



# Moving Up or Moving Out? Insights into Rural Development and Poverty Reduction in Senegal

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**Summary.** — While worldwide progress in poverty reduction has been impressive, Sub-Saharan Africa is lagging behind with slow growth and a high-poverty headcount ratio. There are fierce debates on how Sub-Saharan Africa can foster pro-poor growth and the role of agriculture and small- versus large-scale farming in poverty reduction. We contribute to this debate with micro-economic empirical evidence from the Senegal River Delta, an area that recently experienced rapid rural development. We use household survey data from two panel rounds in 2006 and 2013 and a cluster analysis to investigate livelihood, income, and poverty dynamics in the region. We find that with 4.3% annual growth in average household income, 29.5 percentage points' poverty reduction, and 4.2 percentage points' inequality reduction over the period 2006–13, development in the Senegal River Delta region has been remarkably pro-poor. Income growth and poverty reduction have been most impressive among households moving into wage employment on large-scale horticultural export farms and in an emerging service sector. Income growth in small-scale agriculture and non-farm businesses has been more modest but has affected the largest number of households. Transformation in both farm and non-farm sectors has driven rural development in the Senegal River Delta region, and investments in both large- and small-scale agriculture have contributed importantly to household income growth and poverty reduction. Our findings imply that (foreign) investments in large-scale commercial and export-oriented farming can trigger pro-poor growth—directly through employment effects and indirectly through investment and consumption linkages with the small-scale farm and non-farm sector.

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## 1. INTRODUCTION

The first Millennium Development Goal to halve by 2015 the proportion of people who are poor has been met. Worldwide progress in poverty reduction has been impressive: the global poverty headcount ratio decreased from 37.1% in 1990 to 12.7% in 2012<sup>1</sup> (World Bank, 2015). Yet, progress in poverty reduction is lagging behind in Sub-Saharan Africa (SSA), especially in rural areas. The SSA poverty headcount ratio remains high at 42.7% in 2012 and has decreased only with 14.1 percentage points from the 1990 ratio (World Bank, 2015). Strategies to further reduce poverty and stimulate, especially rural, development are still highly needed. The target of eradicating extreme poverty completely by 2030 in the new Sustainable Development Goals, will require substantial attention to development in rural areas in SSA as this is where the incidence and depth of poverty remain most problematic.

Economic development paradigms and the role of agriculture in economic development and poverty reduction have been debated intensively. Throughout the past half a century the overall development paradigm has shifted from a narrow focus on structural transformation through rapid industrialization in the 1960s and 1970s; to a focus on agricultural transformation as an important component of structural transformation and pro-poor economic growth in the 1980s and 1990s; and to contemporaneously opposing schools of thought (Diao, Hazell, & Thurlow, 2010). The recent debate includes advocacy of agricultural transformation as an essential component of economic development and poverty reduction (e.g., Byerlee, de Janvry, & Sadoulet, 2009; Christiaensen, Demery, & Kuhl, 2011; World Bank, 2007) as well as scepticism, and even pessimism, about the role agriculture has to play in fostering pro-poor growth (e.g., Dercon & Gollin, 2014; Ellis, 2005; Maxwell & Slater, 2003). In recent

years, the debate has become more complex and turned to the importance of small-scale versus large-scale agriculture in economic development (e.g., Collier & Dercon, 2014; Larson, Muraoka, & Otsuka, 2016; Wiggins, Kirsten, & Llambí, 2010) and food versus export sector development (e.g., Diao & Dorosh, 2007; Diao & Hazell, 2004; Rosegrant, Paisner, Meijer, & Witcover, 2001). These debates are especially fierce when it concerns Sub-Saharan Africa (SSA), where growth and poverty reduction are lagging behind.

In this paper, we provide micro-economic empirical evidence in this debate. We investigate livelihood and poverty dynamics in the Senegal River Delta area in Senegal over a period of seven years. During that period, the region has experienced substantial poverty reduction—much faster than in other parts of Senegal or SSA in general—and rapid rural development, which makes it a particularly relevant case to assess the factors contributing to rural development. We use household survey data from two panel rounds in 2006 and 2013 to estimate livelihood, income, and poverty dynamics in the region. We apply a cluster analysis to classify households in livelihood strategy groups, to reveal which groups

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improved their well-being most and which income sources were most important in household income growth. We discuss our findings in light of the debates on structural and agricultural transformation, and on small- and large-scale farming. Our results point to complementarities between structural and agricultural transformation and between small- and large-scale farming. While most evidence in these debates comes from macro-economic and cross-country studies, we provide complementary micro-economic evidence and in-depth insights from an area that has been particularly successful in increasing rural incomes and reducing poverty. In-depth knowledge from such a success-story can provide substantiation in the debate on rural development. We take into account the dynamics and complexity of rural development using panel data and a livelihood approach. Our approach is complementary to more quantitative impact evaluation that often focuses on a single causal impact and fails to capture complexity and heterogeneity across rural households; and to existing livelihood studies that most often use cross-sectional data and fail to capture dynamics over time.

## 2. LITERATURE REVIEW

The role of agriculture in economic development and poverty reduction has been debated intensively during the past half a century. Inspired by Lewis' (1954) idea of dual economic structures, development economists in the 1960s and early 1970s believed in structural transformation—an increase in per capita income associated with a declining share of agriculture in GDP and employment—and economic development through rapid industrialization. Agriculture was considered a backward sector not contributing to overall economic growth and only of importance to guarantee food supply and keep food prices from rising. Underpinned by the observations of Schultz (1964) and Ruttan and Hayami (1971) that farmers are efficient and adopt technological innovations, the paradigm changed to agricultural transformation—the transformation of a low-input low-return agricultural sector to a modern science-based and high-return agricultural sector—being an essential component of (early) structural transformation and economic development. Through new agricultural technologies and agricultural intensification, agricultural development was thought to contribute to overall economic growth—directly through increasing productivity within agriculture, and indirectly through linkages with the non-farm sector and growth multiplier effects (Delgado, Hopkins, & Kelly, 1998; Haggblade, Hazell, & Brown, 1998; Haggblade, Hazell, & Reardon, 2010; Irz, Lin, Thirtle, & Wiggins, 2001). The agricultural transformation paradigm has been substantiated by the Green Revolution in the 1970s in Asia, where technological innovations and agricultural intensification resulted in agricultural growth and through growth multiplier effects—especially through backward and forward production linkages with the agro-input and food-processing industry—also in overall economic growth.

More recently, agricultural transformation has been argued to be important not only because of growth multiplier effects and the contribution to overall economic growth but particularly because it fosters pro-poor economic growth and reduces inequality (Byerlee *et al.*, 2009; Ravallion & Chen, 2003). Christiaensen *et al.* (2011) and Diao *et al.* (2010) provide cross-country econometric and case-study evidence that in SSA agricultural growth is more effective in reducing poverty than non-agricultural growth. However, proponents of agriculture-led growth strategies do argue that in addition to

technological innovations and intensification, agricultural transformation also requires supply chain innovations in order to create better access to markets, more efficient exchange, and increased value-adding (Byerlee *et al.*, 2009).

Yet, scepticism and pessimism about agriculture-led growth in SSA is arising as well (Dercon & Gollin, 2014; Ellis, 2005; Maxwell & Slater, 2003). Sceptics recognize the importance of agricultural transformation for poverty reduction but argue that after decades of stagnating yields and poor performance, the agricultural sector in SSA failed to be a major driver of overall economic growth. Dercon (2009) points out that because of increased globalization and downward pressure on food prices, intersectoral linkages and the potential for growth multiplier effects are less strong in SSA today than they were in Asia at the time of the Green Revolution. Opponents of agriculture-led growth strategies focus on diversifying rural incomes away from agriculture and migration to urban areas (Collier & Dercon, 2014). Using data from five African countries, Dorosh and Thurlow (2016) find that poverty elasticities of non-agricultural sector growth, including services and manufacturing (also agro-processing), are often close to elasticities of agricultural sector growth—and sometimes exceed them.

On the other hand, Diao *et al.* (2010) argue that many rural households in SSA have diversified their incomes into off- and non-farm activities for decades, without resulting in rapid income growth. The return to off- and non-farm activities is often observed to be smaller than the return to farm activities (Andersson Djurfeldt & Djurfeldt, 2013), and diversification is said to serve income smoothing rather than income growth (Barrett, Reardon, & Webb, 2001; Davis *et al.*, 2010; Haggblade *et al.*, 2010; Rigg, 2006).

In recent years, the debate has become more complex and turned to the role of smallholder farming versus large-scale farming in fostering agricultural and structural transformation and economic development. Some authors argue that pro-poor growth in SSA should emerge from productivity increases in smallholder agriculture (Larson *et al.*, 2016; Mellor & Malik, 2017; Wiggins *et al.*, 2010). The advocacy of smallholder farming is based on the hypothesis of an inverse farm size—productivity relation and the resulting higher allocative efficiency on smallholder farms; and on the experience with the Green Revolution in Asia which has been largely smallholder based. Increasing smallholder farm incomes may directly result in poverty reduction and additionally create multiplier effects through consumption linkages because smallholders are more likely to be poor and to spend additional income on locally produced non-agricultural goods and services, thereby stimulating the rural nonfarm economy.

Others are more sceptical and question the exclusive focus on smallholder agriculture as development paradigm in SSA (Collier & Dercon, 2014; van Vliet *et al.*, 2015). An argument in favor of large-scale farming is that while smallholders may allocate resources more efficiently and operate at a higher allocative efficiency, large-scale farms are more likely to operate closer to the technical frontier at a higher technical efficiency (Collier & Dercon, 2014). There is a parallel debate on whether agricultural transformation is associated with export sectors or domestic food sectors (Diao *et al.*, 2010). While some argue that the development of export sectors, especially non-traditional export sectors, creates opportunities for pro-poor growth (Aksoy & Beghin, 2004; Swinnen, 2007), others have argued that the contribution of such export sectors to overall growth is limited and that the largest potential lies in the development of food sectors for domestic and regional markets (Diao & Dorosh, 2007).

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