be concentrated to large farmers and fertiliser industries.	Yes	No

	Input subsidies	Ministry of Agriculture	Offers subsidies for seeds and livestock.	n.a.	USD 170 million (2014)	n.a.	n.a.	B1PIV	Implicitly yes	-	Probably Yes	Probably Not
	Rural Agribusiness Development Programme (PUAP) (2008)	Ministry of Agriculture	Offers financial and technical support to groups of small farmers.	n.a.	USD 44.3 million (2014)	n.a.	n.a.	B1PIV B2PIF	Implicitly yes	Unequal geographic distribution, lack of skilled labour, lack of funding, low performance of technical teams and lack of co-ordination among governmental agencies and ministries.	Probably Yes	Probably Not
Limited access to output markets	Raskin*1	Ministry of Trade	Govt. purchases of rice from smallholders.	n.a.	USD 1.6 billion (2014)	n.a.	n.a.		Implicitly yes	Negative impact to poor households who need to buy staple food.	Probably Not	Probably Not
Low income	Unconditional cash transfers		Gives money, subsidised food, scholarship and access to public services to the poorest 25% of the population.	n.a.	n.a.	n.a.	n.a.	--	Likely that smallholders receive it	In practice, local officials distribute the money evenly to all rural households, and not only to the poorest 25% of the population.	Probably Yes	Probably Yes

*1) This programme also covers low income category. **Extension services cover a broader set of constraints like lack of technology, market information, farmers associations. *** From the PSE classification: B1PIV: Payments based on variable input use (e.g. fertiliser or seed subsidies). B2PIF: Payments based on fixed capital formation (e.g. on-farm infrastructure and equipment). B3PIS: Payments based on on-farm services (e.g. on-farm training). "C payments" are those based on current Area/Animal numbers/Receipts/Incomes, production required. "D payments" are those based on non-current Area/Animal numbers/Receipts/Incomes, production required. "GSSEH2a expenditures" are those spent on agricultural education. "GSSEJ4 expenditures" are those spend on land restructuring.

The government of Indonesia has the priority to allocate an important proportion of the programmes to smallholders. However, it is difficult to measure what share of these programmes is provided to small-scale agriculture. Furthermore, to what extent the policy reaches smallholders is still a subject of empirical question. There is no mechanism to validate that this is actually the case. Large farmers also enjoy the benefit of the programmes and sometimes are main beneficiaries. For instance, fertiliser subsidies dominate budgetary support. These payments are channelled through fertiliser companies and have been found to be costly and the extent to which benefits accrue to farmers has been questioned. Furthermore, constraints that prevent smallholders to access market and improve productivity continue to exist. Table 15 summarises the above described policy instruments used in Indonesia to address the needs of smallholders. Budget allocation is concentrated on two areas: variable inputs (fertiliser subsidies) and on-farm fixed capital formation.

3.4. *Mexico*

Agricultural structure of Mexico

The Mexican agricultural sector produces 3.5% of GDP and employs 12.3% of the labour force. Mexico is a net agro-food importer with a USD 3.1 billion trade deficit in the sector in 2013 (Banco de Mexico, 2014).

The 2007 Mexican agricultural census reports slightly more than 5.5 million farm production units in the country on 112 million hectares, of which approximately 2.4 million units, or 43.5%, are very small, with less than two hectares (Table 16). Another 1.3 million units, representing 23% of units are between 2 and 5 hectares in size. Altogether, therefore, two-thirds of all farm units are of less than 5 hectares. These small farms, while numerous, account for only 6.3% of all agricultural land. Large farms ranging from 100 or more to 1 000 hectares represent 2% of all units and make up 26% of all farm land. The largest class of farms comprises a mere one-tenth of 1% of production units but holds 10% of land. That is, less than 2.2% of farm units, over 100 hectares, are producing on more than one-third of all agricultural land.

Table 16. Mexico: Production units by size range

Size range	Production units	% of units	Hectares	% of hectares
Total	5 548 845	100.00%	112 349 109.77	100.00%
Less than 2 ha	2 415 716	43.50%	2 532 126.32	2.30%
2 to 5 ha	1 270 515	22.90%	4 511 651.25	4.00%
5 to 20 ha	1 297 978	23.40%	13 373 426.84	11.90%
20 to 50 ha	319 627	5.80%	10 077 746.11	9.00%
50 to 100 ha	120 722	2.20%	8 702 407.82	7.70%
100 to 1 000 ha	111 776	2.00%	29 291 866.20	26.10%
1 000 to 2 500 ha	7 364	0.10%	11 620 392.46	10.30%
Greater than 2 500 ha	5 147	0.10%	32 239 492.75	28.70%

Source: FAO (2010). Agricultural Census, INEGI 2007.

These land-holding statistics should be read in the light of Mexico’s land tenure system. The tenure regime centres on the farming collectives known as *ejidos*, and for decades much of the rural population was in effect “tied to a great many small-scale farms with tenuous claims to specific plots of land, and efforts of commercial farmers to expand were bound by limits placed on their access to land” (OECD, 2006). *Ejidors* gave peasant farmers certain user rights over lands distributed during the agrarian reform period, but such rights did not extend to sales, or even formal rental. In fact, the 2007 census found that almost all farm production is on owned land: 93.8% of farm units and 94.4% of farmed lands are operated by the owner. There are relatively few land rentals, either cash or sharecropping, representing only 6% of the units and only 3% of the land.

While families can inherit user rights to specific farms, restrictions on alienability prevent the use of land as collateral. Until reforms in 1992, there was a constitutional right to parcels on the collectives; and *ejido* farms had the tendency to decrease in size over time. This tenure system of “private” and “social” land tenure regimes continues. In the 2007 census, 68.5% of production units were under the social regime – *ejidos* – and accounted for only 34% of land; 29% of farms were under the private regime, accounting for 61% of land (Table 17). As it turns out, about 75% of farms of less than 20 hectares are in *ejidos*, while 75% of large farms over 100 hectares are privately held.

The *ejido* system may have created one of the more equitable land distribution systems in Latin America, it also made it difficult for a well-functioning land market to emerge. It was only in 1992 that the Constitutional Ejido Reform changed the situation, strengthening property rights. However, despite reforms, this communal property still constrains the agricultural land market.

Table 17. Mexico: Farm holdings by land tenure regime

	Number of units	Hectares
Total	5 548 845	112 349 109.77
Private holding	1 582 012	68 249 390.21
Social	3 800 152	38 672 208.87
Mixed	166 681	5 427 510.69

Source: FAO (2010), Metadata Agricultural Census 2007 Mexico.

The geographic distribution of average farm sizes is related to the *ejido* system, the density of the rural population and the fertility and capacity of the soils. For example, in the central area around the Federal District average farm size is less than 5 hectares. In states to the south, the average farm size is less than 10 hectares. Moving northward average farm size increases, with the largest averages (more than 100 hectares) in states bordering the US.

Policy instrument addressing smallholders in Mexico

The Secretariat of Agriculture, Livestock, Rural Development, Fisheries and Food (SAGARPA) is responsible for elaborating policies that will benefit both small-scale and commercial farms. There is no official definition of smallholders in Mexico, however farmers with less than 5 hectares are considered to fall into that category. Mexican agricultural policies are characterised mainly by the provision of input subsidies from credit and insurance, to machinery and training. These series of programmes aim to improve

farmers' productivity. As the case of Indonesia and South Africa, the vast majority of programmes in Mexico do not target smallholders explicitly.

However, SAGARPA recognises the importance of small-scale farmers as relevant actors contributing to economic growth, food security and the abatement of rural poverty. For this reason, a number of programmes, as of 2013, started to give preferential treatment in the allocation of support to applicants who live in municipalities with high and very high levels of marginalisation, as well as those found in municipalities covered by the national initiative of Crusade Against Hunger. This initiative has the objectives of eradicating hunger in extremely impoverished communities, to eliminate acute malnutrition in children, to increase food production and peasants' farm income, to reduce food waste after-harvesting and to promote community participation. Agricultural programmes are then considered as a part of this broader strategy of poverty reduction, and have to be co-ordinated with several social programmes (e.g. conditional cash transfers, former *Oportunidades* now *Prospera*, overseen by the Social Development Ministry).

SAGARPA identifies several major constraints that impede smallholders to access markets and improve productivity these are: 1) high fragmentation of land and of production units; 2) lack of farmer organisations; 3) disarticulation of value chains; 4) low level of technology and mechanisation; 5) deterioration of environmental resources; 6) a process of aging rural population; 7) endemic poverty levels in rural areas; 8) low levels of education; and 9) lack of health services. Agricultural policies alongside with social programmes are intended to eliminate these barriers, with little or marginal outcomes as these characteristics still persist in rural areas and in the agricultural sector.

SAGARPA has nine “mother” programmes of budgetary allocation; each programme has several components that make in total more than 80 sub-programmes. Although Mexico does not explicitly target smallholders, most of the programmes (through different sub-programmes) reach smallholders and two are designed to specifically target them. It is roughly estimated that 49% of total budgetary allocations is provided to small-scale farms. This percentage is just an indicative estimation and is subject to verification.

The **women** programme (**PROMETE**) offers financial support to women farmers in order to boost their productivity. To a lesser extent it also offers monetary support for individual training. Productive Projects Programme for Agrarian Nucleus (**FAPPA**) offers financial resources for the investment of productive agricultural projects. It provides subsidies for variable inputs, on-farm infrastructure and individual training. These two programmes basically target smallholders. The Comprehensive **Rural Development** Programme (**PCRD**), aims to increase food production through financial support for infrastructure development, equipment acquisition, and environment protection. It is estimated that around 82% of this programme is allocated to small family farms. The Food and Agriculture **Productivity and Competitiveness** Programme covers partial or totally the premium of agricultural insurance, it also offers collateral for credit acquisition, other components of the programme provide input subsidies to the southeast region of the country. It is estimated that 67% of this “mother” programme is given to smallholders.

Table 18. Matrix of agricultural policies for smallholders in Mexico

Constraint	Name of the programme	Responsible Institution	Description	Budget**		Beneficiaries		PSE/GSSE categorisation***	Targeted small-scale agriculture	Limitations of the programme	Likely to allow output market participation	Likely to allow structural transition?
				Beginning of the project	Latest year	Beginning of the project	Latest year					
Lack of credit	Credit	FIRA/Financiera Rural	Offers credit to farmers at preferential interest rates	n.a.	n.a.	n.a.	n.a.	B1PIV	NO		Yes	No
Lack of agricultural risk management tools, Lack of market information	Market Development Programme*1	SAGARPA	Price hedging	n.a.	USD 635 million (2014)	n.a.	n.a.	B1PIV	NO		-	-
	Food and Agriculture Productivity and Competitiveness Programme*2	SAGARPA	Subsidies for the agricultural insurance premium, credit collateral, credit support.	n.a.	USD 498 million (2014)	n.a.	n.a.	B1PIV	YES 67%		Yes	No
	Food Safety and Animal and Plant Health Programme*3	SAGARPA	Provides subsidies to farmers for dealing with food safety issues and livestock diseases, avoiding further spread and financial losses.	n.a.	USD 319 million (2014)	n.a.	n.a.	B1PIV	YES 17%		Yes	No
Lack of technology, Lack of extension and technical assistance and training	Innovation, Research, Social Development and Educational Programme (PIDETEC)*4	SAGARPA	Provides financial support to productive projects that use new technologies.	n.a.	USD 260 million dollars (2014)	n.a.	n.a.	B3PIS	YES 45%		Yes	Yes
Lack of associativity for the commercialisation of the output	Women Programme (PROMETE)	SAGARPA	Offers financial support to women for agricultural productive projects.	n.a.	USD 70 million (2014)	n.a.	n.a.	B3PIS	YES 100%		Yes	Yes
Limited access to inputs, Weak on-farm infrastructure, Lack of technology, Lack of extension and	Subsidy electricity		Preferential rates of electricity costs.	n.a.	USD 722 million (2014)	n.a.	n.a.	B1PIV	NO		Yes	No
	Concurrence Programme with Federal Entities (states)	SAGARPA	Offers inputs support to farmers in order to increase their productivity.	n.a.	USD 317 million (2014)	n.a.	n.a.	B1PIV B2PIF B3PIS	YES 60%		Yes	No

technical assistance and training	Agriculture Promotion Programme*5	SAGARPA	Financial support for technology investments.	n.a.	USD 700 million (2014)	n.a.	n.a.	B2PIF	YES 54%		Yes	No
	Livestock Promotion Programme*6	SAGARPA	The main objective of this programme is to increase stockbreeders' productivity through access to inputs.	n.a.	USD 366 million (2014)	n.a.	n.a.	B2PIF B3PIS	YES 33%		Yes	No
	Productive Projects Programme for Agrarian Nucleus (FAPPA)	SAGARPA	Offers financial support to people who do not possess land.	n.a.	USD 63 million (2014)	n.a.	n.a.	B1PIV B2PIF B3PIS	YES 100%		Yes	Yes
	Programme for Comprehensive Rural Development*7	SAGARPA	Offers financial and technical support and infrastructure development.	n.a.	USD 808 million (2014)	n.a.	n.a.	B2PIF B3PIS	YES 82%		Yes	Yes
	PROCAMPO/Productive PROAGRO (1993)*8	SAGARPA	Integrates productive processes, develops agro-clusters, invests in human and technological capital and improves the productivity of small farmers.	n.a.	USD 1 billion (2014)	n.a.	n.a.	D	YES 50%		Yes	No
Low income	Oportunidades-Prospera Programme (2002)	SEDESOL	Offers financial support to families in extreme poverty through conditional cash transfers.	n.a.	USD 5.6 billion dollars (2014)	2.5 million people (2002)	6 million families (2014)	--	Likely that smallholders receive it.		Yes	Yes

These programmes also cover: *1 - lack of extension and technical assistance and training, lack of market information, limited access to inputs and weak on-farm infrastructure. *2 - lack of credit, lack of extension and technical assistance and training and lack of market information. *3 - lack of extension and technical assistance and training. *4 - lack of extension and technical assistance and training, limited access to inputs and weak on-farm infrastructure. *5 - lack of technology, lack of extension and technical assistance and training, limited access to inputs, weak on-farm infrastructure and environmental protection. *6 - lack of credit and limited access to inputs. *7 - lack of extension and technical assistance and training, lack of agricultural risk management tools, weak on/off-farm infrastructure and environmental protection. *8 - lack of technology, lack of extension and technical assistance and training, limited access to inputs and weak on-farm infrastructure. **Credit loans allocated not, the implicit subsidies estimated in the PSE. *** From the PSE classification: B1PIV: Payments based on variable input use (e.g. fertiliser or seed subsidies). B2PIF: Payments based on fixed capital formation (e.g. on-farm infrastructure and equipment). B3PIS: Payments based on on-farm services (e.g. on-farm training). "C payments" are those based on current Area/Animal numbers/Receipts/Incomes, production required. "D payments" are those based on non-current Area/Animal numbers/Receipts/Incomes, production required. "GSSEH2a expenditures" are those spent on agricultural education. "GSSEJ4 expenditures" are those spent on land restructuring.

The Programme **concurrency** is implemented in co-ordination with the federal entities (states) provides financial support to farmers for investment in agricultural projects. Various types of input subsidies are provided through this programme and 60% of its total outlay is allocated to small farms. The **Agricultural Promotion** Programme is a monetary support for the investment of agricultural technologies for which government contributes with a share of total cost, around 54% of the programme is given to small farmers. A major component of the agricultural promotion programme is PROCAMPO/**Productive PROAGRO**, which provides financial support to farmers based on historical use of land. However as of 2014, this programme is linked to production and requires that the payment is used for on-farm investments and expenditures on on-farm inputs. It is estimated that 50% of PROCAMPO/Productive Proagro is allocated to small family farms.

The **Innovation, Research, Social Development and Educational** Programme (PIDETEC) offers monetary help to farmers so that they can buy certified machinery and equipment (OECD, 2013b). More than 44% of the programme has smallholders as beneficiaries. The **Livestock Promotion** Programme, the main objective is to increase livestock productivity through financial and technical support. It provides financial support for investments in fixed capital formation and in training (OECD, 2013b). 33% of this programmes is given to small-scale farms. Lastly, Mexico has a conditional **cash transfer** programme for the poorest rural and urban households: PROGRESA-OPORTUNIDADES-PROSPERA. This social programme reaches a quite important number of poor small-scale farmers of the country.

Other “mother” programmes that do not reach smallholders are the **Market Development** Programme which offers financial support for price hedging of agricultural commodity prices. To a lesser extent it also offers several other monetary supports like individual technical assistance, trade events, management training, on-farm infrastructure, stockholding etc. The **Food Safety and Animal and Plant Health** Programme provides services for the food safety and animal and plant productive projects, that help farmers to deal with livestock diseases and plagues that may affect the crops, avoiding further spread and financial losses. Commercial farmers also receive an implicit subsidy through preferential rates of **electricity**. Electricity is used in agricultural activities particularly water pumping for irrigation.

Table 18 summarises main policy instruments described above. Support for farmers is characterised by input subsidies. To determine the effectiveness of the programmes, SAGARPA has in place an evaluation mechanism. However, these evaluations normally do not identify impacts nor are they able to quantify them. Furthermore, the large number and dispersion of programmes limit the effectiveness of the evaluation. There is also an important constraint on the monitoring and follow-up of each programme that make sure resources actually reach the intended beneficiaries. Many programmes have limited budgets, and the release of economic resources from the Ministry of Finance is sometimes late which affects beforehand the effectiveness of the programme, particularly when monetary support is given for variable inputs to be used at a specific moment in the production cycle. Moreover, many beneficiaries, particularly smallholders, cannot comply with programme requirements.

3.5. South Africa

Agricultural structure of South Africa

The share of agriculture in the South African economy is low, at 2.4% of the GDP, and 5% of employment for the year 2013. South Africa is a net exporter of agro-food products. The share of agro-food exports in total exports is around 10% in 2013 (OECD, 2015).

South Africa's agricultural structure is characterised by a dualism which arose as a result of the Natives Land Act of 1913, the first major piece of segregation legislation passed by the Union Parliament. The act decreed that only certain areas of the country could be owned by natives (black people). These areas initially comprised less than 10% of the entire land mass, later expanded to 13%. The remaining 87% of the agricultural land was made available to the white population for large-scale operations. The Act created a system of land tenure that meant that the majority of South Africa's inhabitants did not have the right to own land which had major socio-economic repercussions (Mahlangeni, 2013; PLASS 2015).

In order to address the challenges created by the 1913 Natives Land Act, since mid-1990s, the government has introduced a policy of land restitution, land redistribution and land tenure reform in an attempt to address the challenge of inequitable access to land that was largely based on race (Mahlangeni, 2013).

Table 19. South African farming units

Type of farms	Number of farm units by dominant branches of agriculture***
White commercial farms*	39 966
Small-scale farms in former homelands**	1 354 128

Source: *Statistics South Africa, 2009; **Development Bank of Southern Africa, 1991*** Dominant branches of farming: A farming unit of which the gross income from a shown product is more than half of its total gross income, is included with that product, otherwise the farming unit is included against "mixed farming". Farming units that showed dominance in specific products were combined to form totals for field crop products, horticultural products and animals and animal products.

Table 20. South African land utilisation

Type of farm	Hectares	% of total land
White commercial farm	105 207 300 (86 186 026 agricultural land)	67%
Black communal areas (most state-owned, smallholders, former homelands)	17 112 800 (14 479 766 agricultural land)	15%
Other State land	12 232 000	10%
Remainder land (including urban areas)	9 785 608	8%
Agricultural land*	100 665 792 (equivalent to 82% of total land)	
Total land**	122 320 100	100%

*Potential arable land plus grazing land. **Farmland plus nature conservation land plus forestry land plus other.

Source: Development Bank of Southern Africa. Statistics SA, Census of Agriculture 1993, 2002 and 2007, and agricultural survey 1996.

The legacy of the classification of national land as either white or black-owned resulted in the fact that in the early 1990s just under 60 000 white-owned farms accounted for about 70% of the total area of the country. Today there are under 40 000 farming units occupying about 67% of total land of the country, around 86 million hectares. On the other hand, approximately 1.3 million smallholders (that may produce for markets or for self-consumption) are black. Most of these farmers are still located in the former homeland areas of the country, which comprise about 14 million ha of agricultural land (Tables 19 and 20) (Mahlangeni, 2013; PLASS 2015).

The former homelands or communal areas cover some 17 million hectares, of which around 14.5 million hectares are classified as agricultural land (DAFF 2011). Most of this land is state-owned and densely settled by black households under various forms of customary tenure. Because of regionally specific history, the extent of black communal areas varies considerably across the provinces (DLA 2002; PLAAS, 2015).

Agricultural conditions in the former homelands are complex: infrastructure is poor and land degradation is widespread; there is less access to financial institutions, formal markets and water; some areas are characterised by seemingly large amounts of underutilised arable land of good quality. Furthermore, smallholder farming is an impoverished sector dominated by low-input, labour-intensive forms of production. Low productivity is a major challenge in the small-scale subsistence sector, attributable to past discriminatory policies coupled with such problems as tenure insecurity and very small land holdings (OECD, 2005). Hence addressing the impediments facing the smallholders in the former homelands for facilitating a productive use of agricultural resources it is a priority for the government, considering its potential in terms of overcoming poverty, food insecurity and unemployment (Mahlangeni, 2013; PLAAS, 2015).

Kirsten and van Zyl (1998) characterise South African agriculture as comprising two important categories of farmers: subsistence farmers in former homeland areas and large-scale commercial farmers. White farmers dominate the latter category. In 1994 the distribution of land in South Africa was estimated to be 87% owned by whites and 13% by blacks. Over nearly two decades, about 7.5% of land or slightly under 8 million hectares had been transferred from white to black ownership under a willing buyer, willing seller scheme applied in the post-apartheid land reforms (Walker and Dubb, 2013). Whether or not this land redistribution process had positive results remains unclear. Significantly, the state owns approximately 25% of the land. Walker and Dubb report that of the total land area in South Africa, 67% is “white,” commercial agricultural land, 15% is “black,” mainly communal areas (mostly state-owned), 10% is non-farming state areas (mainly conservation areas), and the remaining 8% is urban zones (Table 20) (Walker and Dubb, 2013).

South Africa uses a qualitative definition of smallholders. The Strategic Plan for Smallholder Support (SPSS), which is the blue print for support to smallholders, proposes the following basic qualitative typology of smallholders: 1) SP1 Smallholder producer type 1: Smallholders for whom smallholder production is a part-time activity that forms a relatively small part of a multiple-livelihood strategy. Some of these producers may aspire to grow their agricultural enterprise, but possibly, at the expense of pursuing off-farm activities, therefore it is a risky prospect. It is worth bearing in mind that more than 50% of smallholder households live in poverty, and most of these appear to fall into this category. This category of smallholders is worthy of focused support to raise their households above the poverty line. 2) SP2 Smallholder producer type 2: Smallholders who are more or less in the middle of the spectrum, meaning that they rely largely on their agricultural enterprises to support themselves and are not living in poverty, but need further assistance both to expand production (or make it more efficient and/or profitable), join in the value addition

and find markets. 3) SP3 Smallholder producer type 3: Smallholders who operate according to commercial norms but who have not reached the threshold at which they are obliged to register for VAT or personal income taxes. These smallholders tend to be capable all-round entrepreneurs; they often command large amounts of support from government by virtue of the fact that they tend to be mobile and vocal, but in reality often have the capacity to sustain themselves and even grow on their own, by means of loan finance. Some producers who appear to be in this category are, in fact, commercial-scale producers who do not wish to be liable for taxes, but for the sake of fairness, the government must seek ways of easing them into the tax net. This category would also include practising or retired professionals who have access to resources to produce at a commercial level such as hobby farmers (DAFF, 2013).

In 1993, the Upgrading of Land Tenure Rights Act regulated informal land tenure and transformed many occupied land into legalised estates. This act is responsible for identifying the rightful holder, mediating disputes and transferring land to the new owner. In 1994 the Restitution of Land Rights Act was created, which facilitates the acquisition of land in former white areas for black farmers. In 1997 the South African government created the Extension of Security of Tenure Act, which adapted and updated the Upgrading of Land Tenure Rights Act as to protect occupants from eviction and to regulate land rights as to ensure tenure security.

Policy instrument addressing smallholders in South Africa

In South Africa there is an implicit targeting of agricultural policies when government prioritise the allocation of resources to small-scale agriculture (operated mostly by the black population). This is done in order to address historical imbalances created by pre-democracy policies that favoured large and predominantly white commercial producers. Programmes related to land reform, land redistribution and the like, are designed to address the black population in rural areas. Furthermore, agricultural programmes can be considered as part of the different overarching government strategies of poverty reduction, social and economic development and integration like the Presidential outcomes approach; the New Growth Path; the National Development Plan; the South African Constitution; the Food and Nutrition Security Policy and Strategy; and the Integrated Growth and Development Plan.

Major constraints identified by the Department of Agriculture, Forestry and Fisheries (DAFF) that affect smallholders are: 1) poor or lack of proper organisation among smallholder producers; 2) lack of adequate marketing infrastructure; 3) poor agro-logistics; 4) lack of marketing information; 5) lack of marketing skills; 6) poor quality produce; 7) lack of risks management tools; 8) lack of access to finance; 9) insecure land tenure; and 10) lack of extension support. Some major programmes that have tried to address these barriers are discussed briefly.

The Comprehensive Agricultural Support Programme (CASPP) was established in 2004 to provide post-settlement support to beneficiaries of land redistribution and reform and other previously disadvantaged producers (usually black). The support is to be provided mainly through investment grants allocated to viable productive projects. The financial help is provided to farmers for the acquisition of management training, technical and advisory assistance, marketing and business development assistance, training and capacity building, on/off farm infrastructure and production inputs, and financial support to smallholder farmers who wish to develop commercial farms. Around 50% of the outlays of this programme is used for off-farm infrastructure.

The purpose of the Micro-Agricultural Finance Schemes of South Africa (**MAFISA**), created in 2005, is to provide credit rural at preferential rates to poor rural people. Services provided through the scheme include production loans, facilitation of savings mobilisation and capacity building for member-owned financial institutions. MAFISA loans are provided for farm equipment or livestock and associated inputs. The **Land Bank**, also offers credit to farmers. This credit has historically been for commercial agriculture (OECD, 2005). **Land grants** are subsidies for investment on on-farm infrastructure for the land reform beneficiaries. The **Ilima/Letsema** Programme was implemented in 2008/09 to increase food production, particularly by the smallholder farming sector. The funds were transferred to provincial departments of agriculture as conditional grants for specific production projects such as upgrading irrigation schemes and other infrastructure and on farm investments to support production capacity (OECD, 2013b).

Fuel tax subsidies. Under a diesel refund system, introduced in 2000, farmers receive a refund on the tax and road accident fund levies paid on diesel fuel. The refund is applied for 80% of the total eligible purchases used in primary production. Several studies have pointed out the regressive nature of this fuel subsidy, as large scale commercial farms benefit the most from it (OECD, 2006b). Created in 2001, the Land Redistribution and Agricultural Development programme (**LRAD**) gives credit to black farmers to buy land or to expand their farms. The objective of this programme is to redistribute the country's agricultural land. Various social grants (**cash transfers**) are given to the poorest households.

In terms of effectiveness, implementation and effectiveness of most of these policies have not yet been evaluated. There is not a mechanism in place that identifies and measures impacts. Moreover, constraints that impede smallholders' access to markets persist. There is also a lack of alignment among programmes and of recorded statistics of beneficiaries, as well as an inadequate financial resources. Table 21 summarises the above described policy instruments. Agricultural programmes are mostly addressing constraints to access to input markets, land access and on-farm infrastructure.

Table 21. Matrix of agricultural policies for smallholders in South Africa

Constraint	Name of the programme	Responsible Institution	Description	Budget**		Beneficiaries		PSE/GSSE categorisation	Targeted small-scale agriculture	Limitations of the programme	Likely to allow output market participation	Likely to allow structural transition?
				Beginning of the project	Latest year	Beginning of the project	Latest year					
Lack of credit	Micro-Agricultural Finance Schemes of South Africa (MAFISA) (2005)	Department of Agriculture, Forestry and Fisheries	Offers financial services to economically active rural poor people.	n.a.	-	n.a.	n.a.	B1PIV	Yes	Some limitations may be: lack of transparency and lack of continuity. Lack of adequate funding to reach the desired number of beneficiaries, etc.	Yes	Yes
	Land Bank (2002)	Department of Agriculture, Forestry and Fisheries	Offers credit for farmers at preferential interest rates.	n.a.	-	n.a.	n.a.	B1PIV	No	Some limitations may be high transaction costs and risk of default render, etc.	Yes	No
Lack of agricultural risk management tools	National Disaster Management System (2003)*1	Department of Agriculture, Forestry and Fisheries	Promotes an integrated and co-ordinated system against disasters.	n.a.	n.a.	n.a.	n.a.		No	Relief measures take time to reach the victims, funding for disasters does not always adequately address the effects of a particular event, lack of planning and budgeting and focus only on post disaster.	Yes	No
Lack of associativity for the commercialisation of the output	Integrated Agricultural Marketing Strategy for Agriculture, Forestry and Fisheries Products in the Republic of South Africa	Department of Agriculture, Forestry and Fisheries	Promotes the formation of commodity groups, marketing co-operatives and market linkages.	n.a.	n.a.	n.a.	n.a.		Yes	Lack of financial resources, willingness of smallholders, poor quality produce.	Yes	Yes

Weak on-farm infrastructure	The National Land Care Programme (NLP) is a community-based and government supported approach promoting sustainable management and use of natural agricultural resources.	Department of Agriculture, Forestry and Fisheries	Land grant for poverty relief and infrastructure development	n.a.	USD 37 million (2014)	n.a.	n.a.	B2PIF	Yes	-	Yes	No
	Comprehensive Agricultural Support Programme (CASP) (2004)*1	Department of Agriculture, Forestry and Fisheries	On and off-farm Infrastructure	n.a.	USD 44.7 million (2014)	n.a.	n.a.	GSSEJ4	Yes	The scope and coverage of CASP are too wide, resulting in resources being thinly spread. This limits the effectiveness of the programme in achieving its objectives.	Yes	Yes
Limited access to inputs/Lack of technology/Lack of extension and technical assistance and training/Lack of market information	Comprehensive Agricultural Support Programme (CASP) (2004)*1	Department of Agriculture, Forestry and Fisheries	Offers subsidies for the acquisition of inputs to beneficiaries of land redistribution and reform programmes.	USD 13 million	USD 44.7 million (2014)	n.a.	n.a.	B1PIV B2PIF B3PIS	Yes	Inadequate post-settlement support and lack of suitable markets.	Yes	No
	Ilima/Letsema Programme (2008)	Department of Agriculture, Forestry and Fisheries	Grants for productive investments in agriculture.	n.a.	USD 42.5 million (2014)	n.a.	n.a.	B2PIF	Yes	Lack of adequate funding to reach the desired number of beneficiaries. Selection of beneficiaries is also poor.	Yes	No
	Fuel tax subsidy	Department of Agriculture, Forestry and Fisheries (National Treasury)	Fuel tax subsidy	n.a.	USD 124 million (2014)	n.a.	n.a.	B1PIV	No	Lack of information and ineffective record keeping hinders smallholders from benefiting	Yes	No

Land restructuring	Land Redistribution and Agricultural Development (LRAD) (2001)*2		Redistributes land, improves nutrition and income of the rural population and reduces congestion in the overcrowded former homeland areas.	n.a.	USD 61 million (2014)	n.a.	n.a.	GSSEJ4	Yes	Lack of institutional capacity, financial deficiencies, inadequate agricultural support services, and the lack of co-ordination. Commercial banks have shown little inclination to offer credit.	Yes	No
Low income	Various cash transfer programmes	SASSA	Cash transfers as a means to provide capacity of poor households to buy food.	n.a.	n.a.	n.a.	n.a.	--	Likely that smallholders receive it	The ever-increasing number of new beneficiaries continues to place a great burden on the <i>fiscus</i> . There is a risk that a weak government budget may not sustain the transfer payments in the long-term.	Yes	Yes

These programmes also cover: *1 -addressing the effects of natural disaster; lack of technology, lack of market information, lack of extension and technical assistance and training and weak on-farm infrastructure. *2 - lack of credit. **Credit loans allocated, not the implicit subsidies estimated in the PSE. *** From the PSE classification: B1PIV: Payments based on variable input use (e.g. fertiliser or seed subsidies). B2PIF: Payments based on fixed capital formation (e.g. on-farm infrastructure and equipment). B3PIS: Payments based on on-farm services (e.g. on-farm training). "C payments" are those based on current Area/Animal numbers/Receipts/Incomes, production required. "D payments" are those based on non-current Area/Animal numbers/Receipts/Incomes, production required. "GSSEH2a expenditures" are those spent on agricultural education. "GSSEJ4 expenditures" are those spend on land restructuring.

4. Main findings

The paper has identified the constraints hindering the development of small-scale agriculture and its access to markets and the alignment of agricultural policies to addressing those constraints. All of the five countries studied – Brazil, Chile, Indonesia, Mexico and South Africa have a quite important number of small-scale farmers that have low levels of development, produce partially or totally for own consumption, have low productivity levels, have scarce resources and endowments and live in disadvantaged conditions. These characteristics have been acknowledged by the countries and all of them have developed strategies to address these constraints, with the final objective of integrating farmers to markets and ultimately improving their living conditions. Furthermore, in all five countries, these policies are closely integrated with broad-based social protection and development measures aimed at strengthening the inclusion of vulnerable populations in economic growth and social development.

In terms of assessing specific agricultural policies to support smallholder, this paper used the PSE database to identify major programmes directed to small farms, with the data revised and complemented directly by the participant countries. With this information it was possible to elaborate five matrices (Tables 8, 12, 15, 18, and 21) depicting constraints and main agricultural programmes which benefitted small-scale farmers in Brazil, Chile, Indonesia, Mexico and South Africa.

Table 22 presents a classification of the main areas in which these five countries are trying to address smallholder constraints. The classification is mapped to the PSE classification. In all five countries, efforts to integrate smallholders into markets and to improve productivity tend to focus on input subsidies, from concessional credit to on-farm training. However, there are other policies in place, for instance Brazil and Indonesia have mechanisms of fixing prices and making agricultural output purchases from small-scale agriculture. Furthermore, in all five countries, agricultural policies are normally embedded in a broader national strategy of social and economic inclusion and poverty reduction.

Table 22. Classification of constraints addressed by the five countries

Payments based variable inputs (B1PIV)	Payments based on-farm fixed capital formation (B2PIF)	Payments based on on-farm services (B3PIS)	Expenditures allocated to GSSE (GSSE)	Social policy
Limited access to inputs (e.g. fertiliser, seeds, energy)	Weak on-farm infrastructure (e.g. on-farm irrigation)	Lack of extension and technical assistance and training	Limited access to land	Cash transfer programmes
Lack of credit	Lack of technology	Lack of associativity for the commercialisation of the output		Poverty alleviation programmes
Lack of agricultural risk management tools		Lack of market information		

Table 23 contextualises the level of budgetary allocations destined to smallholders compared to Total Support Estimate (TSE), Producer Support Estimate (PSE), General Services Support Estimate (GSSE) and to the Total Support-Market Price Support (MPS) levels. The budgetary allocations spent on small-scale farmers in this table only consider agricultural programmes that are part of the PSE calculations. It is important to notice that budgetary allocations directed to small family agriculture but classified as GSSE are not

considered (e.g. land restructuring in the cases of Brazil, Chile and South Africa), as these are part of the total GSSE.

Table 23. Proportion of budgetary allocations directed to smallholders, 2014

Item	Brazil	Chile	Indonesia*	Mexico	South Africa
USD million					
Producer Support Estimate (PSE)	8 818	393	31 090	8 447	465
<i>Support based on commodity output</i>	1 318	13	28 415	2 812	255
<i>Market Price Support</i>	433	13	28 415	2 720	255
<i>Payments based on output</i>	885	0	0	92	0
<i>Payments based on input use</i>	7 106	374	2 590	4 072	209
<i>Based on variable input use</i>	4 139	83	1 991	1 348	125
<i>Based on fixed capital formation</i>	2 648	198	591	2 124	82
<i>Based on on-farm services</i>	319	94	9	600	2
<i>Payments based on current A/An/R/I, production required</i>	394	6	85	310	0
<i>Payments based on non-current A/An/R/I, production required</i>	0	0	0	1 252	0
Percentage PSE (%)	4.4	3.1	23.4	13.3	2.4
General Services Support Estimate (GSSE)	1 441	415	1 708	889	404
<i>Agricultural knowledge and innovation system</i>	180	92	186	468	158
<i>Inspection and control</i>	74	82	50	89	66
<i>Development and maintenance of infrastructure</i>	781	223	1 248	311	148
<i>Marketing and promotion</i>	29	18	14	21	33
<i>Cost of public stockholding</i>	376	0	206	0	0
<i>Miscellaneous</i>	0	0	4	0	0
Total Support Estimate (TSE)	10 258	809	34 389	9 940	869
Percentage GSSE (% of TSE)	14	51	5	9	47
Total Support Estimate – Market Price Support (TSE-MPS)	9 826	796	5 974	7 220	614
Percentage TSE (% of GDP)	0.5	0.3	4.0	0.8	0.3
Support directed to smallholders (budgetary allocations only)	3 352	216	2 891	2 532	124
Support directed to smallholders as a % of TSE	33%	27%	8%	25%	14%
Support directed to smallholders as a % of PSE	38%	55%	9%	30%	27%
Support directed to smallholders as a % of TSE-MPS	34%	27%	48%	35%	20%
Percentage of support directed to smallholders as a % of GSSE	232%	52%	169%	285%	31%
% of variable input use (B1PIV**) in total input subsidies provided to smallholders	2 400 (82%)	59 (27)	2 311 (79%)	473 (23%)	15 (12%)
% of fixed capital formation (B2PIF**) in total input subsidies provided to smallholders	35 (1%)	82 (38%)	573 (19%)	896 (44%)	94 (76%)
% of on-farm services (B3PIS**) in total input subsidies provided to smallholders	507 (17%)	76 (35%)	7 (2%)	662 (33%)	15 (12%)
Other payments provided to smallholders (Category C*** for Brazil and Category D*** for Mexico)	410			500	

Note: *For Indonesia all programmes are considered regardless the size of farmers they addressed. An estimation on how much of each programme is directed to small-scale agriculture cannot be obtained. **Within the PSE classification, payments based on input use are classified in three major categories: B1PIV: Payments based on variable input use (e.g. fertiliser, seed subsidies). B2PIF: Payments based on fixed capital formation (e.g. on-farm infrastructure and equipment). B3PIS: Payments based on on-farm services (e.g. on-farm training).*** "C payments" are those based on current Area/Animal numbers/Receipts/Incomes, production required. "D payments" are those based on non-current Area/Animal numbers/Receipts/Incomes, production required.

Chile is the country that directs the higher percentage of PSE (budget and MPS) to small-scale agriculture with 55% followed by Brazil with 38%, Mexico with 30% and South Africa with 27%. For Indonesia the estimation is quite low (9%) even when all programmes are considered as supporting smallholders. This is due to agricultural support being concentrated on Market Price Support (MPS). More interesting is to see the percentage of support to smallholders compared to support directed to GSSE. If the percentage is greater than 100%, it means that the country is investing more in input subsidies for smallholders than in GSSE for the sector as a whole. Chile and South Africa are the only countries where this percentage is less than 100%, with 52% and 31% respectively. Moreover, to compare only the levels of budgetary support, the MPS was deducted from the TSE. This calculation shows all expenditures allocated to the sector whether they are spent on different types of payments or on GSSE. Indonesia has the higher proportion with 48% followed by Mexico and Brazil with 35% and 34% respectively. Chile and South Africa have smaller share as they allocate an important proportion of outlays to GSSE.

For all five countries, support for smallholders is found in the category of input subsidies whether these are for variable input use (B1PIV), fixed capital formation (B2PIF) or on-farm services (B3PIS). Brazil and Indonesia allocate most of their support on variable input use (82% and 79% respectively). Chile has a more balanced distribution as 27% is destined to variable input use, 38% to fixed capital formation and 35% to on-farm services. Mexico concentrates more on fixed capital formation (44%) and on on-farm services (33%) and South Africa on fixed capital formation with 76%.

5. Policy conclusions

From the literature review, a range of major constraints faced by smallholders to access markets and to develop their farms were identified, including access to resources/assets, technology and financial services, to capacity to meet product volume and standards required by purchases, and structural deficiencies such as rural infrastructure or land tenure systems. Activities of smallholders and their degree of specialisation or income diversification depend on their assets and the broader environment in which farmers can make best use of those assets. This environment is related to aspects such as off-farm infrastructure, access to inputs and services, healthcare, schools, climate conditions, and so on.

In terms of opportunities outside of the farm, evidence suggests that in many countries, especially as the economy develops, farmers gain significant income from off-farm wages, non-farm self-employment and other commercial activities in local manufacturing and services. Rural non-farm income is positively correlated with level of development. Furthermore, the growing reliance of smallholders on off-farm income activities is linked to the provision of public good such as rural roads and better access to rural education. For instance, electricity and proximity to markets (e.g. through better roads) increases the probability of relying primarily on off-farm work. Households without access to this infrastructure tend to remain in farming.

The absence in most countries covered by this study of a systematic policy impact evaluation system makes it difficult to draw anything but reasonably general conclusions about the likely effectiveness of the agriculture policies they have implemented to support smallholders. However, the evidence does suggest a gap between the kinds of policies posited by the literature as likely to be more effective in supporting small-scale farmers and the sorts of agricultural policies actually in place. Indeed the focus of agricultural

policies in these five cases has been on policies that research has shown tend to be less effective in the longer term. Most of the programmes directed to smallholders fall into the PSE categories of input use subsidies. These subsidies in the short-run tend to increase output and can generate surpluses that can allow market participation. But it is known that, even when they try to address market imperfections, this type of support tends to crowd out private markets and distort markets and in the long-run turns out to be highly costly (OECD, 2005b; Van Tongeren, F. 2008; OECD, 2012a; OECD, 2013a). These subsidies also reduce farm-level incentive for productivity growth, which contradicts longer-term policy objectives. Input subsidies have been found to perform poorly in terms of raising the incomes of farm households (OECD, 2012a). Moreover, this type of subsidy can lead to environmental hazards if they are misused, as is often the case of fertiliser subsidies (OECD, 2001; OECD, 2003; OECD, 2012a).

The objective of most of the programmes in each of the five countries is to help smallholders to improve productivity and ultimately create surpluses for the market. However, while the programmes in place could achieve their objectives in the short term, it is likely that in the long term they do not contribute to structural transformation as this type of support encourages agricultural activities regardless of whether they are economically viable or not. Furthermore, for the majority of programmes in these countries an “exit mechanism” does not exist in which farmers can “graduate” from the programme, which may create a condition where farmers benefit from the resources allocated by the government even if they do not meet the requirements anymore (i.e. do not need it). This can lead to situations where farmers lack incentives to diversify their income or to increase their productivity (OECD, 2010).

The findings of this report would suggest that more could be done in all five countries covered to support the broader enabling environment for a sustainable agricultural development. For most of the countries general services (GSSE) expenditures are relatively low, particularly when compared with the levels of input subsidies allocated to small-scale agriculture. More outlays to general services to the sector would be consistent with the findings in the literature about their key role in supporting smallholder market integration and structural transformation. As well as policies that reinforce land tenure systems and promote commercial farmer associations. And since not all small-scale farms are economically viable, further attention could be paid to territorial development and opportunities to create new economic opportunities that support the structural adjustment process.

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