Food and Agriculture Organization of the United Nations

A data portrait of smallholder farmers

An introduction to a dataset on small-scale agriculture

The Smallholder Farmers' Dataportrait is a comprehensive, systematic and standardized data set on the profile of smallholder farmers across the world. It can generate an image on how small family farmers in both emerging and developing countries live their lives. It is about putting in numbers, the constraints they face, and the choices they make so that policies can be informed by evidence to meet the challenge of agricultural development.

The family farm as a firm

Across all levels of development, family farms are the dominant type of firm in agriculture. For many crops, farming over a large area requires hired labour, and hired labour requires supervision. For a family that runs a farm, supervision costs can be high relative to the benefits of operating at a greater scale. This makes the small family farm optimal as a firm.

The size of family farms, their production patterns and factor use depend on agro-ecological and soil conditions, technology, the relative prices of inputs and outputs, as well as the size of the family. Family farms are, in general, small, as high supervision costs contain the farm size. Indeed, the concepts underpinning the definitions of smallholders and family farms coincide.

In developed countries, where farmers face lower capital transaction costs and can

spread capital over large areas, some family farms can be relatively large. In developing countries, families farm small plots of land: they face low transaction costs in labour, engage more workers per hectare, who being family, are motivated to work. This gives them a productivity advantage over larger farms. In some regions, such as Latin America and East Europe, family farms coexist with large corporate farms.

Today's smallholder farm unwrapped

The success of the Green Revolution in Asia put small family farms, or smallholders, firmly on the development agenda. Productivity growth in smallholder farms contributes towards growth not only by reducing the price of staple food, but also by increasing the demand for labour in rural areas, generating jobs for the poor and raising the unskilled labour wage rate.

However, in today's modern markets, smallholder farmers must overcome considerable constraints. Sales through sophisticated channels, such as supermarkets, require greater managerial skills and an ability to provide continuity of supply and meet food safety, certification and quality requirements. Agricultural research is becoming increasingly private, focusing on technologies which are knowledge intensive, being developed for larger, commercial farms. This renders technology adoption by small farmers difficult. Smallholder farms face considerable difficulties in accessing credit, as banks are often reluctant to lend due to poor collateral and lack of information. These market failures potentially offset any advantage small farmers may have in productivity.

Smallholder farms and development from one region to another

The differences in family farms between countries are significant. Equally significant are the differences in the stages of structural transformation across regions. Africa has been bypassed by the Green Revolution and a share of its people experience extreme poverty and hunger. Paradoxically, Africa has been urbanizing fast, but labour productivity in agriculture is low and farm sizes decline. The development agenda highlights the need to stimulate labour productivity in smallholder farms through technical change and promote market participation.

Latin America is now urbanized and in many countries smallholder farms coexist with larger commercial farming enterprises. Within the family farm sector, the inequality is pronounced, in spite past land reform policies. Extra efforts may be needed not to bypass or squeeze out smallholder farmers. Some policy prescriptions for growth incline towards increasing smallholder competitiveness, or expanding their asset base through further redistributive interventions. Other measures focus on longer run solutions, and tend to favour enhancing human capital and managing rural poverty through cash transfers.

Asia offers many positive lessons on agricultural development but rural poverty remains a problem. In spite of agricultural productivity increases and the fast-growing industrial sector, many Asian countries have undergone a structural transformation characterized by a slow rate of urbanization. Although farmers close to urban centres are becoming increasingly commercial due to strong demand by consumers – who are rapidly diversifying and enriching their diets

– more and more smallholder farmers are cut off from modern supply chains. Rural population growth, in conjunction with slow urbanization, also means that policy makers should pay attention to the rural non-farm sector through the creation of a large number of jobs outside agriculture.

The need for information

Across the development policy fora, there is no clear consensus on the likely future direction of small family farm agriculture. Smallholders are the centre of interest by many, but opinions differ on where it is best for them to be in the future. The focus on the importance of structural transformation is weak.

This lack of focus is strongly reflected on the availability of information on small-scale agriculture. In spite of the wealth of data, in the form of censuses and household surveys, a comprehensive, systematic and standardized data set on the profile of smallholder farmers across the world has still to be developed. There is need to know, how much and what food is produced by smallholder farmers, how much of their income is generated by farming, how much produce they sell, which is their asset base and much more.

Such information will generate an array of benefits: first, it will underline the strengths but also the weaknesses of small-scale family agriculture in many countries, highlighting its linkages with the rural and wider economies and help assess the potential for development; second, it will uncover the main constraints to agricultural development and underscore their importance across countries and regions; third, it will provide valuable insights for the formulation of policy options at national, regional and global levels; and, fourth, it will serve as a platform for advocacy for the role of smallholder farms in growth, emphasizing the fact that their evolution is both the cause and the effect of development.

This note introduces a systematic data set for smallholders covering many countries across the world, both developing and emerging. The dataset – being developed in FAO – estimates the number of smallholders and with eight concise indicator groups draws a portrait of smallholder agriculture. In other words, the data 'take stock' of smallholder farmers across countries, identify their characteristics in terms of production, technologies, capital assets, access to markets, contribution to rural income, well being, food security and poverty, and, to some extent, highlight the effects of policies and programmes.

Who and how many

There is no unique and unambiguous definition of a smallholder. Often scale, measured in terms of farm size is used to classify farmers. Often, households with less than a threshold land size may be characterized as smallholder. For example, smallholders are often those who farm less than a threshold size of 2 hectares. However, across countries, the distribution of farm sizes depends on a number of agro-ecological and demographic conditions and economic and technological factors.

An effort to identify smallholders and vary the threshold size from one country to another, thus taking into consideration agro-climatic conditions was made for a limited number of countries by FAO.[1] The *Data*

[1] FAO (2010). Policies and institutions to support smallholder agriculture. Committee on Agriculture, 22nd Session, 2010.

Portrait for Smallholder Farmers does utilize thresholds that take into consideration country-specific factors. The middle-sized farm is one such threshold.[2] It is determined by the hectare weighted median and is calculated by ordering farms from smallest to largest and choosing the farm size at the middle hectare as the threshold to choose smallholders and non smallholders in each country.

This threshold for smallholder farms and the indicators, are estimated utilizing household surveys, such as the FAO Rural Income Generating Activities database and the Living Standards Measurement Surveys, in combination with agricultural censuses and other information.

The Data Portrait

The *Smallholder Farmers' Data Portrait* has a number of attributes. First, it is being developed t be as 'global' as possible. Second, it provides a clear picture of smallholder agriculture, bringing out its strengths and weaknesses: Scale, productivity, technology, commercialization and well-being. Third, it is designed in such a way as to reveal differences between countries and regions in terms of structural transformation; and fourth, it includes policies and programmes to any extent possible.

About 30 indicators are adequate to draw a clear portrait of smallholder agriculture. Table 1 shows these indicators, organized in 8 groups, which through the data, depict the main characteristics of smallholders. General indicators, such as the average smallholding size and the number of smallholders, provide an overall idea about farm structure in each country. Production indicators take into account food and non food commodities, as well as productivity. Income and pluri-activity indicators show how income is generated on- and off-farm and assess whether smallholder farm households are classified as poor or non poor. They also underscore the importance of farm and non-agricultural activities.

Data on labour highlight the importance of family farm as a firm, but also that of the rural economy in supporting livelihoods, by illustrating both the demand and the supply of rural labour. Capital and inputs reflect the base of productive capital of smallholder farms, together with irrigation investments and mechanization. Innovation and technology are covered by data on the use of improved seeds, which reflects the adoption of technology, together with the use of extension services.

Access to output and input markets describe the extent of commercialization of small farms. Information on the access to credit also provides a pointer for investment. Transport and communication infrastructure are also portrayed. The inclusion of policies and programmes in the data portrait, when available, can support the assessment of their effectiveness. Demographic indicators also introduce gender and youth dimensions in underpinning both food security, but also investment.

[2] Key, N. and M. Roberts (2007). Measures of trends in farm size tell differing stories. Amberwaves, November.

Table 1 – Indicators of the smallholder farmers' data portrait

	Indicator group	*Indicators*			
1	**Farm size**	Average (hectares)	Minimum, Maximum (hectares)	Number of holdings	
2	**Production**	Value of crop production (constant 2009 Int.$)	Value of food produced (constant 2009 Int.$)	Value of food production per hectare (constant 2009 Int.$)	Value of food production per working day (constant 2009 Int.$)
3	**Income, pluri-activity and poverty**	Household income (constant 2009 Int.$)	Shares of income from different sources	Poverty headcount	
4	**Labour**	Family labour days supplied on-farm over a day (person days)	Hired labour days supplied over a day (person days)	Family labour days supplied off-farm over a day (person days)	
5	**Capital and inputs**	Livestock (in Tropical Livestock UnitsTLU)	% of households using motorized equipment	Irrigation (% of land)	Fertilizer and Seeds per hectare (in kg and in constant 2009 int.$)
6	**Innovation and technology**	% of improved to total seeds	% of households using improved seeds	% of households recipient of extension services	% of household owning a telephone
7	**Access to markets**	% of agricultural production sold	% of expenditure for inputs on value of production	Credit and credit programmes (no. of beneficiary households)	Distance of household from road (in km)
8	**Demographics**	Years of education of the household head	Household size		

Notes:

1. Farm size refers to average land operated by the family for crop production in hectares. Minimum and maximum farm sizes for smallholder and other farms are also reported.
2. Value of crop production includes all crops produced on the farm. Value of food produced excludes cash crops.
3. Household income refers to gross annual earnings from all income generating activities (i.e. on-farm, agricultural wages, off-farm self-employment or wage earning, transfers and other).
4. Family labour days on-farm supplied over a day refer to the total number of person-days family members spend on- farm during one working day. Hired labour days on-farm and family labour days in off-farm activities are computed similarly.
5. All animals are included in the calculation of livestock in Tropical Livestock Units. Depending on the country, these refer to horses, donkeys, oxen, cows, sheep, goats, lambs, pigs, chicken, and ducks.
6. % of improved to total seeds is the ratio between quantity of improved seeds to the total quantity of seeds.
7. % of expenditure for inputs on value of production refers to the ratio between the total value of inputs to the value of agricultural production.
8. The average years of education at school is reported for the head of the household.