Agriculture for Development: Toward a New Paradigm

by

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Abstract

The fundamental role that agriculture plays in development has long been recognized. In the seminal work on the subject, agriculture was seen as a source of contributions that helped induce industrial growth and a structural transformation of the economy. However, globalization, integrated value chains, rapid technological and institutional innovations, and environmental constraints have rapidly changed the context for agriculture's role. We argue that a new paradigm is needed that recognizes agriculture's multiple functions for development in that emerging context: triggering economic growth, reducing poverty, narrowing income disparities, providing food security, and delivering environmental services. Yet, governments and donors have neglected these functions of agriculture with the result that agriculture growth has been reduced, 75% of world poverty is rural, sectoral disparities have exploded, food insecurity has returned, and environmental degradation is widespread. Mobilizing these functions requires shifting the political economy to overcome anti-agriculture policy biases, strengthening governance for agriculture, and tailoring priorities to country conditions.

Keywords

Agriculture, development, strategies, policies, poverty reduction

Introduction

A rich literature, both theoretical and empirical, has examined the process of structural transformation of economies, from the least developed in which economic activity is based largely on agriculture, to the high-income in which agriculture typically accounts for less than 5 percent of GDP. This literature has articulated agriculture's role as the precursor to the acceleration of industrial growth from England in the mid-18th century to Japan in the late-19th century, and much of Asia in the late 20th century (Bairoch, 1973; Timmer, 1988; Diao et al., 2005). The structural transformation where the share of agriculture in employment and GDP declines as per capita income rises is a stunning regularity (Figure 1).

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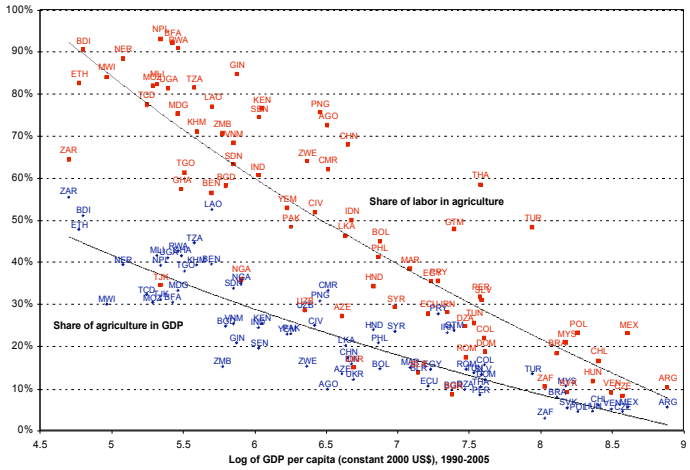


Figure 1. The structural transformation as income per capita rises

The thinking on the role of agriculture in this structural transformation has evolved over time. Classical theorists, led by Lewis (1954), viewed economic development as a growth process of relocating factors of production from an agricultural sector characterized by low productivity and the use of traditional technology to a modern industrial sector with higher productivity. Lewis' theory was employed to support the industrialization-led strategies adopted by many developing countries during the 1950s and 1960s, which resulted in a pronounced "urban bias" in policy and investment decisions throughout this period (Staatz and Eicher, 1998). Although labor was believed to be surplus in the rural sector, agricultural growth was seen as a precursor of industrialization to ensure the supply of food, and to prevent rising food prices and nominal wage costs from undermining industrial development (Lele and Mellor, 1981)

Beginning in the 1960s, a major revision in development thinking argued for a central role for agriculture as a driver of growth, especially in the early stages of industrialization (Johnston and Mellor, 1961). This view of agriculture's lead role, stimulated in large part by the emerging experience in Asia, was founded on two core contributions. First, it was recognized by leading scholars such as Schultz (1964) and Hayami and Ruttan (1971) that traditional agriculture could be transformed rapidly into a modern sector through the adoption of science-based technology, thereby making a large contribution to overall growth. Second, economists now explicitly identified the strong growth linkages and multiplier effects of agricultural growth to the nonagricultural sectors (Mellor, 1998). A large share of manufacturing in the early stages of development is agriculturally related. More importantly, rising incomes of rural households were seen as vital to providing a market for domestically produced manufactures and services (Adelman, 1984). In addition, technological change and productivity growth in agriculture were linked to lower food prices in a closed economy model, which in turn held down urban wage costs and stimulated competitive exports of industrial products (Hsieh and Sadoulet, 2007).

Following the Green Revolution experience in Asia, it was argued that these growth and employment linkages are most powerful when agricultural growth is driven by broad-based productivity increases in a rural economy dominated by small farms, as in much of Asia (Mellor, 1976). Small- to medium-sized farm households typically have more favorable expenditure patterns for promoting growth of the local non-farm economy, including rural towns, since they

spend higher shares of income on rural non-traded goods and services, which are also generally more labor intensive (King and Byerlee, 1978; Haggblade, Hazell, and Reardon, 2008).

Despite broad acceptance of the structural transformation paradigm, this paper argues that it is time to rethink agriculture's roles in development for two reasons. First, the structural transformation models even with their more nuanced view of the role of agriculture still see agriculture as the handmaiden of industrialization. Yet, given the sheer size of the agricultural sector with an estimated 2.5 billion persons dependent on this activity, with three-quarters of all poor people living in rural areas, and with agriculture as the largest user of natural resources, it is increasingly recognized that realization of the global development agenda will not be possible without explicitly focusing on the role of agriculture *for* development rather than agriculture *in* industrialization.

This recognition of agriculture's broader roles for development started in the 1970s with the focus on equity and employment, and the growing evidence that productivity growth across millions of smallholders was strongly pro-poor. During the 1990s, the development community explicitly recognized poverty reduction as the major objective of development programs and a burgeoning literature started to demonstrate the links between agriculture and poverty reduction (Timmer, 2002; Thirtle, Lin, and Piesse, 2003; Christiaensen and Demeny, 2007).

Meanwhile, since the 1992 Earth Summit in Rio, the central role of agriculture for meeting the environmental agenda has been widely recognized, given that agriculture is the major user and often abuser of natural resources. This broader agenda was enshrined in the eight Millennium Development Goals agreed to in 2000 by all 191 United Nations member states. Agriculture relates to nearly all these goals, and is central to at least three of them—reducing poverty and hunger, fostering gender equality, and sustainable management of the environment. In addition, agriculture's role in economic growth remains critical to achieving all these goals.

Second, even within a broader paradigm of agriculture for development, the world in which agriculture operates has changed drastically due to globalization, new technologies and institutions, and new more demanding markets. Globalization has spurred rapid growth in demand for agricultural exports especially for higher value products, while opening the potential for developing countries to import food. At the same time, tightly coordinated supply chains have emerged that now operate on a far larger scale, which have unleashed a massive transformation in the organization of agricultural markets. Similarly new biotechnologies, as well as emerging new markets for agriculture such as the production of biofuels and the provision of environmental services for the mitigation of climate change, offer scope for faster growth of the sector. Finally, major institutional innovations in governance, civil society organizations, and services such as finance, insurance, and information services imply a greatly increased role of the private sector and civil society, and a more decentralized but smaller presence of the state.

Some of these changes are favorable to an agriculture-for-development agenda. Expanded markets for labor-intensive nontraditional exports create new opportunities for farmers in developing countries. But other changes challenge the implementation of this development agenda. The competitiveness of agriculture in the poorest countries and the viability of the family farm are called into question by restricted access to proprietary technological innovations,

economies of scale in provisioning more demanding supply chains, and a declining role and capacity of the state in servicing the small farm sector.

This paper reviews these wider roles of agriculture for development and argues that, even in the dramatically changed context of the 21st century, agriculture remains critical to the development agenda. Departing from the standard structural transformation paradigm, the paper outlines agriculture's multiple roles in five central pillars of the development agenda—economic growth, poverty reduction, equity including by gender, food security, and environmental sustainability—identifying important synergies and tradeoffs between them.

Yet despite the powerful arguments for raising the profile of agriculture for development, the political economy of national development strategies and international development assistance has widely shortchanged the sector. The final section addresses this political economy and suggests ways to maintain the momentum in the wake of renewed interest in agriculture for development, following the 2008 global food crisis.

Agriculture as a Trigger of Economic Growth

Agriculture's central role in growth is the major contribution of the more recent literature on structural transformation discussed above. A key question is whether agriculture continues to be an effective engine for growth especially in late developing countries, mostly in Africa, in light of the rapidly changing context and the potential to import food. We argue that the answer is yes both in terms of the importance of domestic food production as well as the comparative advantage of agriculture in export-led growth in the early stages of development.

Many staples in Africa are nontradable, either due to local preferences (e.g., banana plantain in Central Africa) or high transactions costs (e.g., cassava). In addition, in many countries, because of frequent shortages of foreign exchange for importing substitute cereals, food production has to keep up with domestic demand in order to maintain affordable food prices which are critical to overall growth. Even in countries of Asia that have experienced a Green Revolution, increasing yields for staple crops remains critical for growth. Staple crops are still the largest agricultural sub-sector (slightly more than a third of agricultural output in China and India, and slightly more than half in Vietnam). Many of these countries have rice as the major staple, and given their size relative to world markets, they need to continue to produce most of their food domestically to secure low-cost food essential for growth.

In addition, agriculture is often the lead export sector and foreign exchange earner since it is the sector with strong comparative advantage in the early stages of development. Most African countries are relatively rich in natural resources, but poor in skilled labor, suggesting comparative advantage for unprocessed primary products. This is re-enforced by a weak business investment climate in terms of infrastructure (roads, electricity, communications) and institutions (legal, financial, regulatory) that constrain private investment in the formal manufacturing and service industries. In some countries, a combination of natural resources, human capital endowments, and an improving business environment point to comparative advantage in processed primary commodities, as a potential entry point for building a competitive manufacturing sector.

Although globalization and new dynamic producers have increased competition in traditional agricultural exports, recent successes such as coffee in Vietnam and cocoa in Ghana suggest that agricultural exports can be a major sources of growth. In Ghana, increased productivity in cocoa has been a major driver of its successful agricultural growth and poverty reduction since 1995. African countries, such as Senegal, Kenya, and Ethiopia, are also increasingly successful in rapidly growing exports markets for horticultural products and flowers.

Even if there is general agreement on the importance of agriculture in economic growth in the early stages, it is sometimes argued that rapid agricultural growth will be difficult in Africa because of an inherently unfavorable agro-ecological base, degraded soils, low population density, poorly functioning markets, and competition from the rest of the world (Maxwell, Urey, and Ashley, 2001). Yet agriculture has been the most dynamic sector in Africa with growth rates of 3.7 percent annually exceeding the growth in the nonagricultural sector over the 1993-2005 period. Over the long term in most countries agriculture is likely to grow more slowly than nonagricultural sectors, given Engel's Law according to which, as incomes rise, the proportion spent on food falls. However, globalization can also help relax this constraint by providing access to deeper markets with highly elastic demands for products such as fresh horticultural and organic produce and animal and fish products.

Agriculture's Power for Poverty Reduction

Three out of four poor people in developing countries—890 million people—lived in rural areas in 2002. Even with rapid urbanization, the developing world is expected to remain predominantly rural in most regions until about 2020, and the majority of the poor are projected to continue to live in rural areas until 2040 (Ravallion, Chen, and Sangraula, 2007). This reflects a large and persistent gap between the share of agriculture in GDP and the share of agriculture in the labor force due to the slow movement of labor out of agriculture, as seen in Figure 1.

The persistent concentration of absolute and relative poverty in rural areas even with rapid economic growth, illustrates the difficulty of redistributing income generated outside of agriculture and the deep inertia in people's occupational transformation as economies restructure. Migrating out of agriculture to urban areas is often hampered by lack of information, cost, skill gaps, aging, and family and social ties.

There is now overwhelming evidence that growth in the rural economy is essential for reducing poverty in most developing countries. From a simple decomposition analysis, 81 percent of the worldwide reduction in rural poverty during the 1993–2002 period can be ascribed to improved conditions in rural areas; migration accounted for only 19 percent of the reduction (World Bank, 2007).[2]

Cross-country econometric evidence indicates that GDP growth generated in agriculture is particularly effective in benefiting the poor. Among 42 developing countries over 1981–2003, one percent GDP growth originating in agriculture increased the expenditures of the five poorest

[2] This decomposition abstracts from indirect effects of urbanization on rural poverty through remittances and rural wage changes through tighter rural labor markets. Yet, it also conservatively assumes that all rural-urban migrants are poor, which is unlikely because migrants are often the more educated and entrepreneurial.

deciles on average by 3.7 percent, far more than the 0.9 percent induced by one percent GDP growth originating in the rest of the economy (Ligon and Sadoulet, 2007). Similarly, Bravo-Ortega and Lederman (2005) find that an increase in overall GDP coming from agricultural labor productivity is on average 2.9 times more effective in raising the incomes of the poorest quintile in developing countries than an equivalent increase in GDP coming from nonagricultural labor productivity.

Similar results hold for the agricultural growth-poverty linkages at the country level. In China, where land is relatively equally distributed, the reduction in poverty was almost four times higher from GDP growth originating in agriculture than from GDP growth originating in industry or services (Ravallion and Chen, 2007). Rapid agricultural development also contributed substantially to the dramatic poverty reduction in Vietnam over the past 15 years and is likely to remain an important pathway out of poverty for many of Vietnam's poor (van de Walle and Cratty, 2004). But in some countries rural poverty did not decline, despite rapid agricultural growth--for example, in Bolivia, Peru, and Brazil where growth was concentrated in an export-oriented sector of large capital intensive farms.

Some of the impact of agricultural productivity growth on poverty reduction is obtained directly through raising farm incomes, but much of it is indirect through employment and food prices. Econometric studies of India for 1958–94, where many of the rural poor are landless, report price and wage effects of food crop productivity to be more important in reducing rural poverty in the long run than direct effects on farm profits, which dominated in the short run (Datt and Ravallion, 1998). Although lower food prices reduce farm incomes, the experience from the Green Revolution in Asia was that total factor productivity rose faster than the decline in food prices, leading to a win-win for poor producers and consumers (Lipton, 2005). In addition to the urban poor and the rural landless, more than half of poor farm households are typically net food buyers who benefit by lower food prices. When a food crisis hits, a majority of poor smallholders are in fact hurt by rising prices, a somewhat counterintuitive outcome.

With rising incomes, growth is increasingly driven by the rapidly expanding demand for livestock products and high-value crops, which are also more labor intensive. The poverty impact of growth in the agricultural sector will thus depend increasingly on the poor connecting to these new growth processes, either as smallholders or as laborers in large farms. Vertically integrated supply chains and supermarkets pose particular challenges for them, although recent evidence from China suggests that small and poor farmers can take an active part in the rapidly expanding horticulture economy (Wang et al., 2006). A similar pro-poor pattern holds for India's dynamic dairy industry. Success stories in smallholder competitiveness in high value activities typically depend on membership in effective producer organizations that can address the challenges of economies of scale in marketing and processing.

Agricultural productivity growth also contributes to poverty reduction by stimulating rural non-farm growth, especially where infrastructure and the investment climate are already in place (Barnes and Binswanger, 1986; Hazell and Haggblade, 1991). In India and Indonesia, growth in rural services was estimated to contribute at least as much as growth in agriculture toward reducing poverty.

Addressing Widening Disparities

Rural-urban disparity

Even in countries that have experienced rapid reduction in rural poverty, mostly in Asia, disparities between rural and urban incomes have tended to widen. In a sample of almost 70 countries, the median urban income (consumption) is at least 80 percent higher than rural income in half the countries. These differences have been increasing in many countries. In India, rural and urban incomes were fairly similar in 1951, but the gap has since widened substantially. In China, the gap between urban and rural incomes narrowed in the early reform years, when rapid agricultural growth drove overall economic growth, but it has since opened again from a ratio of 2.1 in 1993 to 3.5 in 2002 (Yang, 1999; Ravallion and Chen, 2007). In China the incidence of urban poverty declined twice as fast as that of rural poverty between 1980 and 2001; in Indonesia, 2.5 times as fast over the same period; and in Thailand 3.7 times as fast between 1970 and 1999.

These growing rural-urban gaps have often been accompanied by widening regional imbalances among rural areas in many countries. Example abound of lagging regions within countries of above-average agricultural performance—northeast Brazil, Bihar in India, the Peruvian highlands, and western China.

In the short to medium term, rising inequality is causing social and political tensions. This is being reflected in recent efforts in countries with diverse political systems, from India to China, to focus policies on raising rural incomes. Over the long term, growing inequality is likely to reduce overall growth as well (World Bank, 2005).

Policies that alter the terms of trade toward agriculture through subsidies and protection might be a quick fix to rising disparities. But weak fiscal capacity to sustain transfers large enough to reduce the income gaps, as well as competition from extensive unmet demands for public goods and continuing urban demands for low food prices, create a policy dilemma (Hayami, 2005). Raising autonomous incomes in agriculture and the rural non-farm economy via competitive investments must therefore be the essence of the solution.

Gender disparities

Another major source of inequality, too often unrecognized, is gender differences in access to resources and markets that result in forgone agricultural output, higher levels of poverty, and food and nutrition insecurity. Given that agriculture is the largest source of women's employment, mainstreaming gender in agricultural policies and programs is essential for the success of development.

Gender inequality starts with unequal access to resources. Women are less likely than men to own land, and even when they do own land, their landholdings are smaller (Deere and León, 2003). Likewise, inequality is often embedded in the distribution of water rights, with the rights of women controlled by their husbands. This inequality is driven by weak positioning in intra-household bargaining that originates in unfavorable marital and inheritance laws, family and community norms, and unequal access to labor markets.

Because of differential access to assets, markets, and technical assistance, household welfare can often be improved by within household re-allocation of assets to women. Evidence from Burkina Faso suggests that overall output of crops grown by the household could increase by 6 percent if some labor and fertilizer were reallocated within the household from men's to women's plots (Udry et al., 1995).

Because of poor access to markets, finance, and technical advice, the role of women is often restricted to subsistence food crops with low potential to generate higher incomes. Enabling women to move beyond subsistence production and into high-value farming is a key pathway out of poverty for them, facilitated by better access to resources. Women, more than men, spend their income on food, thus improving household food and nutrition security and particularly the development of children (Katz, 1995).

A Continuing Role in Food Security

Agriculture's role in food security has shifted over time. With rapid population growth and growing food aid in Asia in the 1950s and 1960s and the global food crisis of the mid-1970s, attention was focused on food availability at the global and national levels. From the mid-1970s to the 2008 food crisis, the world was generally food secure, producing enough food to meet the dietary needs of today's global population. However, the 2008 crisis was a sharp reminder that global food security should not be taken for granted because of uncertainties from growing resource scarcity, rising energy prices, new demands such as biofuels, and climate change.

At the country level, trade can stabilize food availability and prices in countries with rising and diversified foreign exchange earnings—the case for most countries in Asia and Latin America. However, domestic food availability is still a challenge for many countries in Africa that experience some combination of negative per capita annual growth rates in staple food, large production fluctuations caused by climatic variability, low foreign exchange earnings, and landlocked status or poor infrastructure to import food staples. World price fluctuations place additional strain on import capacity and, therefore, increasing domestic food availability and stability remains essential for development in these countries.

Because of the low price elasticity of demand for food staples and the thinness of international markets, small changes in food availability translate into large spikes in domestic prices and reductions in real incomes of poor consumers, many of whom are farmers. The 2008 food price spike is estimated to have moved an additional 130-155 million people into poverty (World Bank, 2008).

However, even with adequate global supplies, over 800 million people remain undernourished and more than 5 million children die each year from causes linked to under-nutrition (Gross and Webb, 2006). Accordingly, the concept of food security evolved in the 1980s to include access—the means to acquire food, and most recently the human right to adequate food. Food access puts emphasis on food security at the level of households and individuals within households (especially women and children).

Within this broader perspective, the channels between agricultural production and food security are complex and multiple. Rising productivity increases rural incomes and lowers food prices, making food more accessible to the poor. Other investments—such as improved irrigation and drought-tolerant crops—reduce price and income variability by mitigating the impact of climatic

shocks. Productivity gains are key to food security in countries with foreign exchange shortage or limited infrastructure to import food. The same applies to households in remote areas with poor access to food markets.

For most of the malnourished, the lack of access to food is a greater problem than food availability. Today, agriculture's ability to generate income for the poor is often more important for food security than its ability to increase local food supplies. Women, more than men, spend their income on food so efforts to redress gender biases can provide payoffs to food security as well.

Beyond food supply and access, lack of dietary diversity can lead to micronutrient malnutrition, even when energy intakes are sufficient. This "hidden hunger" can cause illness, blindness, and premature death as well as impair the cognitive development of survivors. Recent experience indicates that it is possible to develop crop varieties with higher levels of vitamins and minerals, providing yet another example of the link between agriculture and food security.

Harnessing Agriculture as a Steward of the Environment

Agriculture is the major user of scarce natural resources (85 percent of the developing world's fresh water withdrawal and 42 percent of its land). It is also a leading cause of underground water depletion, agrochemical pollution, soil exhaustion, loss of biodiversity through deforestation, and an important contributor to global climate change, accounting for up to 30 percent of greenhouse gas emissions. At the same time, degradation of these natural resources undermines the basis for future agricultural production and increases vulnerability to risk.

The environmental costs of agriculture relate to both intensification and extensification strategies pursued to varying degrees in different regions. In Green Revolution areas, agricultural intensification has generated environmental problems from reduced biodiversity, mismanaged irrigation water, agrochemical pollution, and health costs and deaths from pesticide poisoning. The rapid rise of intensive livestock production in middle income countries has its own environmental costs through animal waste and the spread of animal diseases such as avian influenza.

Yet areas that have not experienced intensification, especially in Sub-Saharan Africa, suffer from deforestation, soil erosion, desertification, and degradation of pastures and watersheds from unsustainable expansion of the agricultural frontier with growing rural populations pushed into more marginal and fragile zones. For these areas, agricultural intensification—based on a "doubly Green Revolution" (Conway, 1999)—must be part of the solution. The challenge is to manage the tradeoffs from agricultural intensification by seeking more sustainable production systems and to enhance agriculture's environmental services. Many promising technological and institutional innovations can make agriculture more sustainable with minimum tradeoffs on growth and poverty reduction. For example, one of agriculture's global success stories in the past two decades is conservation tillage. This win-win approach has worked in commercial agriculture in Latin America, and among smallholders in South Asia's rice-wheat systems. In less-favored regions, community-based approaches have succeeded in many areas to better manage watersheds and forests.

But widespread adoption of more sustainable approaches has often been hindered by inappropriate policies that encourage mining of resources, such as electricity subsidies that encourage underground water extraction in India. Strengthening property rights and providing long-term incentives for natural resource management with off-farm benefits are necessary in both intensive and extensive farming areas to manage externalities. But these reforms are often politically difficult.

Agricultural can also provide positive environmental services such as clean drinking water, stable water flows to irrigation systems, carbon sequestration, and protection of biodiversity. There is growing interest in payments for these services to help overcome market failures in managing environmental externalities, especially in Latin America (FAO, 2007). Environmental certification of products also allows consumers to pay for sustainable environmental management, as practiced under fair trade or shade-grown coffee. In the future, carbon-trading schemes—especially if their coverage is extended to provide financing for avoided deforestation and soil carbon sequestration—offer significant potential to reduce emissions from land-use change in agriculture.

Managing the connections among agriculture, natural resource conservation, and the environment must be an integral part of using agriculture for development. This will not be easy—with rising competition for natural resources from non-farm sectors and new agricultural markets, such as biofuels, the tensions and tradeoffs are likely to grow.

The Under-Utilization of Agriculture's Potential for Development

The agriculture-for-development connections revealed by the evidence reviewed here have too often not been sufficiently exploited. Certainly agriculture has yet to perform as an engine of growth in most Sub-Saharan countries, where the labor force is rapidly urbanizing without per capita income growth, resulting in failed structural transformations compared to what happened in Asia. In the Sub-Saharan countries in the left panel of Figure 2, the share of agriculture in the labor force declined over the long 1961-2003 period without gains in GDP per capita; by contrast in the East and South Asian countries in the right panel of Figure 2, a declining share of agriculture in the labor force was accompanied by rising GDP per capita. Even in the "transforming countries" (defined as countries with a high share of total poverty located in the rural sector, but most of their GDP growth originating outside agriculture, see below), the rural poverty and income disparity challenges remain huge, despite spectacular progress in some countries in overall economic growth. Premature and unduly high extraction of the agricultural surplus to finance industrialization, and a lack of public investment in agriculture despite good growth potential, are key reasons for sluggish agricultural performance in many "agriculture-based" countries (defined as countries with a high share of total poverty located in the rural sector, and most of their GDP growth originating in agriculture, see below).

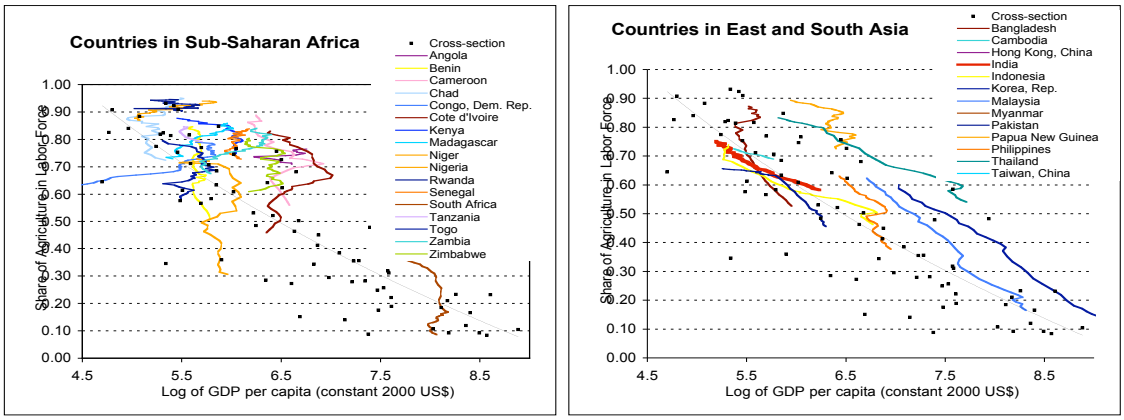


Figure 2. Contrasted structural transformations in Sub-Saharan and Asian countries

The landmark Krueger, Schiff, and Valdés (1991) study on the political economy of agricultural pricing policy documented how 16 of the 18 developing countries analyzed taxed agriculture relative to other sectors. Interventions induced a 30 percent decline in the relative price of agricultural products with respect to a nonagricultural price index. This policy bias was largest in Sub-Saharan Africa, due to overvalued exchange rates, high tariff protection in industry, and taxes on agricultural exports all contributing to the bias. And the bias was costly in foregone growth. It was estimated that a 10 percentage point reduction in total taxation to the sector would increase overall annual growth by 0.43 percentage points.

Since then, most developing countries have substantially improved their macroeconomic policy and reduced their biases against agriculture. Between 1980–84 and 2000–04 net agricultural taxation declined on average from 28 percent to 10 percent in agriculture-based countries mostly in Africa (Anderson, 2008). A large part of the gain has been through better macro-economic policies. A composite score comprising three key elements of sound macroeconomic policy (fiscal, monetary, and exchange rate) shows a clear improvement since the mid-1990s in almost all African countries (World Bank, 2007). A positive association is also observed between improvements in that score and the performance of agriculture.[3]

The structural transformation paradigm has highlighted the art of successful countries in balancing investment in agriculture and taxing it (directly and indirectly) to finance industrial development (Thorbecke and Wan, 2004; Teranishi, 1997). It was the heavy exploitation of agriculture before meaningful (public) investment in agricultural development that proved lethal in Africa. Even today, the share of public spending on agriculture in agriculture-based countries (mostly in Africa) is significantly less (4 percent in 2004) than in the transforming countries of Asia during their agricultural growth spurt (10 percent in 1980). At the same time, the share of agriculture in official development assistance declined sharply over the past two decades, from a high of 18.1 percent in 1979 to 3.5 percent in 2004.

[3] However, trade policies, especially of industrialized countries, continue to depress world prices and create a loss of 0.3 percentage points of annual agricultural output growth for developing countries (World Bank, 2007).

Well targeted public investments have high payoffs to growth and poverty reduction. In particular, high returns to agricultural research and extension have been well documented (Alston et al., 2002). Yet, agricultural spending has often been biased toward subsidizing private goods (fertilizer, credit) and making socially regressive transfers. These are overall substantially less productive than investments in core public goods (López and Galinato, 2006). The bias toward private goods often worsens as countries fiscal capacity rises, as in India, where agricultural subsidies rose from 40 percent of agricultural public expenditures in 1975 to 75 percent in 2002. Underinvestment in agriculture is thus further compounded by extensive mis-investment.

Failed agricultural development efforts such as integrated rural development in the 1970s and training-and-visit extension in the 1980s also negatively influenced spending. Poor understanding of agrarian dynamics, weak governance, and the tendency for donors to seek one-size-fits-all approaches contributed to these failures. Implementation difficulties are especially challenging in agriculture, with the cross-sectoral nature of many investments, extensive market failures requiring effective state intervention, and the need for technical skills on both the government and donor sides. This experience underlines the need to strengthen donor and country capacity for policy analysis and project design, and to invest in governance and institutions for effective implementation.

Second Chance: Renewed Interest in Agriculture for Development

The agriculture-for-development agenda presents two challenges for implementation. One is managing the political economy of agricultural policies to overcome policy biases, underinvestment, and misinvestment. The other is strengthening governance for the implementation of agricultural policies, particularly in the many developing countries where governance gets low scores.

There is evidence that the political economy has been changing in favor of agriculture and rural development. Since 2001, government and donor interest in agriculture has increased, with a sharp jump in commitments during the 2008 food crisis. For example, the World Bank has committed to double assistance to agriculture in Africa by 2010. This is happening because of higher and more volatile commodity prices; growing recognition among developing country governments and donors of the multiple roles of agriculture for development; and new approaches to agricultural development based on decentralization, participation, and public-private partnerships, with greater likelihood of success.

Rural civil society organizations are also playing a much larger role that rivals that of many government and donor organizations. The private agribusiness sector has become more prevalent and foreign private investment is now flowing into the sector, including in Africa. And large philanthropic organizations such as the Bill and Melinda Gates Foundation have become major players in assistance to agriculture. These new actors can fulfill important roles in enhancing the political economy of agriculture for development.

In this new context, strong public policy and state capacity is needed to secure desirable social outcomes, especially inclusive and sustainable agricultural growth. Yet the renewed interest in agriculture for development is fragile given weak and widely eroded state capacity following

structural adjustment policies, and complexity of the agenda. Strengthening the capacity of the state in its new roles of coordinating across sectors and partnering with the private sector and civil society is urgently needed. In most countries, ministries of agriculture are in need of far-reaching reforms. Other ministries play even greater roles in many aspects of the agenda such as the environment, nutrition, and regional development, but coordination remains weak.

By bringing government closer to rural people, decentralization holds the potential to deal with the localized and heterogeneous aspects of agriculture, especially for extension. Community-driven development can harness the potential of rural communities—their local knowledge, creativity, and social capital. Territorial development can help manage economic projects with a broader scale than the community driven development approaches.

A stronger state will not be enough. The "third sector"—communities, producer and other stakeholder organizations, and nongovernmental organizations (NGOs)—can improve representation of the rural poor and, in so doing, governance. Producer organizations can give political voice to smallholders and hold policy makers and implementing agencies accountable. Freedom of association, a free press, and investment in the social capital of rural organizations, including women's organizations, are important for such demand-side strategies of improving governance.

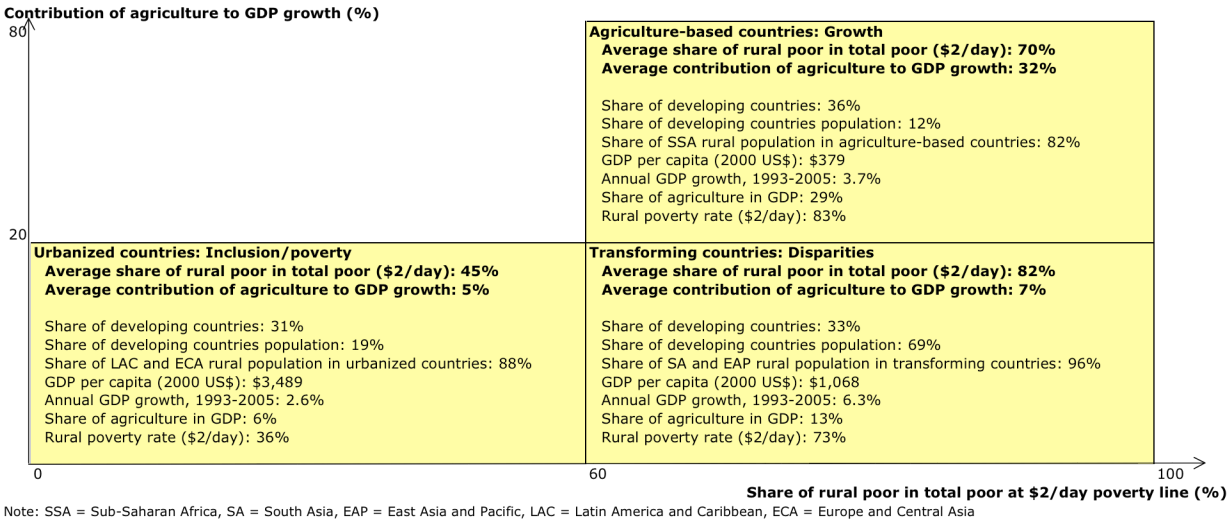
Donors must also improve their effectiveness as they scale up their investments once again. Country-led agricultural strategies and the broader poverty reduction strategy papers (PRSPs) provide a framework for donors to align their support to the agricultural sector and with each other, using the government's public expenditure and procurement systems as mechanisms for program implementation. However, technical skills in agriculture in donor organizations have been severely depleted and must be adjusted to the new conditions if agriculture is to be effectively used for development.

Finally, the agriculture-for-development agenda cannot be realized without more and better international commitments. The global agricultural agenda has a multiplicity of dimensions: establishing fair rules for international trade, agreeing on product standards and intellectual property rights, facilitating R&D spillovers for the benefit of the poor, avoiding such negative spillovers as animal diseases, conserving the world's biodiversity, and mitigating and adapting to climate change. Current international organizations – that were largely defined in the 1950s in a vastly different world for development – are poorly prepared for this new agenda, and institutional reforms and innovations are needed to rebuild capacity in agriculture and facilitate greater coordination across international agencies and with the new actors in the global arena, including civil society, the business sector, and philanthropy.

Setting priorities in agriculture for development: Typology of functions

In the paradigm of agriculture fulfilling multiple functions for development, priorities in using these functions must be clearly established. This is important as there are usually trade-offs in achieving these functions. For instance, how growth is achieved has strong implications for poverty reduction, income disparities, and environmental impacts. But the main functions that agriculture provides for development vary across countries depending on the structure of poverty and the importance of agriculture as a source of growth. The *World Development Report 2008*

(World Bank, 2007) summarized these contributions by categorizing countries according to the contribution of agriculture to GDP growth over the period 1991-2005 and the most recent estimate of the share of the rural poor in the total number of poor, using the $2-a-day poverty line (Figure 3).



Note: SSA = Sub-Saharan Africa, SA = South Asia, EAP = East Asia and Pacific, LAC = Latin America and Caribbean, ECA = Europe and Central Asia

Figure 3. Typology of functions of agriculture for development

Three clusters of structurally different economies emerge, each with distinct priority functions in using agricultural for development. In the "agriculture-based countries" (most of them in Sub-Saharan Africa), agriculture contributed about one third of overall growth, and 70 percent the poor are concentrated in rural areas. By its mere size, the agricultural sector is critical for growth, at least in the medium term. The staple crop sector is typically the largest sub-sector and must be a focus of development strategies aimed at accelerating growth, food security, and poverty reduction.

In the "transforming economies" (mostly in East Asia and the Pacific, South Asia, and North Africa and the Middle East), agriculture contributed only 7 percent to growth during 1993–2005 and 13 percent of the economy, but it employs 57 percent of the labor force. Despite rapid growth and declining poverty rates in most of these countries, poverty remains widespread and overwhelmingly rural—82 percent of the poor live in rural areas and the disparity between rural and urban incomes is widening even as rural poverty falls.

In these countries, the transition of people out of agriculture and rural areas is not keeping pace with the restructuring of economies away from agriculture due to limited labor mobility and skills. One policy response is facilitating faster absorption of the agricultural labor force in the urban economy through investments in human capital. But the time lags in educating people for non-agricultural employment are substantial. For the medium term, the main function of agriculture is to reduce sectoral disparities through, for example, tapping rapidly growing markets for labor intensive high value products and related rural non-farm industries and services.

In the "urbanized countries" (mostly in Latin America and the Caribbean and Eastern Europe and Central Asia), agriculture makes up only 6 percent of GDP and contributed 5 percent to growth. Although almost three-quarters of the population of urbanized countries lives in urban areas, 45 percent of the poor are still in rural areas, and 18 percent of the labor force works in agriculture.

In these countries, agriculture acts like other tradable sectors, often economically important in sub-regions that maintain "agriculture-based" features. It provides growth opportunities in sub-sectors with a comparative advantage and dynamic markets. The main divide is now between the traditional rural sector and the modern rural and urban sectors. The function of agriculture for development in the these countries is social inclusion for poverty reduction: to create opportunities for smallholders in supplying the modern food markets and good jobs in agriculture and the rural non-farm economy.

Conclusion

With risk of failure in meeting the Millennium Development Goals as the 2015 deadline approaches, the high social costs of the recent food crisis, and the increasingly ominous symptoms of the impacts of climate change on agriculture and the rural poor, there is growing recognition among governments and donors that, contrary to neglect over the last 25 years, agriculture must be given a more prominent part of the development agenda. But returning to agriculture does not imply business as usual. As greater attention is given to agriculture, there is also recognition that a new paradigm has emerged regarding the functions of agriculture for development, beyond serving as an instrument for industrialization through successful structural transformations. The functions of agriculture for development include growth, poverty reduction, lesser disparities, food security, and providing environmental services. Priorities vary by country type, with accelerating growth dominant in the agriculture-based countries, reducing disparities in the transforming countries, and enhancing smallholder inclusion in the urbanized countries. Today's greater willingness to invest in agriculture requires careful prioritization of the functions of agriculture and selection of the corresponding instruments to achieve these functions. The current attention given to agriculture and the new paradigm in using agriculture for development offer unique opportunities to address the extensive remaining development issues.

Summary Points

1. The accepted wisdom in development economics is that agriculture is a source of product, factor, foreign exchange, and market contributions that all helped trigger industrial growth and a decline in the share of agriculture in the economy.
2. Today, however, the context where this role is being played is quite different, characterized by globalization, integrated value chains, rapid technological and institutional innovations, and environmental constraints.
3. In this context, a new paradigm is needed that recognizes the multiple functions of agriculture for development: triggering GDP growth in early stages, reducing poverty, narrowing income disparities, providing food security, and delivering environmental services.
4. Governments and donors have neglected these functions of agriculture over the last 25 years, with negative impacts on development. However, this is changing as agriculture's

multiple functions are increasingly recognized, in part in response to the food, poverty (in relation to the Millennium Development Goals), and climate change crises.

5. Mobilizing these functions requires shifting the political economy to overcome anti-agriculture policy biases, strengthening governance for agriculture, and prioritizing agriculture's functions in relation to country types.

Future Research Issues

1. What are the important tradeoffs between the various functions of agriculture for development and how may these be minimized?
2. What factors determine the political economy of policy and investment biases against agriculture in developing countries?
3. How can governance for agriculture be better characterized and what factors determine its quality?

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