# Rural Development and Rural Policy[1]

by

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## I. Agricultural economics and rural economics

Agricultural economics has been principally concerned with the economics of agriculture as a sector. The elementary unit of analysis is the farm. The major fields of analysis are farm production, the marketing of agricultural commodities and the demand for food, the performance of product and factor markets, the linkages between agriculture and other sectors of the economy and the rest of the world, sustainability in resource use, and agricultural and food policy.

Rural economics and the design of rural policies to achieve rural development constitute a broader subject than agricultural economics with a spatial as opposed to a sectoral definition. The elementary unit of analysis is the household, with the farm as a typical subset of economic activity. The fields of application of rural economics include resource allocation by households and their choices of income strategies, the emergence and performance of agrarian institutions, income levels achieved by specific categories of rural inhabitants, poverty and inequality, income and food security, the satisfaction of basic needs (in particular access to public goods and services such as health and education), intergenerational equity, and the broad characterization of the quality of life for rural households (which includes features such as individual freedoms, the range of available opportunities and "capabilities" (Sen, 1985), community relations and congeniality, the rule of law and respect of human rights, political rights, etc.). Rural economics requires focusing importantly on the heterogeneity of rural populations that inhabit a particular region since the determinants of welfare are highly varied. For rural development, who produces in agriculture matters for efficiency and welfare, for instance small holders as opposed to large commercial farmers. Where agricultural production takes place also matters, for instance in better endowed versus marginal areas. What non-farm sources of income exist in particular regions and which particular classes of households are able to participate to those is important for the determination of household incomes. How households aggregate in communities and the level of social capital they contain explains the efficiency of rural institutions and the ability to cooperate in the provision of public goods and the appropriation of common pool resources. And how sizable are the local linkages between farm and non-farm activities, particularly the multiplier effects created by the expenditure of farm incomes, matters for the creation of non-farm incomes that supplement for farm households the incomes derived from agriculture and create employment opportunities for rural non-farm households.

In spite of the importance of the subject, rural economists have been a rare breed in the economic profession compared to agricultural economists. As a result, analyses of rural societies have more frequently been done by sociologists, anthropologists, and geographers than by rural economists, and by extension agents rather than research faculties. In spite of the many insights derived from these studies, the scarcity of rural economists creates two important voids. One is a deficit of rigorous economic theories explaining the determinants of behavior among households and communities and the logic of agrarian institutions. This is detrimental to conduct solid empirical analyses of these subjects. The other is insufficient policy purpose in the research conducted since these other social sciences tend to be more interested in positive than in normative analysis. Systematic primary data have also been incredibly scarce, particularly long series panel data that are needed to analyze the successive rounds of response to change while controlling for many non-observables. Interdisciplinary approaches using rapid and participatory rural appraisal techniques (Chambers, 1993) are extremely powerful to reveal the perceptions of actors and to identify new hypotheses, but are a weak basis for the formulation of economic policy due to lack of representativity and of quantification. As a result, rural policy has all too often been based on highly incomplete understandings of the material and behavioral determinants of household, community, and institutional responses. Heroic controversies about the determinants of household behavior, for instance between formalists and substantivists in peasant anthropology (LeClair and Schneider, 1968), have been

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largely based on misinterpretations of the structural context within which households exercise their choices (see de Janvry, Fafchamps, and Sadoulet, 1991). The highly complex trade-offs between the multidimensional objectives of rural policy remain poorly measured. And prescriptions for rural development have all too often followed simplistic bandwagon ideas where the presumed silver bullet for success has failed to recognize the heterogeneity of households and communities and the complexity of determinants of behavior, creating waves of enthusiasm and disillusionment.

Because agriculture remains an important source of dynamism for rural areas, even when the sector directly generates only a small fraction of regional income, an agricultural policy that stimulates investment and productivity gains is a necessary, if not a sufficient, condition for rural development. In most LDCs (less developed countries) agricultural policy, either made at the macro level via the exchange rate and the intersectoral terms of trade for agriculture, or at the sectoral level via commodity-specific trade interventions, taxes, and subsidies, has played against rural policy (Lipton, 1977; Krueger, Schiff, and Valdés, 1988). By discriminating against agriculture, policy has created disincentives to invest in agriculture and undervalued the conservation of natural resources. Hence, not only has agricultural policy been made ignoring rural policy, but it has often been its worst enemy, creating widespread suspicion among rural development advocates about the ability of economists to contribute useful prescriptions for the improvement of rural welfare (Altieri, 1989; Chambers, 1993; Norgaard, 1994).

Very important changes have, however, occurred in recent years, with major advances in rural economics and in the design of new approaches to rural development. From the angle of theory, these changes derive from progress in household and community economics, the theory of agrarian institutions, and understanding the endogenous determinants of regional growth. From the angle of empiricism, extensive data bases have allowed to uncover regularities and test new ideas for rural development as could never have been done before. And from the angle of the practice of rural development, a new economic, institutional, and political context that emerged largely in the 1990s has opened the possibility of experimenting with novel approaches to rural development, some of which show definite promise. It is the objective of this chapter to map out these changes, analyze the nature of their contributions to rural development, and identify important gaps that remain to be filled.

## II. Why the need for a rural policy?

### 2.1. The less developed countries

In the LDCs, rural underdevelopment remains a fundamental determinant of overall underdevelopment. Nearly three fourths of the 1.3 billion world poor who subsist on less than one dollar a day live in rural areas (World Bank, 1997). Three fourths of the world 800 million underfed also live in rural areas. In spite of rapid urbanization, a majority of the world poor and underfed will remain in rural areas for the next several decades. And levels of poverty are typically much deeper in rural areas. In 19 countries of Latin America with data, for instance, the poverty headcount ratio was 55% in the rural sector compared to 34% in the urban sector in 1994 (ECLAC, 1997). And the incidence of extreme poverty was 33% in the rural sector compared to only 12% in the urban sector. With typical public underinvestment in rural areas combined with higher costs of delivery, levels of basic needs for amenities such as health, education, potable water, and sanitation are also lower than in the urban areas. This situation of chronic poverty in rural areas has often led to backlashes against the economic models pursued by governments at the national level. In Peru, Colombia, Guatemala, and Mexico, as well as many African nations, rural violence has, on repeated occasions, been a source of political destabilization, with heavy macroeconomic costs.

Rural poverty can also create serious negative externalities on a country's metropolitan population. Rapid migratory flows crowd out urban residents on non-farm labor markets and displace rural poverty to the urban slums, adding to urban welfare budgets. And environmental abuse associated with the pressures of rural poverty contributes to national and global externalities under the form of siltage, exhaustion of underground water reserves, desertification, deforestation, loss of biodiversity, and climate change.

In many countries, small holders are a fundamental source of agricultural supply. In this case, the problem of rural development becomes confounded with that of agricultural development. This is

particularly true in Sub-Saharan Africa where most of the land is cultivated by small holders. With population expected to triple by 2025 and low tradability of many staples, food security is at risk. To face up to this challenge, it is thus essential to raise the productivity and efficiency of rural households in using resources and to enhance their ability to protect the environment. In other countries, particularly Latin America, even though the national food security problem can be addressed through trade or through production in a large sector of commercial farms (making the problem one of agricultural as opposed to rural policy), agriculture remains a major source of income for many rural poor households. In this case, using rural development interventions to boost access to productive assets for these households and to increase their productivity of resource use should be a major objective for rural policy.

### 2.2. The more developed countries

Poverty is also differentially widespread and more severe in the rural areas of MDCs (more developed countries) than in metropolitan areas, justifying rural development interventions. Per capita rural incomes are well below national averages in most OECD countries and in many cases are falling further behind (OECD, 1993). In the United States, the gap in earnings per job between non-metropolitan and metropolitan counties has been widening until 1980, and about constant since then. In 1994, per capita income in non-metropolitan counties was 26% below that in metropolitan countries (ERS, 1997). Rural areas (non metropolitan counties) have 21% of the national population but only 18% of the jobs, they generate 14% of national income, and they harbor 30% of the poor (Duncan and Tickamyer, 1988). In 1986, the poverty headcount ratio was 18% in the non-metropolitan counties compared to 12% in the metropolitan. Poverty differentially affects specific social categories: 43% of all rural blacks, 59% of children in rural female-headed households, and 83% of black children in rural female-headed households are in poverty. Rural areas typically lack a middle class as middle income and better educated adults have left for metropolitan environments with more abundant opportunities. Poverty is highly concentrated by regions, creating conditions of social exclusion and a culture of poverty similar to those which prevail in urban ghettos. Economic disadvantages of many rural areas include: (1) low density settlements and geographical isolation, which imply poorly funded public sectors and costly provision of basic needs services, (2) lack of diversification in economic activity implying high income exposure to sudden displacements of employment, (3) low-skill labor force employed in low-wage traditional industries that face enhanced foreign competition with progress in globalization, (4) declining employment in resource based industries (agriculture, mining), and (5) rigid social stratification that limits social mobility for specific groups of citizens (Galston and Baehler, 1995). Compared to metropolitan areas, these disadvantages have translated into higher rates of unemployment, larger falls in real wages, lower returns to education, and growing differentiation among rural areas to a large extent according to their degree of economic integration with metropolitan areas.

In Europe, agriculture accounted for less than 25% of rural employment, even in the most agricultural areas of the European Union. Hence, agricultural policy can only be a minor component of a rural policy. In the United States, the percentage of the rural workforce employed in farming declined from 14.4% in 1970 to only 7.6% in 1990, largely as a consequence of successful agricultural development that doubled labor productivity during that period (ERS, 1995). Farm employment dropped from some 8 million in 1948 to 3 million in 1991, while the number of farms fell from 5.8 million to 2.1 million. In 1990, 58% of U.S. farm operators received off-farm wages and salaries. In the share of total employment, services accounted in 1992 for 50.6% and this share is rising, government for a stable 17.2%, and manufacturing for 16.9% and this share is falling. Among services, activities with expanding employment include recreation, retirement, outdoors, finance, insurance, real estate, retail stores, restaurants, telemarketing, and data processing. In general, counties dependent on farm and traditional manufacturing activities have lost population, while counties with recreation opportunities, retirement development, and proximity to urban areas have gained population. Persistent poverty is a characteristic of extensive geographical areas which do not have these desirable characteristics, particularly in the Southeast.

The need for a rural policy thus derives from observing the differential incidence and persistence of poverty between rural and urban areas in both LDCs and MDCs, the pervasiveness of environmental degradation associated in part with the very same determinants of poverty, and negative spillovers on metropolitan areas. Rural poverty is associated with inefficiency in resource use since many of the resources controlled by the poor (including most prominently their labor and entrepreneurship) are locked into low level equilibrium traps where they are underused. We will show that the determinants of these

problems can be traced back to the structural features of rural areas (distance, dispersion, resource based activities, incomplete property rights, inequality in the distribution of assets, etc.), the pervasiveness of market failures for a significant share of households (particularly for credit, insurance, and information as well as high transactions costs in accessing product and factor markets), serious gaps in agrarian institutions essential for productivity and welfare, lags in the intersectoral reallocation of resources, lack of coordination to escape regional low level equilibrium traps, pro-urban policy biases, and lack of bargaining power for the rural poor. While economic growth is a precondition for the elimination of poverty, it has not been sufficient for a high share of rural households. What needs to be questioned is the nature of growth and the differential ability of an heterogeneous rural population to participate in and benefit from this process. This is where a rural policy coordinated with the nation's agricultural and macroeconomic policy has an essential role to play.

## III. Approaches to rural development in a historical perspective

While the problem of rural underdevelopment has been persistent, the design of rural policies to solve this problem has changed markedly over time as the context for development was transformed, correspondingly modifying the opportunities for and the constraints on success, and as ideas about development in general and rural development in particular evolved. To characterize the evolution of thought on rural development, we can contrast theories according to the relative importance which they attribute to market forces, the role of the state, and the role of civil society. All theories recognize a certain balance between market, state, and civil institutions. In what follows, we classify schools of thought (names underlined) according to the element among those three on which greater normative emphasis is placed. To each school of thought regarding economic development corresponds a position (or at least an implication) regarding rural policy. We discuss here only the most influential bodies of thought that help explain past attempts at rural development and will help us in the next section characterize current attempts in contraposition to those.

### 3.1. From WWII to 1980: role of the state in rural development

Following the destructions of WWII and emergence of the problem of accelerating growth in the occupied Asian countries, two schools of thought immediately confronted each other regarding the roles of the market and the state in catching up. Advocates of modernization theory looked at the history of successful industrialization in the West and recommended an evolutionary approach that would emulate these achievements in the context of market economies. Economies were to transit through a set of stages (Rostow, 1971) and follow "normal patterns" of structural transformation (Chenery and Taylor, 1968) that would lead them to the structure of advanced economies. For rural policy, this meant promoting the diffusion of innovations (Rogers, 1983) to emulate the technologies, institutions, and behavioral patterns of Western economies.

Reliance on markets for catching up faced, however, formidable adversaries. The intellectual context was the recent experience of running war economies through strong state interventions, success of the Marshall Plan in reconstructing Europe, the powerful role of the state under Cold War tensions, the early success of the Soviet experience with central planning, emergence of the Third World movement as an alternative to both market capitalism and state ownership of the means of production, and the role of the Bretton Woods institutions in the developing world with their ability to finance large scale investment projects. The dominant paradigm in development economics focused on the role of market failures in preventing catching up and on the role of the state in compensating for these failures. In radical dependency theory, this took the form of advocating collectivization, central planning, and delinking from the international market (Frank, 1969). Rural policy correspondingly imposed collectivization of the land and the coercive extraction of an agricultural surplus for the financing of heavy industry.

For most countries, the relevant theoretical thinking to engineer a catching up was to be found in an extraordinarily creative body of thought that assumed the name of "development economics". A shared principle was belief in the pervasiveness of market failures for late comers, and hence the need for an active role of the state in protecting infant industries, mobilizing domestic savings, and coordinating private investment. The "pioneers" of development thus focused on the need to promote capital accumulation by raising saving rates (Domar, 1947), implementing import substitution industrialization (ISI) policies

(Prebisch, 1962), accepting increased inequalities as the inevitable social cost of rapid growth (Lewis, 1954), relying on trickle down effects via labor markets to reduce poverty (Hirschman, 1958), and extracting a surplus from agriculture to finance industrial development. Agricultural policy was subjected to industrial policies clearly unfavorable to agriculture as exchange rates appreciated under industrial protectionism or were fixed at overvalued levels to subsidize capital goods imports for industry, and industrial protectionism turned the domestic terms of trade against agriculture. This urban bias in policy design was in part justified by a presumed lack of supply response in agriculture which could allow surplus extraction via price without adverse effects on agricultural output (see Mellor, 1976). Agricultural policy was at best seeking compensations for agriculture to the harshness of price distortions, principally via input and interest rate subsidies. In the occupied Asian countries, rural policy successfully focused on land reform and the creation of a large class of smallholders effectively organized in village communities to access the market and the state. Elsewhere, the main initiative in rural policy was the community development movement of the 1950s and early 1960s which sought to promote the organization of members of rural communities so they could jointly plan the allocation of resources under their control (Holdcroft, 1978). This movement was the guideline for rural policy interventions by USAID and the United Nations in much of the world, but particularly in India and Africa. This early attempt at decentralized rural development, however, rapidly failed because it was not transferring to communities new resources that could raise incomes and because it reinforced the power of traditional elites by refusing to address issues of land distribution and local power structures. In the United States, rural policy was similarly under the aegis of strong state intervention, with the New Deal policies implementing a variety of federal programs with the intent of mitigating market failures in rural areas.

The first development decade (1960-70) achieved extraordinary success in promoting economic growth, not only in the newly industrialized countries (NICs) of East and South East Asia, but also in many Latin American and some African countries. For agricultural policy, the main lesson from this period was the key role of technological change in agriculture. This had been advocated by theories belonging to neo-classical economic development: Schultz's (1964) "poor but efficient" farmers for whom technological change was the only option for higher incomes, Jorgenson's (1961) dual economy model where full employment implied the need to use technological change in agriculture to keep nominal wages for industry low in spite of labor transfers, and Hayami and Ruttan's (1985) induced technological innovations where changes in relative factor scarcities, translating in changes in relative factor prices, induce corresponding factor-saving biases in technological innovations. The role of technological change in agriculture was also central to theories belonging to development economics: this is captured in the dual economy models of Fei and Ranis (1964) and Lele and Mellor (1981), where technological change in agriculture allows to lower nominal wages for industry in spite of surplus labor and constant real wages. While neo-classical economic development reasoned on the basis of perfect markets and development economics of market failures, both looked at technological change in agriculture as the dynamic source of growth for industry. With yield increasing agricultural technologies largely public goods, the state was to be the main source of these necessary technological changes. Rural policy was largely subjected to the logic of agricultural policy, with the achievements of the Green Revolution and their diffusion among small holders seen to be the key instruments for rural development. Land reform, more often of the modernizing (i.e., using the threat of expropriation to induce modernization) than of the redistributive type (see de Janvry, 1981), was also used as a policy instrument to promote the diffusion of technological change in agriculture and thus assist the success of industrial policies via cheap food and expanding domestic markets.

The second development decade (1970-80) was marked by a slowdown in growth (oil and food crises, rising inefficiencies of ISI strategies, and accumulation of debt) but also by increasingly evident failures of growth to reduce poverty and inequality, with the exception of the East and South East Asian NICs that thus provided a source of inspiration for a set of policies to achieve growth with equity. Thought in development was thus dominated by a set of propositions to reconcile growth and equity (Adelman, 1975; Chenery et al, 1974) and cover the basic needs of populations (Streeten, 1979), with again the state as the key instrument to achieve these goals. In rural policy, this quest took the form of integrated rural development projects. The core instrument was the technology of the Green Revolution, seen as the missing piece in the failed community development movement of the 1950-65 period. Because of pervasive market failures for small holders, the state was to coordinate and usually subsidize the delivery to small holders of services complementary to the new technologies, particularly credit, technical assistance, access to markets, and crop insurance. Massive support was provided to these projects by USAID and the World Bank. These attempts were, however, generally not successful beyond the level of pilot projects, and even

these limited projects were rarely sustainable without continued inflow of government resources. This failure was due to a combination of: (1) generally adverse policy environments, with urban biases undermining the profitability of investment in agriculture, (2) excessive focus on agriculture, even though it generates only a small fraction of household income for a majority of the rural poor, (3) failure to address the problem of access to assets, land most particularly, (4) serious coordination failures among government agencies in the delivery of expected complex packages of "integrated" services, (5) imperfect information in enabling government agencies to deal with heterogeneity in rural areas and define alternative paths out of poverty for different classes of households and communities, (6) failure to decentralize decision-making to the community level and to enlist the participation of beneficiaries into project definition and project implementation, and (7) insufficient attention to building political coalitions in support of a continuing commitment to rural development (Crener et al., 1984). By the early 1980s, integrated rural development projects had fallen into disfavor with governments and international development agencies.

### 3.2. The 1980s: restoring the role of the market

The gradual exhaustion of import substitution industrialization policies, explosion of the debt crisis in 1982, the need to implement stabilization and adjustment policies under conditionalities from the IMF and the World Bank, ideological shifts against the pervasiveness of government intervention, and critiques of the urban bias in agricultural policy led to a frontal attack on the role of the state in development, a movement that has been called the neo-liberal response. The success of open economy industrialization (OEI) was contrasted to the deadlocks of import substitution industrialization (Chenery, Robinson, and Syrquin, 1986), frequently forgetting (Edwards, 1993) that ISI had been an essential step toward OEI in allowing entry into activities characterized by economies of scale and learning-by-doing (Rodrik, 1996). A new set of theoretical contributions exposed the limits and frequent malfeasance of government intervention in assuming functions that could be fulfilled by the market and in perverting the allocative functions of the market. Incapacity of the state to solve incentive and informational problems (Hayek, 1989), to defeat rational expectations responses of private agents to policy interventions (Lucas, 1983), and to countervail the logic of rent seeking (Krueger, 1974) all provided arguments for those calling for a descaling of the role of the state and a restoration of the role of market forces. In agricultural policy, the calculations of Krueger, Schiff, and Valdés (1988) exposed the magnitude of price distortions, and the long term extrapolations of Cavallo and Mundlak (1982) quantified the devastating costs on aggregate growth of price policies systematically distorted against agriculture. Stabilization and adjustment policies led to a sharp compression of the role of the state, extensive trade and financial liberalization, and implementation of the further recommendations of the Washington Consensus (Williamson, 1990).

For rural policy, this implied the weakening of the urban bias in price formation, but also the removal of a set of explicit or implicit subsidies and public services to agriculture and rural areas. In the U.S., agricultural commodity programs as well as area and rural development programs were widely criticized as inefficient and regressive (Gardner, 1987). In much of the developing world, parastatals that had serviced agriculture, often at great social costs, were closed or privatized (Bates, 1989). Subsidies to credit given through development banks were eliminated. From then on, the rules of market competitiveness were to determine success or failure in rural development. Where the state had been stifling on individual initiatives, the new freedoms gained by rural households could lead to important one-time gains in productivity, such as the household responsibility system in China and liberalization of the ejido from state controls in Mexico. In most places, however, market incentives were matched by massive des-institutionalization of agriculture, making it impossible for small holders to adapt to the new competitive rules. This period was thus one of retrogression in rural development, but at the same time one of setting the context for new approaches to rural development in terms of market incentives and new roles for civil society.

## IV. The 1990s: New context for rural development

Following the general failures of community development, redistributive land reform, and integrated rural development under state-led initiatives, and the retrogression of rural areas under adjustment policies and descaling of government interventions, the question to be asked for rural policy is whether there are new perspectives for rural development in the context of (1) the recovery of growth following the years of debt crisis and structural adjustment, and (2) the theoretical progress made by rural economists in the

understanding of the behavior of households and communities, the logic of agrarian institutions, and the endogenous determinants of regional growth? The answer seems to be a cautious yes. To argue this, we first identify in this section the new context for rural development that emerged in the 1990s. We will then proceed to characterize what recent theoretical advances have to offer as instruments for a better understanding of rural households, communities, institutions, and growth. This in turn will allow us to identify rural development initiatives consistent with the new context and the recent theoretical advances, and that differ markedly from the past attempts we have surveyed.

We use again the trilogy between market, state, and civil institutions to characterize the new context for rural development.

### 4.1. Role of the market

*Globalization*

The most remarkable change in the role of the market for rural development in the 1990s is the rapid progress toward the globalization of competition. Following the progress of GATT and numerous regional agreements, as well as implementation of adjustment policies, trade and international capital movements have been extensively liberalized. This implies an homogeneization across households and communities of the rules of the game for rural development, with the need to achieve competitiveness for small holder to survive in markets largely ruled by international competition. This, in turn, implies the need for these small holders to modernize and diversify their cropping patterns, identify market niches particularly for non-traditional exports (organic foods and coffee, exotic forest products, labeling of the quality and social origin of products), and capitalize on opportunities (for instance through contract farming) to access international markets.

The overarching requirement of achieving competitiveness is visible in the evolution of the design of rural development projects financed by IFAD (the International Fund for Agricultural Development). This United Nations rural development bank was set up 20 years ago in the aftermath of the oil and food crises with the objective of sheltering small holders from the harshness of the market, largely by helping them achieve food security through greater food self-reliance. Today, this philosophy has been transformed into the quest for market opportunities to sell cash or food crops. Production of non-traditional export crops and contract farming with agroindustry figure prominently in the recommended strategies (Jaffee and Morton, 1995). The objective is to achieve income security, and through this food security without necessarily seeking greater food self-sufficiency (at least within the idiosyncratic possibilities offered by food markets and their specific transactions costs) (Jazairy et al., 1992).

In the United States, deregulation has eliminated a set of implicit subsidies for the rural areas in transportation, telecommunications, and banking. The Federal Agricultural Improvement and Reform Act of 1996 has largely decoupled farm income support from commodity prices, except in a few commodities such as sugar and milk. With the removal of these subsidies, market forces determine the competitiveness of family farms in agricultural production (Tweeten and Zulauf, 1997).

Exposure of smallholders to international markets creates new opportunities but also new challenges for rural development. In countries with weak domestic savings, economic recovery is associated with foreign capital inflows which appreciate the real exchange rate, undermining incentives to invest in agriculture. International commodities markets in which smallholders with low ability to cope with risk are drawn to participate are notably unstable and frequently fraught with new forms of protectionism in the importing countries. Large segments of smallholders are at a clear disadvantage in facing the challenges of modernization and competitiveness relative to commercial farmers due to low quality assets, market failures for credit and insurance, limited access to new technologies and information, and high transactions costs in relating to markets. In the more developed countries, globalization hurts unskilled labor intensive industries which typically had moved to rural areas in quest of cheap unskilled labor before advances in globalization shifted comparative advantage to unskilled labor in the less developed countries. With low diversification of sources of industrial employment in most rural communities, displacement of these firms toward LDCs can have devastating effects for rural residents.

### 4.2. Role of the state

There are both positive and negative aspects to the changes in the role of the state for rural development in the emerging context.

*Policy instruments*

In the context of liberalization and adjustment, agricultural policy has increasingly become submitted to macroeconomic policy. Dominance of macro over sectoral policy is not new. Under import substitution industrialization, Krueger, Schiff, and Valdés (1988) have shown that indirect price distortions attributed to real exchange rate appreciation and to industrial protectionism were a more important source of anti-agriculture price biases than direct trade interventions on farm products. In this context, agricultural policy was often a reactive set of interventions to compensate for these anti-agriculture biases through input and interest rate subsidies. These biases have been significantly weakened by floating exchange rates and trade liberalization (Valdés, 1996), but so has also the ability of government to compensate for the remaining price distortions on the product side via costly price distortions on the factor side. In addition, underinvestment in research and development, infrastructure, health, and education for rural populations remains pervasive and these investments have been systematically biased against small holders and the rural poor. The new context also implies a loss of instruments for agricultural policy since commodity prices are no longer supposed to be intervened and strict fiscal balances confine the magnitude of farm subsidies. The main instruments for rural policy are instead to be found in direct income transfers, the definition and targeting of public goods, regulation of competition and environmental effects, selected assistance to entrepreneurship, and targeted welfare interventions such as food subsidies and food-for-work programs.

*Institutional gaps*

Stabilization policies, regional integration agreements, and in general neo-liberal philosophies in policy-making have sharply attacked the practice of running large government deficits that characterized previous periods. This has led to a decline in government budgets for rural development. State contraction has led to the foreclosure, devolution, or privatization of an array of parastatals formerly serving rural development (in research and development, extension services, marketing, development loans, infrastructure, irrigation management, etc.). The expectation was that, wherever the state was involved in the delivery of private or club goods, the private and associative sectors would enter where the state had withdrawn. This has, however, been very partial at best, leaving huge institutional gaps that constrain response to the reforms for large segments of the rural population. In that sense, state contraction has often contradicted the expected positive effects of market liberalization on supply response (Lipton, 1990). Due to small market size, high risks, and information failures, private services have been slow to replace public services. In addition, when they have emerged, private services have selectively focused on subsets of the rural population with lower transactions costs, lesser risks, and greater ability to respond, excluding most of the traditional clients of rural development programs. And declines in public investment in true public goods such as infrastructure, agricultural research, rural education, primary health care, and marketing facilities have undermined the profitability of private investment in rural areas.

The new context for rural development is thus one that begs a redefinition of the role of the state. This redefinition must accommodate severe budget constraints on and contraction of public agencies, seek cooperation with the private and associative sectors in the co-production of public goods, and maximize coordination between public and private initiatives (Evans, 1996).

*Decentralization of governance*

Most countries have implemented a process of decentralization of governance toward states (if federal), regions, and municipalities. This has been done under a variety of motives including the quest for greater efficiency in governance, greater accountability of locally elected officials, the unloading of expensive tasks onto lower levels of governance, the deepening of democracy, but also sometimes substitutes for democratization at the national levels (Manor, 1997). Decentralization has taken three forms (Parker, 1995): (1) The deconcentration of administrative tasks to local offices of the central government. This allows governmental organizations to better access local information, but does not imply greater participation by local clients. (2) Delegation of decision making to local governments or to a parastatal. In

this case, local governments or the selected agencies have the responsibility of project organization. (3) Devolution to local governments with political and fiscal control over projects.

Potential benefits of decentralization include: (1) Access to local private information about agents for decision makers and, reciprocally, to information about policy-making (e.g., budgets) for local populations. (2) Possibility of mobilizing local social capital for the enforcement of rules and contracts, the sustainability of cooperation, and greater accountability of elected officials. (3) Mobilization of local underused assets, most particularly entrepreneurship for the definition and implementation of projects, and labor for the co-production of public goods and services. (4) Participation of beneficiaries in decision-making, allowing the formulation of demand-led projects that account for local heterogeneity and induce commitment derived from project ownership. (5) Improved local coordination in the delivery of public goods and services, and consultative planning for decisions regarding consistency between public and private investment. And (6), shift in the balance of political power toward poor minorities if they have territorial representation (Piriou-Sall, 1997).

Decentralization is, however, also fraught with risks for rural development. Potential liabilities of decentralization include: (1) Increased private cost for the community of activities with economies of scale and increased social cost of activities with negative externalities as the size of local administrative units decreases. (2) Weaker fiscal base, precisely for the communities that need more costly rural development programs. (3) Projects open to capture according to the local power structure creating in particular: i) potential discrepancies between central and local objectives, ii) loss of control over targeting within the community, and iii) potential exclusion of minorities with no territorial base. (4) Potential cooperation failures due to heterogeneity of local populations, excessive group size, lack of leadership, lack of trust and shared social norms, etc. (5) Coordination problems across units of local governance (for instance over the positive externalities across localities created by educational expenditures) and between local and central governments (e.g., in Bolivia, see Cossio, 1997). However, incentives to coordinate in order to decrease the inefficiencies created by externalities also increase with decentralization since the magnitude of the externalities to be internalized (and hence the gains from coordination) increase with decentralization. Hence, large externalities created by greater decentralization could eventually lead to smaller inefficiencies if they trigger coordination (Klibanoff and Morduch, 1995). (6) Imperfect local information about global opportunities and constraints.

While a process about which there is considerable controversy (for instance implementation of the concept of subsidiarity in the European Union) and insufficient information is available, the decentralization of governance opens new possibilities to manage rural development in a markedly different manner than the top-down approach followed by integrated rural development in the 1970s.

*Participatory democracy*

During the last 15 years, significant progress has been made toward democratic forms of governance. This is true in Latin America where backlash effects from the debt crisis have delegitimized the remaining dictatorships (Haggard and Kaufman, 1989). Today, a large majority of developing countries have democratic governments, at least formally. In South-East Asia, many countries that have boomed under authoritarian regimes have subsequently transited to democratic regimes, responding to clamors for more accountability in governance to secure the economic gains achieved. Even in Africa, where political liberalization is lagging most, many countries have shifted to democracies and there are strong pressures in this direction in most of the other countries. Democratization, particularly in the context of the decentralization of governance, opens up important roads for alternative approaches to rural development. Yet, while this opens the possibility of greater participation by the rural poor and greater accountability by elected officials, young democracies are often characterized by fragmented and unstable political parties, oscillation between corporatism and populism, and high levels of cronyism and corruption. Importantly for democratic decentralization, local elected officials may represent the old authoritarian political order instead of the new class of politicians who appropriated control over the central government, creating conflicts in policy objectives between central and local governments (Fox, 1996). This raises complex dilemmas as to whether these local levels of governance should, in the name of expediency, be by-passed by central governments and international agencies in reaching directly the poor, or whether the pursuit of rural development includes the arduous task of transforming local governance to secure the political sustainability of rural development programs.

*Property rights and access to land*

The issue of access to land is far from resolved, and redefinitions of property rights open new fronts for rural development. Old style approaches to land reform basically used the coercive powers of the state to expropriate and redistribute (Lipton, 1993). While there are exceptional historical circumstances where this is still possible, seeking new forms of access to land consistent with the prevailing balance of forces in the political economy is a fundamental premise to rural development. Today, extraordinary opportunities for land reform do exist in the context of decollectivization of land use in transition economies. This includes Central and Eastern Europe, Russia, China, and Vietnam (Mathijs and Swinnen, 1997; Rozelle et al., 1997). In Africa, there are strong pressures to reform property rights away from the open access regimes that nationalization of land ownership created after decolonization. Where land is most fertile or under irrigation, individual titling of open access land has progressed rapidly, often at the cost of exclusion of the poor and serious inequities in the process of enclosure (Baland and Platteau, 1998). In other places, collective titling offers the possibility of controlling incentives to overuse via cooperation while preserving the advantages of economies of scale, geographical risk diversification, and solidarity relations among community members (Baland and Platteau, 1996; Nugent and Sanchez, 1998). The end of white rule in Southern Africa and massive titling of community lands in Mexico offer the unique historical possibility of creating a large rural middle class of family farmers (van Zyl et al., 1996; de Janvry, Gordillo, and Sadoulet, 1997). In all cases, successful land reform hinges on instrumenting complementary rural development programs, particularly to redesign the institutions servicing the competitiveness of rural households consistently with the new set of property rights.

There are other paths of access to land that can serve as prerequisites for rural development. Where different household members cultivate separate plots, intra-household rules for the allocation of resources across land plots have important efficiency and equity implications (Udry, 1996). Rural development interventions can then be targeted at women plots if they display lower productivity. Inheritance rights typically discriminate against women and have implications for incentives to conserve (Otsuka and Quisumbing, 1997). Land rental markets open very important channels of access to land, but they have often (as in Latin America, the Philippines, and many African nations) been undermined by weak property rights for landlords and unprotected contracts for tenants. In addition, the rising capital intensity of agriculture induces landlords to look for sharecroppers endowed not only in cheap family labor, but also in capital and managerial expertise, limiting entry into the agricultural ladder for the rural poor (Sharma and Drèze, 1996). Finally, important new experiments are in place to organize efficient land markets (Carter and Salgado, 1997) and assist the landless and smallholders gain access to land through these markets (Deininger, 1997). These "land market-assisted approaches to land reforms" require putting into place complementary institutions to register and title land, facilitate access to long term credit, brokerage transactions between sellers and buyers, and reduce transactions costs in dividing large properties among small buyers (land banks) (Dorner, 1992).

*Environmental externalities*

A large share of the rural poor is located in fragile areas with advanced levels of degradation. They are often trapped in a vicious circle where poverty induces more degradation and degradation worsens poverty (Reardon and Vosti, 1997). There are, however, increasing domestic and international pressures to reduce the negative externalities associated with rural poverty and to achieve greater sustainability in resource use. Urban society in the MDCs places new demands on rural areas such as the management of rural landscapes to support recreation and tourism. Environmental regulations have entered regional trade agreements and international treatises, giving new incentives to reduce these negative externalities. Examples include reducing the devastation created by slash-and-burn agriculture in watersheds and the loss of biodiversity associated with burning tropical forest to open farm lands that, in turn, rapidly degrade into low productivity pastures (Hecht, 1985). By reducing low value slash-and-burn agriculture, watersheds could instead become producers of high value clean water for irrigation and hydroelectricity for the rest of the nation. Burning tropical forests to open low productivity pastures produces very little value added compared to the same quota of emissions created by modern industry, opening opportunities for mutually beneficial international agreements on trading emission quotas. The same applies to the depletion of water tables for inefficient irrigation compared to use under precision technologies like drip irrigation (Zilberman et al., 1997) or for urban development. In all cases, either internalizing these externalities through taxation or, if property

rights are clearly assigned, creating markets to reallocate the sources of these externalities to the most efficient producers open a vast new space for rural development. Massive resources could thus be transferred in support of conservation-oriented and restoration-oriented rural development. New technological options for peasant farming systems in fragile lands need to be explored by combining the contributions of formal scientific research (e.g., the CGIAR and the U.S. Land Grant College system) with the traditional wisdom embodied in heterogeneous peasant farming systems. Even though they offer considerable promise, these institutional and technological options have barely started to be explored (see, however, Altieri and Hecht, 1990, and ICRAF, 1997).

### 4.3. Role of civil society

*Local organizations*

The last 15 years have witnessed an explosion in the number, diversity, and complexity of forms of organizations in civil society, a phenomenon that has been referred to as the "thickening of civil society" (Fox, 1996). Combined with the decentralization of governance and progress in participatory democracy, these organizations offer new opportunities for a radically new approach to rural development. They include both corporatist institutions and non-profit organizations (principally non-governmental organizations (NGOs) and grassroots organizations (GROs)). While well established in the United States since the mid-XIXth century (de Tocqueville, 1835), they are a phenomenon of the 1970s in Latin America and of the 1990s in Africa and countries formerly under central planning. Their emergence can be traced back to (1) the failures of the development model based on a strong role of the state in economic and social affairs and the subsequent dismantling of government institutions in support of rural development, (2) the needs for rural households to organize on a variety of ad-hoc fronts to face to a multiplicity of issues in income generation (pluriactivity, microenterprises) and the organization of social life (school, neighborhood, youth activities, etc.) not attended by the state and that cut across the mandates of traditional class positions (Touraine, 1980), (3) responses to the lack of democratic rights at the national level and to the frequent dismantling of political parties, labor unions, and producer cooperatives as the traditional forms of organization. Increasingly, however, civil institutions that originated as a response to market failures (e.g., seeking survival in spite of the debt crisis) and government failures (e.g., seeking representation at the local level to compensate for lack of democratic rights at the national level), have become complementary to the market and the state (Nugent, 1993). For income generation, they are playing the role of assisting members access services or achieve economies of scale that they could not obtain individually. Hence, they can be instrumental in facilitating access for their members to credit, insurance, technical assistance, and markets which could not be reached individually. For political representation, they are assuming the role of lobbies to exercise pressure for the definition and targeting of public goods and to influence relevant legislation. For rural development, NGOs and GROs open the possibility of new partnerships with the state, where each institution, public and private, focuses on what it can do best. The comparative advantages of NGOs and GROs are in accessing local private information for monitoring programs and targeting transfers, capturing local social capital for the enforcement of contracts and cooperation, promoting local entrepreneurship, coordinating the emergence of new institutions when there are positive externalities and hence private underinvestment, and mobilizing grassroots pressures for a multiplicity of progressive causes (Besley, 1996). At the same time, these organizations can be plagued with serious limitations that include weak financial and administrative capacities, dispersion, lack of continuity, territorial conflicts, attachment to ideological doctrines, exclusion of segments of civil society, and lack of social accountability (Carroll, 1992).

*Agrarian institutions*

In response to the de-institutionalization of rural areas that followed state compression, the reconstruction of new agrarian institutions complementary to the market and the state is thus a fundamental element of rural development (Hoff, Braverman, and Stiglitz, 1993). This has taken the form of either private or cooperative organizations. Private organizations include technical assistance firms (potentially paid with government vouchers distributed to smallholders as in Chile), private merchants replacing parastatals in supplying inputs and marketing commodities, commercial banks capturing clienteles formerly attended by public development banks, and private insurance companies absorbing clients from failed public insurance schemes. Organizations based on cooperative principles include informal financial institutions providing access to credit to households without collateral (group lending with joint liability, village banks,

rotating savings and credit associations), mutual insurance schemes among self-selected sub-coalitions of villagers, and service organizations to reduce transactions costs in accessing markets. Complementarity between civil organizations and the state often allows for the co-production of public goods and services, for instance through private financial contributions or labor participation to public projects of infrastructure development. The design of these institutions is one of the main challenges of the new context for rural development.

In many parts of the world, rural households have been organized in communities since ancestral times. For rural development, an important issue of debate is whether the traditional rural community can serve as the basis for the emergence of modern organizations in support of rural development. Looking at the experience of Japan and Korea, Hayami (1988) argues that the village-based community is a fundamental organizational unit. Rising resource scarcity has induced these communities to organize to conserve and manage local commons such as irrigation systems. In this context, landlords are under social pressure to participate in provision in the commons, serve as patrons to their tenants, and invest to raise labor productivity. The relations of trust and the norms of reciprocity that prevail among community members have helped sustain efficient contractual relations with local merchants and develop community-based service organizations (Hayami and Kawagoe, 1993). Hence, local information, social capital, and repeated interactions in the community have been assets for institutional development and growth. By contrast, looking at the tribal community in Sub-Saharan Africa, Hayami and Platteau (1997) argue that land abundance and high weather risks have structured community relations around redistributive norms of mutual insurance as opposed to concerns for productivity growth and reciprocity. Pressures to share, even if doing well is not due to random shocks but to entrepreneurship, have as a purpose to prevent social differentiation and block exit from the community of the most successful entrepreneurs. As a result, redistributive norms tend to act as a retardant to investment and growth. The community is consequently not an effective basis on which growth-promoting rural development initiatives can be organized, unless growth benefits the whole community in a sufficiently egalitarian fashion. Successful entrepreneurs can only escape the redistributive constraints imposed by the community through urban migration, by moving to other communities where as new comers they are not subjected to redistributive pressures, by converting to other religions and thus adopting outsider norms, or by coordinating with other entrepreneurs to achieve a sufficient critical mass to subvert traditional norms.

*Heterogeneity, gender, and ethnicity*

Empirical analyses of rural populations reveal a rising degree of heterogeneity in income strategies among households. This is due to the progressively greater integration of rural households into a variety of markets as a consequence of improved infrastructure, more complete markets, better flows of information, and rising land scarcity that pushes household members into agricultural diversification and non-agricultural activities. The result is increasing social differentiation where some households accumulate assets while others decumulate. Better data have allowed more detailed understanding of the complexity of household income strategies, perhaps exposing aspects of heterogeneity that had been overlooked in the past.

To be effective, rural policy has to account for this heterogeneity. The main determinants of heterogeneity that need to be taken into account in distinguishing types of rural households are the following: heterogeneity in asset positions, in technologies available to them, in transactions costs in relating to product and factor markets, in exposure to credit constraints and insurance market failures, in access to public goods and services, and in access to agrarian institutions. Corresponding to household heterogeneity, sources of income for rural households have become more diversified. This pluriactivity characterizes rural households both in the LDCs (Reardon and Taylor, 1996) and in the MDCs (Bryden et al., 1992). In addition to traditional farming activities, farm households are increasingly participating in agricultural and non-agricultural labor markets, in microenterprises often linked to agriculture through forward, backward, and final demand linkages, and also in manufacturing, tourism, retirement activities, and a range of services. It is this diversification of income sources for farm households that increasingly distances rural from agricultural economics.

In most countries, the role of women in agriculture has become more important. This is associated with the permanent outmigration of men (Mexico, Russia), pluriactivity that draws male labor off-farm seasonally on labor markets, improved (even if still highly deficient) legal rights for women in accessing land through government programs or inheritance (Meinzen-Dick et al., 1997; Deere and Léon,

1997), and the expansion of labor intensive activities which are well fit to women's participation (e.g., tobacco, fruits and vegetables, and dairy cattle). In Africa, in part because of the pervasiveness of polygamy, women cultivate separate plots which are less intensively used than men or household plots, suggesting opportunities for efficiency gains through factor reallocation (Udry, 1996). The new context for rural development thus places explicit emphasis on the role of women in agriculture, not only as an equity issue but as a fundamental efficiency question (Collier, 1988). In many countries, rural women manage a majority of the rural microenterprises, a sector which has been in rapid expansion.

There is a close correlation between poverty and ethnicity. In Latin America, 80% of the region's indigenous population lives in poverty (IADB, 1996). Indigenous populations have often lost access to land due to poor information about their property rights, abuse, and discrimination. There exists a vast backlog of rural development initiatives to redefine and enforce their legal rights (both property rights and human rights), promote their access to income sources while respecting the choice of attachment to place, and involve ethnic communities in the management of resource conservation programs.

## V. Modeling household responses

In recent years, important theoretical advances have been made in applying the new institutional economics (NIE) to issues relevant for the design of rural development. This has opened a fast growing field of modeling and empirical analysis of household behavior, agrarian institutions, community behavior, and regional determinants of growth. While it is beyond the scope of this chapter to review exhaustively these many advances, we selectively discuss each of these levels of analysis for the sake of illustrating how these efforts open new perspectives for the design of rural development. This link between theoretical advances and rural policy design is, however, not trivial. Indeed, much of the work on households, institutions, communities, and growth has been motivated by positive rather than normative purposes. Using these models for rural policy making remains seriously underdeveloped.

### 5.1. Static household behavior under market imperfections

There exists a class of static household models that stresses the role of pervasive risks, limited information, and imperfect markets on household behavior. The predictions derived from these models differ markedly from those of the standard household model where all markets are assumed to work and hence where there is separability between production and consumption decisions (Singh, Strauss, and Squire, 1986). Under separability, allocation of resources in production can be decided independently of consumption decisions. Once farm profits has been realized, consumption decisions are taken under the budget constraint that includes farm profits, other incomes that can be obtained given the time constraint, and exogenous transfers. Separability breaks down when there are market failures. In this case, production and consumption decisions need be taken jointly.

Models with market failures stress the following determinants of household behavior:

a) Asset endowments with multiple dimensions. These include natural capital, man-made capital (fixed capital used in farm and microenterprise production), human capital, institutional capital (access to local organizations, access to public goods and services), and social capital (interlinkages with community members that help reduce transactions costs, local availability of organizations, and migration capital).

b) Unitary transactions costs in accessing markets. Effective prices received at the farm gate are below market price and effective prices paid at the farm gate are above market price by the corresponding transactions costs.

c) Credit constraints and/or high transactions costs in accessing financial services.

d) Risk aversion and limited access to risk coping instruments (credit, mutual insurance).

A simple example of a model of this class is one where there are transactions costs in the food market. It allows to classify households endogenously regarding participation in the food market and to derive supply responses to changes in exogenous prices and fixed assets conditional on food market participation.

The household chooses a consumption vector $c$, a production vector $q$ (with positive values for products and negative values for inputs), a sales vector $e$, and a purchases vector $m$. With an initial endowment $E_i$ for good $i$, the commodity balance is $c_i + e_i = E_i + q_i + m_i$. Let us denote by $I$ the set of all goods, $I_c$ the set of consumption goods (with $c_i > 0$), and $I_q$ the set of production goods (with $q_i \neq 0$).

Assume that food is both consumed and produced and that there are unitary transactions costs in accessing the food market. The effective prices for the sale, $p_a^s$, and the purchase ($p_a^b$) of food are $p_a^s = p_a - t^s$ and $p_a^b = p_a + t^b$, where $p_a$ is the market price of food and $t^s$ and $t^b$ are unit transactions costs in sales and purchases, respectively. These transactions costs are household specific and expressed as functions of household characteristics $z_t$ that include not only factors such as distance to market but also elements of the household's social and institutional capital, $t^s(z_t)$ and $t^b(z_t)$. All other commodities are transacted at a unique price $p_i$.

The household problem is:

$$\max_{c,q,e,m} u(c; z_u) \tag{1}$$

subject to:

$$g(q, z_q) = 0 \qquad \text{technology} \tag{2}$$

$$\left(p_a - t^e\right)e_a - \left(p_a + t^m\right)m_a + \sum_{i \neq a} p_i\left(e_i - m_i\right) + T = 0 \qquad \text{budget constraint} \tag{3}$$

$$c_i + e_i = E_i + q_i + m_i, \qquad i \in I \qquad \text{commodity balance} \tag{4}$$

$$c_i \geq 0,\ e_i \geq 0,\ m_i \geq 0, \qquad i \in I \qquad \text{non-negativity constraints.}$$

In these equations, $z_u$ are exogenous shifters of the utility function such as demographic characteristics, $z_q$ are exogenous shifters of the production function such as the household's endowments in productive assets, and $T$ is exogenous non-farm income.

The solution of this model shows that: 1) Households sort themselves into three regimes of participation in the food market -- buyers, sellers, and self sufficient -- according to the relation between what would be the shadow price $p_a^*$ of food under self-sufficiency and the two effective market prices $p_a^s$ and $p_a^b$. 2) Households make production and consumption decisions as if they were separately maximizing profit and utility, with a decision price for food $\tilde{p}_a$ equal to the effective market price when they participate in the market and equal to its shadow price when they are self-sufficient. This is written as follows:

$$\begin{aligned} &q_k = q_k(\tilde{p}_a, p_j, z_q), \quad k \in I_q, \quad j \in I_q - \{a\}, \\ &c_l = c_l(\tilde{p}_a, p_i, y, z_u), \quad l \in I_c, \quad i \in I_c - \{a\}, \text{ with income} \\ &y = \tilde{p}_a\left(q_a + E_a\right) + \sum_{j \in I_q - \{a\}} p_j\left(q_j + E_j\right) + T. \end{aligned} \tag{5}$$

The shadow price under self-sufficiency is the solution to the self-sufficient equilibrium condition:

$$\begin{aligned} &c_a\left(p_a^*, p_i, y^*, z_u\right) = q_a\left(p_a^*, p_j, z_q\right) + E_a, \text{ with income} \\ &y^* = p_a^*\left(q_a + E_a\right) + \sum_{j \in I_q - \{a\}} p_j\left(q_j + E_j\right) + T. \end{aligned} \tag{6}$$

The three regimes and the corresponding decision prices are:

a) If $p_a^* \le p_a^s = p_a - t^s$, the household chooses to be a net seller of food, and its decision price is $p_a = p_a^s$.
b) If $p_a^s < p_a^* < p_a^b$, the household chooses food self-sufficiency, and its decision price is $p_a = p_a^*$.
c) If $p_a^* \ge p_a^b = p_a + t^b$, the household chooses to be a net buyer of food, and its decision price is $p_a = p_a^b$.

For households who are buyers or sellers of food, the price of food is determined by the market price and the transactions costs. There is separability. Hence, production decisions are not a function of the determinants of $p_a^*$. By contrast, if the model holds true, for households who are self-sufficient in food, the shadow price of food

$$p_a^* = p_a^*\left(p_i, E_i, E_a, z_q, z_u\right), \quad i \in I_c \cup I_q - \{a\}$$

affects production decisions, and food production is a function of the household's demand characteristics, namely of endowments, prices of pure consumption goods, and utility shifters. There is non-separability. The same model applies if there is a price band on the labor market rather than on the food market (Sadoulet, de Janvry, and Benjamin, 1998). Transactions costs in the labor market include supervision costs for hired labor, and search costs and involuntary unemployment on household members' off-farm labor.

What are some of the implications for rural development that derive from this general class of models?

*1. Elasticity of supply response of food crops*

Food production of self-sufficient households is perfectly inelastic to the food price, unless the change in price is sufficiently large to induce them to enter in the market either as sellers or as buyers. This implies that the regional price elasticity, equal to the average, over all producers, of individual price elasticities, will depend on the share of production which is produced by market participants, and will be smaller than under complete market participation if a fraction of the households opt for self-sufficiency. Oversight of this heterogeneity in household market participation can explain some of the huge discrepancies in estimated supply elasticities across studies, even for the same commodity and the same country (see for example Askari and Cummings, 1976).

The transactions costs that we have considered so far are proportional to the quantity traded, and hence are modeled as raising or lowering the price for the transaction. Transactions costs also include fixed costs, invariant to the quantity exchanged, such as search costs, costs of seeking information, cost of bargaining, and time involved in accessing the market. Like under unit transactions costs, behavior under fixed transactions costs creates a set of autarkic households. However, a price change that induces a household to enter the market is accompanied by a discrete increase in production, while production is incremental when households only face proportional transactions costs. The consequence of this behavior is to further reduce the aggregate price elasticity of the marketed surplus (see Key, Sadoulet, and de Janvry, 1999).

For households which are autarkic in food, an increase in productive assets or in technology will not induce as large an increase in food production as for households integrated into the market. This is because, as food production increases, its shadow price declines, making it a less attractive activity. This, however, should not be used as an argument against the need to include these households in efforts of technological diffusion. The benefit of technology to these households is in allowing them to free some of their resources for other activities such as the production of cash crops and labor market participation.

*2. Covariation between production and market prices*

If local markets are shallow, there will exist a high negative covariance between output and prices. As a result, price bands widen with output fluctuations, keeping households in self-sufficiency: as prices fall in good years, households are eventually unable to sell even though they have a bumper harvest; as prices rise in bad years, they are eventually unable to buy even though they have little home production to consume (de Janvry and Sadoulet, 1994). Households in shallow local markets are thus prevented from using market transactions to stabilize welfare when yields fluctuate. Shadow prices fluctuate widely, reflecting the changing scarcity value of the goods they cannot market. Regions with poorly integrated

markets expose producers to such fluctuations, stressing the advantages of better infrastructure and of integration into deeper markets, for instance through international trade. Hence, an important dimension of rural development is to deepen the markets to which households have access.

*3. Elasticity of supply response of cash crops*

In a model where food and cash crops compete for fixed factors, the elasticity of supply response of cash crops will be low if the household is in the self-sufficiency range for food and/or labor (de Janvry, Fafchamps, and Sadoulet, 1991). This is because, as cash crops prices rise, for instance as a consequence of a real exchange rate depreciation, the household will not reduce food production to plant more cash crops if access to food through the market remains too expensive (i.e., although the household's shadow price of food increases, it remains below the market price plus transactions costs in buying). And it cannot increase labor allocated to cash crops without reducing leisure, precisely at a time when the household is better off due to a higher price of cash crops and hence is more inclined to increase leisure as opposed to working more. The policy implications to increase the elasticity of supply response of cash crops are: (1) Reduce the incidence of market failure for food by reducing transactions costs. This calls on infrastructure investment, improved access to information about markets, and greater competitiveness in marketing. (2) Promote technological change in the production of food crops to reduce resources locked into food production. (3) If "food" includes the set of nontradable maintenance activities which the household needs to perform to survive (particularly the collection of firewood and the fetching of water), improving the productivity of labor in these activities will free time to respond to the incentive to produce cash crops. Hence, improving the elasticity of supply of cash crops requires looking beyond cash crops as such into the set of other constraints that limit household resource reallocation toward these crops.

*4. Change in the price of manufactured consumption goods*

If the price of manufactured consumption goods falls, for instance as a consequence of reducing industrial protectionism as a country shifts out of import substitution industrialization policies, this creates a shift in consumption demand for food. This shift induces a change in the marketed surplus of food and in net labor supply, but does not affect the production decision of separable households. By contrast, for households not participating in the food and/or labor markets, its creates an incentive to produce more cash crops in order to have the liquidity necessary to acquire more of these goods. This is one of the important complementarities between successful industrialization and agricultural growth (Berthélémy and Morrisson, 1987). The policy implication is thus that access to low-priced industrial consumption goods is a necessary complement to rural development as it offers farm households a reward for the delivery of a marketed surplus. Otherwise, forces savings (as in Cuba and formerly the Soviet Union) or low rewards in the consumption of manufactured goods create disincentives to the production of cash crops.

*5. Infrastructure development*

Infrastructure investment serves to narrow down the width of price bands. In so doing, more producers are exposed to price incentives. The result is that infrastructure investment helps increase the elasticity of regional supply response by raising market participation, an externality of infrastructure investment usually not accounted for in project appraisal. Hence, infrastructure investments to reduce transactions costs pertain prominently to rural development initiatives.

*6. Risk aversion*

To look at the impact of price risk, one can ignore autarkic households and concentrate on market participants. This can be done with a model similar to the one presented above without transactions costs in the food market and an expected utility specification (Finkelstain and Chalfant, 1991; Fafchamps, 1992a). Home consumption of part of production helps a household reduce exposure of its real income to price fluctuations. Intuitively, this is because both full income $y$ and the aggregate consumer price $P$ move with the price of food:

$$\frac{dy}{y} = s_q \frac{dp_a}{p_a} \quad \text{and} \quad \frac{dP}{P} = s_c \frac{dp_a}{p_a},$$

where $s_q$ and $s_c$ are the shares of food in income and in consumption respectively. Hence, the variance of real income $y/P$ is lower than the variance of nominal income. When facing these risks, net sellers will reduce production, but less so than pure producers. Net buyers may react to price risks by producing more instead of less: they protect their household consumption by securing more of their food supply through higher food self-sufficiency, particularly if yield risks are low compared to price risks. The response to price risk among risk averse producers is thus highly differentiated: pure producers (commercial farms) produce less; net seller households reduce production, but by less than commercial farms; and net buyers may insure themselves by producing more.

Households can reduce exposure to consumption risk through risk management (interventions which are ex-ante relative to income realizations) and through risk coping (ex-post relative to income), and there is hence a tradeoff between the two (Alderman and Paxson, 1992). Since risk management has an opportunity cost on expected income, improved access to risk coping instruments may allow households to take higher risks in production and achieve higher expected incomes (Binswanger and Rosenzweig, 1993; Morduch, 1992). Rural policy should thus promote access to risk coping instruments such as flexible credit, particularly for poor risk averse households, as a way of raising expected incomes.

*7. Liquidity constraints and suboptimal resource allocation*

Because the expenditure and income profiles are markedly seasonal in agricultural production, the problem of liquidity constraints in financing production can be particularly acute. This prompts households to adjust their income generating strategies and their expenditure patterns to bring the distance between the two profiles within the range of available credit. A simple way to think about a liquidity constraint for a lean season, for example, is to consider commodities consumed and produced in the two seasons as being different commodities. Let us call $I_K$ the subset of commodities consumed or produced in the lean season and $I_{nK}$ the complement set of commodities, and let $K$ be the exogenous amount of liquidity available for the season above the cash generated by the productive activities themselves. Adding the liquidity constraint

$$\sum_{i \in I_K} p_i \left( e_i - m_i \right) + K = 0 \tag{7}$$

to the model above introduces a decision price for all commodities subject to the liquidity constraint:

$$\pi_i = p_i \left( 1 + \lambda_c \right), \quad i \in I_K ,$$

where $\lambda_c$ is the shadow price of the liquidity constraint. With this modification to the definition of $\pi_i$, the solution to the model is otherwise similar to the system of equations (5) and (6). With higher decision prices, households will bias their resource allocation toward the activities that generate or save cash in the lean season. This liquidity constraint may considerably reduce their capacity to seize opportunities of increasing production in response to higher prices (de Janvry, Fafchamps, Sadoulet, and Raki, 1992). The ability of farmers to benefit from higher prices, offered for example by a price liberalization policy, depends on relaxation of the liquidity constraint, confirming the fundamental importance of a credit component to accompany these policies if they are to induce supply response.

*8. Poverty traps and heterogeneity of rural populations*

Because there are set up costs in any income generating activity, minimum asset endowments are required to enter these activities (Eswaran and Kotwal, 1986). To keep within the same framework of analysis, the set up costs can be conceptualized as composed of a fixed cost $K_0$ and a subset $I_K$ of credit constrained variable inputs. The model is obtained by: a) subtracting the fixed entry cost $K_0$ from the budget constraint (3), b) replacing commodity balance equalities by inequalities, and c) imposing an additional constraint:

$$K_0 - \sum_{i \in I_K} p_i q_i \leq \sum_{i \in I_K} p_i E_i + K ,$$

where the right hand side represents the resources available to the household to finance the set up costs. Households with resources below the $K_0$ threshold are caught in poverty traps, with underused resources

(shown in this model by unused resources $E_i$ that cannot be consumed or sold). This opens an important area for rural development interventions. Asset thresholds to enter farming can be reached either through transfers or loans. The role of donors in supporting rural development programs (e.g., foundations, international development agencies) can be understood as efforts at capitalizing households to reach the minimum thresholds needed to enter income earning activities that will bring them above the poverty line. Because these transfers mobilize otherwise idle resources held by the poor, the internal rate of return on these social investments can be extremely high. Targeting transfers to achieve these multipliers should be an important principle in organizing rural development interventions.

### 5.2. Dynamic household models: asset accumulation and evolution of agrarian structure

Rural development is a dynamic issue where success or failure for particular households depends on their ability to accumulate productive assets. Accumulation of financial assets, man-made and natural resource assets, as well as human capital assets is potentially important to enhance household production and consumption. We focus on investment behavior in each of these assets, with particular attention on the implications for rural policy. We also derive implications of household asset accumulation for the evolution of agrarian class structure in a context where the determinants of accumulation are highly heterogeneous across classes of households.

Households engage in intertemporal asset accumulation to optimize the trade-off between consumption today and consumption in the future. Motives underlying asset accumulation vary across households as they differ in their objectives and the constraints they face in attaining them. Traditionally, household asset accumulation has been explained by the 'investment' motive: with access to multiple investment opportunities, households adjust the relative amounts of investment in different types of capital to keep the rates of return in step, or to maximize the return to their portfolio. Early models of savings behavior also focused on 'life-cycle and bequest' motives, which stem from the relationship between optimal consumption (that changes with household characteristics such as age and demographic structure) and income. For an exogenous income path and total lifetime resources, the savings profile depends on the desired consumption profile, the rate of return to assets, and life expectancy of the households. Finally, because saving provides resources that are available in the future when uncertainties (e.g., in future income, rate of return on savings, and utility of consumption, say because of health status) are resolved, the decision to save is intimately related to the nature and extent of uncertainty -- the 'precautionary' motive (Gersovitz, 1988). Saving in assets not only allows for growth in income and increases in consumption but also provides a means to 'smooth' consumption over time.

The optimal asset accumulation path is also influenced by the constraints faced by a household. For instance, a household's exposure (and, therefore, its precautionary savings response) to uncertainty depends on the opportunities it has for insurance and on borrowing constraints. In response to future income uncertainty, a borrowing constrained household will increase savings to reduce the probability of having to decrease consumption when faced with a negative income shock (Deaton, 1992a). Since there is considerable evidence of high degrees of uncertainty and of borrowing constraints in rural economies, the impact of constraints on savings behavior has been the focus of much recent research. Further, since there are arguments to suggest that asset accumulation to mitigate the impact of these constraints can significantly overwhelm life-cycle savings motives and reduce income growth, understanding precautionary savings behavior is naturally very important for rural policy.

Although asset accumulation is an inherently dynamic issue, a large part of the empirical literature on the determinants of investment in different assets has proceeded with cross-sectional data, in part due to the paucity of panel household surveys. Most of these empirical models are static, but yield useful insights into investments that can be treated like a stock and determinants that do not change over time. There are also studies that are explicitly interested in the dynamics of asset accumulation, and tackle issues such as the impact of unexpected shocks, anticipated constraints, and technological change on asset accumulation behavior. In this section, we focus primarily on these dynamic household models.

*Accumulation of financial and production assets*

Dynamic household models which analyze the factors that affect investment in financial or production assets usually stress the precautionary savings motive, focusing on the impact of riskiness in agricultural production (both yield and asset price risk) and the lack of contingency markets (credit and insurance). Early models of consumption smoothing and asset accumulation focused on savings in the form of a single interest earning asset in response to exogenously determined risky incomes. In reality, savings can take a variety of forms such as demand deposits, cash, physical assets, or the storage of consumption goods. Some stores of saving such as physical assets or human capital assets may be used directly as inputs in production. Others may be preferred for their liquidity (e.g., draft animals are easier to sell than tubewells), their degree of access (access to credit may be limited), or their low risk returns (e.g., grains). Each of these asset-attributes affect the optimal asset portfolio and the incentives for asset accumulation. The ability to smooth consumption depends on initial asset stocks while the evolution of asset stocks depends importantly on the sequence of income shocks and borrowing constraints faced by the household.[2]

An example of a model of consumption smoothing and asset accumulation behavior is one where there are constraints on unlimited borrowing and households must rely on other assets they control to shield consumption from shocks to income or consumption.[3] Consider a simple multiperiod model in which the household chooses consumption each period to maximize the present value of lifetime utility over a finite horizon. Household income derives from two sources. First, the household faces an income shock $T_t$ which is exogenous to the household's behavior. Second, the household derives income from production each period. Production combines two types of assets which differ in their degree of liquidity -- a composite 'liquid' asset ($B$ such as livestock and tools) and a 'nonliquid' asset ($M$ such as tubewells, threshers, and cane crushers) -- with a fixed amount of land according to the following technology:

$$Y_t = f(B_t, M_t),\ t = 0,...,T.$$

The production function $f(.,.)$ is assumed to be continuously differentiable, concave, and requires both liquid and nonliquid inputs for nonzero production. Both the income shock and farming income are realized at the beginning of each period and are allocated between consumption and savings.[4] Savings can either be in physical production assets ($B$ and $M$) or in financial instruments such as bank deposits and loans to others, or in both. That is,

$$C_t + p_b(B_{t+1} - B_t) + p_m(M_{t+1} - M_t) + (1+r)L_{t-1} - L_t \le Y_t + T_t,\ t = 0,...,T$$
$$\text{and} \qquad B_t \ge 0,\ M_t \ge 0,\ t = 0,...,T.$$

$L_t$ is the amount borrowed for consumption in period $t$ when $L_t > 0$, or financial savings when $L_t < 0$. $p_b$ and $p_m$ are the unit prices of the liquid and nonliquid assets respectively.[5] In summary, the household chooses $B_{t+1}$, $M_{t+1}$, and $L_t$ in each period $t$ to maximize the present value of lifetime utility from time $t$ to $T$ subject to the budget constraint. The household is, however, subject to a ceiling on the amount that can be borrowed each period

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[2] For reviews of the literature on savings and asset buffering behavior, see Gersovitz (1988), Deaton (1992b) and Besley (1995).

[3] Indeed, consumption smoothing needs arise whenever the path of optimal lifetime consumption diverges from the income path. While much of the literature focuses on income uncertainty as the motivating factor, equally valid reasons for consumption smoothing include variable optimal consumption paths with steady income or differentially fluctuating consumption and income streams.

[4] In this simple model, even though both exogenous income shocks and farming income are assumed to be nonstochastic, smoothing needs arise since the desired consumption profile differs from the endogenously determined income path.

[5] We have assumed that prices for the two assets are not stochastic. If prices were stochastic, changes in asset holdings would reflect expectations of changes in asset prices over time and portfolio diversification. In reality, these are important considerations that should be borne in mind when taking the model to data. However, in order to allow a focus on the consumption smoothing role of assets, we have ignored portfolio diversification motivations in the model.

$$L_t \leq \bar{L}_t, \ t = 0,...,T-1.$$

To analyze asset accumulation when not all assets are equally liquid, we impose an additional constraint which states that asset $B$ is more liquid than asset $M$. In the extreme case, when investment in $M$ is irreversible, the constraint is

$$M_{t+1} \geq M_t, \ t = 0,...,T-1.$$

The solution to this problem is characterized by the familiar Euler equations which state that the intertemporal marginal rate of substitution is equal to the marginal rate of transformation. In the absence of borrowing constraints, in the first period the household chooses an asset portfolio to equate the rates of return across all assets -- physical and financial:

$$\frac{f_B(B_{t+1}, M_{t+1}) + p_b}{p_b} = \frac{f_M(B_{t+1}, M_{t+1}) + p_m}{p_m} = 1 + r.$$

This optimal portfolio condition determines the stocks of $B$ and $M$ (and therefore, farming income). It implies that allocation of savings between the two production assets is determined by production or investment considerations alone, without regard to the smoothing role played by the assets. A change in the rate of return in either the physical assets or the financial asset induces the household to readjust its asset portfolio until the returns to all assets are equalized, thereby maximizing investment income. Consumption smoothing is achieved via participation in financial markets: in response to income shocks, the household prevents consumption from falling by borrowing more on the credit market. In *anticipation* of income shocks, the household reduces its debt to reduce its repayment obligations in a future unlucky period. If per-period utility changes from one period to the next, say for life-cycle considerations, the optimal consumption profile changes. Again, consumption is smoothed by saving and dissaving in the financial asset.

However, when the household faces credit constraints, asset accumulation behavior is very different since the household has to rely on production assets to smooth consumption. In response to current or anticipated income shocks, the household adjusts total investment in physical assets accordingly; it increases investment in anticipation of a negative shock and sells these assets to maintain consumption when faced with the income shock.[6] This sort of dissaving in income-generating assets can be a costly strategy since it reduces farming income in subsequent periods and makes the household more susceptible to future borrowing constraints.

Further, since $M$ is illiquid, in anticipation of income shocks, the asset portfolio is biased towards $B$, with resulting over-investment in the liquid asset. When faced with negative shocks, consumption is protected from the full impact of the shock by reducing investment in physical assets. Since only asset $B$ can be sold, this results in under-investment in this liquid production asset. Consumption smoothing needs, therefore, bear upon production decisions in the form of allocative inefficiencies and output losses. A sequence of binding constraints and negative income shocks forces a household to enter a cycle of both allocative inefficiency and input depletion, which further erodes its capacity to cope with credit constraints. The cycle can be broken if there are intermittent periods of relief in which the household can accumulate assets.

The results of this simple model are suggestive of new areas for rural policy focus. For better or for worse, governments and other development agencies have made the development of credit markets a focus for policy interventions (Besley, 1995). Our focus on savings in production assets illustrates one example of how borrowing constraints combined with the absence of formal deposit institutions (or other remunerative savings opportunities) results in allocative inefficiencies, output losses, and lower incomes. An understanding of which assets people save in and the incentives underlying that choice may elucidate other markets or institutions that warrant attention. To this end, we summarize the results of selected studies that have been engaged in this research agenda.

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[6] For a positive income shock, investment behavior is reversed: the household reduces investment carried over to the next period when it anticipates a positive shock to its exogenous income.

When access to credit and alternative assets for savings are limited, households engage in costly strategies to both smooth consumption *ex-post* to income realizations and reduce income fluctuations *ex-ante* (Alderman and Paxon, 1992). If, for instance, a household is liquidity constrained during the planting season, it will bias its portfolio of activities towards crops and income sources (such as labor market, microenterprise activities, and migration) which generate cash flows during that season and away from input use (purchased factors), type of activities (activities with a higher cash flow and a faster turnover), and expenditures (purchased consumer goods) that absorb liquidity during that season. This burden of liquidity management through the adjustment of resource allocation, income strategies, and consumption patterns can be eased by saving and dissaving. In this case, the quality of savings instruments matters in the cost of managing liquidity. Policies that increase the return on savings can thus have a positive effect on output for credit constrained households.

Focusing on which assets are used for saving and dissaving, Rosenzweig and Wolpin (1993) provide evidence that south Indian households which are credit constrained resort to the use of relatively liquid production assets such as draft animals to smooth consumption in periods of crisis. Household production and consumption decisions become non-separable: in response to negative shocks, households divest in liquid production assets and invest disproportionately in these in response to positive shocks. With successive shocks, households can be forced into a cycle of under-investment in production assets (Murgai, 1997). Since reliance on production assets as a buffer is a costly strategy, as long as a household has stocks of an asset which is not used in production, this asset will be used to smooth consumption (Udry, 1995). If the assets that are used to buffer consumption from income fluctuations are themselves used in the production process, then there can be important effects on future income from temporary shocks to current income. Farmers' aversion to risk combined with borrowing constraints, low income, and the absence of formal deposit institutions thus not only result in output losses and lower incomes but also exacerbates the susceptibility to income shocks.[7]

Under-investment, poverty, and inequity are exacerbated when input investments are non-divisible and irreversible, as in the case of tubewells (Fafchamps and Pender, 1997). With low returns to savings, poor households are unable to accumulate enough wealth to make a profitable investment and are in effect forced to accept a lower return on divisible wealth.[8] Focusing on household heterogeneity, Zimmerman and Carter (1996) extend the asset accumulation literature to look at the role of wealth levels in determining portfolio composition of households facing risky yields, risky asset prices, and subsistence constraints. Wealthy households are farther from the subsistence constraint, and therefore are willing to bear more risk than poorer households. Households too poor to support subsistence consumption eventually stock out, driving their asset base to zero. This is in marked contrast to the rich that are endowed with large enough stocks of productive assets to avoid a subsistence crisis even in a bad year. They, therefore, continue to accumulate high-return, high risk assets over their life-cycle. The model thus predicts increasing polarization in asset positions over time, with disappearance of a middle class of farmers.

Results from this class of models provide insights into why there might be a 'poverty trap' for select groups of households. Households that are credit constrained, that have small wealth endowments, and limited access to remunerative savings opportunities have a tendency to pursue safer but lower-return

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[7] These studies are part of a growing literature with empirical evidence both in support and against the use of production assets in consumption smoothing. Using the same data as Rosenzweig and Wolpin (1993), Chaudhri and Paxson (1993) and Lim and Townsend (1994) show that grain stocks and cash are used for high-frequency smoothing in the Indian ICRISAT villages. Kochar (1995) contends that rather than resort to costly risk coping strategies, households rely on participation in the labor market to shield consumption from negative income shocks. Fafchamps, Udry, and Czukas (1998) use the Burkina Faso ICRISAT data and find that cattle sales offset on average only 15% and at most 30% of the income losses resulting from aggregate rainfall shocks. Alderman (1996) finds considerable variation across income classes in the ability to cope with risk. Rich households are able to shield consumption most effectively against transitory income changes, and can capitalize increases in permanent income into physical savings.

[8] A similar point is made by Rosenzweig and Binswanger (1993) who find that the composition of asset portfolios is influenced significantly by farmers' aversion to risk and their wealth. The trade-off between profit variability and average profit returns is significant, and the loss in efficiency associated with risk mitigation is considerably higher among the poorer farmers.

asset portfolios, to refrain from profitable but non-divisible investments, and to rely on costly strategies for smoothing consumption. These are the vulnerable groups that are the natural focus of rural policies for poverty alleviation. Policies and programs to improve access to credit will reduce the need to bias resource allocation towards liquidity saving and create efficiency and welfare gains, stressing the importance of institutional innovations in micro-lending as a key element of rural development.

Equally important, and generally overlooked in rural policy, is the need to focus attention on improving the quality of savings instruments to reduce reliance on production assets for risk coping and to facilitate investment in profitable but non-divisible or irreversible assets. Compared to credit programs, savings programs do not suffer from problems of moral hazard, adverse selection, and enforcement. Increasing the rate of return on saving and making them secure in the face of regional shocks may thus be a better alternative than subsidizing credit. There is a hence need to develop financial institutions that can mobilize the savings of the poor as a fundamental component of rural development initiatives (Wickrama and Keith, 1994).

*Investment in human capital assets*

Evidence of knowledge-driven endogenous growth at the macro-level (Romer, 1994) underscores the importance of research on investment in human capital at the micro-level. Human capital can be broadly defined as education and health. Unlike investment in physical or financial assets, analysis of human capital investment is complicated by its role as both a 'consumption good' as well as a 'capital good' that contributes to income via its impact on productivity. It is difficult to allocate human capital expenditures between current and future consumption. Further difficulties in analyzing human capital investment stem from the fact that human capital is multi-dimensional. Different dimensions of human capital (e.g., anthropometrics, schooling, morbidity, nutrient intakes, etc.) can have different effects on productivity and preferences. There is a large empirical literature (reviewed in Strauss and Thomas, 1995) that focuses on the determinants of investment in these multiple facets of human capital and on the impact of human capital investment on asset returns, productivity, and income. Most of these empirical models are static, typically being concerned with outcomes that may be treated as a stock, such as completed schooling or child height. Considerable insights on the determinants of human capital investments (such as the impact of parents' schooling on human capital investments in children, or the impact of permanent income on longer-run measures of human capital) have been gained from this literature. There are relatively few studies that have looked at human capital investment in the context of dynamic household models, with attention to considerations such as the impact of unexpected shocks, future credit constraints, or technological change. We summarize selected studies and insights for rural policy from this relatively young literature.

The effect of technology shocks on schooling investment by households in rural India has been analyzed by Foster and Rosenzweig (1996). They estimate the dynamic schooling decision rule in period *t* as a function of household assets (including human capital) in that period, variables affecting current income (such as the level of technology, wages, and weather realizations), and variables affecting expectations about the future (parameters of the technology distribution). They find that technological change both increases the returns to as well as results in greater private investment in schooling. Availability of schools in the area complements the effects of technological change: returns to investment in technological change increase when primary schooling is accessible and returns to investment in schooling increase when technological change is more rapid. From a rural policy point of view, their study has important implications that have often been neglected in interventions aimed at spurring rural investment. Since schooling has an opportunity cost to the household in terms of earnings forgone or education expenditures, households choose to invest in it only if the returns can outweigh these costs. Foster and Rosenzweig's study shows that schooling has a payoff if there exist technologies or other processes that increase the returns to education. That is, simply increasing the availability of schools in an area may not spur investment in human capital if the returns to education are small. In addition to supply-side interventions, it is thus essential to intervene on the demand-side to increase the payoff to schooling.

However, a household that wishes to invest in human capital may be prevented from doing so when it faces credit constraints. For example, Jacoby (1994) asks how borrowing constraints affect the timing of human capital investments by looking at how quickly children with different family backgrounds progress through the primary school system in Peru. For an unconstrained household, the 'timing' of

human capital investment should be independent of parental income, and part-time schooling is never optimal. Children in a household that derives income from both parental income and child earnings may, in contrast, attend school part-time if the credit constraint is binding. To test this hypothesis, Jacoby splits the sample into 'constrained' and 'unconstrained' households on the basis of the predicted probability of being constrained. Using a probit regression on the probability of part-time schooling, he finds that higher family income and durable asset stocks do not significantly increase school progress in unconstrained households, but do in constrained households. Similarly focusing on the impact of borrowing constraints, Foster (1995) argues that fluctuations in child weight growth in rural Bangladesh after the flood of 1988 reflect variations in access to credit. He finds that both landless and landed households made substantial use of credit to shore consumption after the flood. However, borrowing was more costly for the landless households, as a result of which their children suffered greater fluctuations in growth. Both studies identify select groups of households that are disadvantaged in their investment decisions and suggest policy-prone instruments that can be targeted appropriately for maximum benefit.

In addition to differences in constraints, heterogeneity in household behavior also arises due to differences in asset positions and production patterns. Foster and Rosenzweig, in the study mentioned above, found that anticipated technological change had a positive effect on investments in schooling by farm households but did not affect decisions made by non-farm households. Based on these results, they suggest that human capital in the context of the Indian Green Revolution technologies affected productivity through its impact on managerial abilities. Thus, rates of return to schooling were affected more strongly for children in farm rather than non-farm households. For rural policy, this study implies that investment in schooling responds to technical change but, conditional on the nature of the technology, only select groups of households may reap benefits.

Dynamic household models are particularly important for human capital accumulation decisions since there can be significant time-lags between the investment and its productivity or health returns. Moreover, the return to human capital (and hence, the relationship between human capital investment and its determinants) can vary across seasons or stages of agricultural production. For instance, Behrman, Foster, and Rosenzweig (1997) obtain radically different estimates of the calorie-income elasticity across seasons for rural households. They suggest that there are difficulties in transferring resources across stages of production, which leads to a greater caloric response to income in the lean than in the harvest season. This study points to the importance of being attentive to the timing of income and production activities within the year when designing rural policies; measures directed at certain agricultural stages might be much more effective at influencing human capital investments than those directed at other stages of the production cycle.

*Selective investment and dissipation of natural capital*

The importance of natural capital -- in particular, land -- as a central income-generation asset for rural households has long been recognized. However, conceptualizing natural capital (e.g., soil fertility) as a produced rather than primary input analogous to other inputs used in agriculture opens new perspectives (Coxhead, 1996). This raises the potential of using rural policy to promote the conservation and sustainable use of natural resources. Research on the factors that influence household choices of adoption and maintenance of soil conservation techniques are an important step towards realizing this potential.

The possibility of soil-enhancing investments expands the range of household options with respect to production and resource allocation: in addition to choosing current production and consumption levels, the household optimizes a dynamic trade-off between current consumption and investment in future soil quality. Focusing on this trade-off, Pender and Kerr (1996) provide evidence that investment in soil and water conservation measures is greater among small landowners who have more education, a higher percentage of off-farm income, and more adult males, results which are indicative of significant transactions costs in participating in land, credit, and labor markets.

Similarly, in a study of the Sierra highlands of the Dominican Republic, de la Brière (1997) finds that adoption of soil conservation techniques is highly selective, with many households choosing to not adopt. The main determinants of soil conservation are the perceived security of access to land, idiosyncratic market failures for food, casual labor constraints for the poorest households, remittance and off-farm income, and collaboration with Plan Sierra, a rural development project geared towards poverty alleviation

and environmental sustainability. Further, households selectively abandon soil conservation practices over time as efficiency-enhancing effects of learning-by-doing and efficiency-reducing effects of soil fertility loss create a dynamic trade-off. Analysis of the factors which determine the duration of adoption suggests that households strongly vested in agriculture for their livelihood, with few exit options, and large families to feed (in the context of high transactions costs on food markets) are more likely to adopt. However, since they are likely to be using their land more intensively, they are also more sensitive to the continued, though lower rate of fertility loss.[9]

For rural policy, the study suggests that dynamic aspects of the determinants of both *adoption* and *maintenance* of soil conservation techniques need to be taken into account in the design of soil conservation programs. Otherwise, the promotion of adoption could be misleading as policies may affect the adoption and sustainability of use differently. Adoption under the auspices of rural development programs may end in subsequent abandonment, thus failing to achieve sustainability of conservation in spite of initial success in diffusion.

*Evolution of agrarian structure: The role of asset accumulation under imperfect factor markets*

The dynamic issues discussed so far have for the most part been restricted to problems of savings and investment decisions at the household level. These models illustrate that asset accumulation behavior varies across households that differ in their asset endowments and face idiosyncratic constraints or transactions costs in their access to credit, labor, food markets etc. However, household heterogeneity also has ramifications for divergence in household behavior which extends beyond asset accumulation to consumption choices, the organization of production, and eventually the formation of agrarian classes. Eswaran and Kotwal (1986) show that along a continuum of endowments and transactions costs, households optimally choose their labor allocation strategies and can therefore be endogenously classified into agrarian classes. To simplify the analysis, they assume that the initial distribution of asset endowments is static and exogenous. In equilibrium, there is a misallocation of resources: land-to-labor ratios differ across farm sizes and there is scope for welfare- and output-improving transfers of resources across households, justifying the implementation of redistributive land reform.

Therefore, how patterns of production, asset distributions, and agrarian structure evolve over time are central concerns for rural policy from both an efficiency and equity point of view. Recent research has addressed these questions by integrating dynamic asset accumulation with endowment continuum models to analyze the extent to which initial asset endowments (and class structure) perpetuate themselves over time. Banerjee and Newman (1993) focus on the evolution of the pattern of occupational choice. They consider an economy in which, because of capital market imperfections, the pattern of occupational choice (wage worker, self-employment, etc.) depends on the initial distribution of wealth. But the occupational choice in turn determines how much households save and how much risk they bear. These factors give rise to a new distribution of wealth. Over time, the economy stabilizes into a pattern of occupational choice and economic growth that depends on the initial distribution of wealth.

Carter and Zimmerman's (1993) model intertemporally rational land and wealth accumulation decisions with imperfect labor and credit markets. Labor market imperfections stem from search costs when farmers wish to hire out labor and supervision costs on hired-in labor. In the credit market, there is a fixed transactions cost that is paid by all borrowers, making credit more attractive to large farmers than to small ones. Together, these two market imperfections endogenously generate classes -- each with distinct production strategies -- that depend on the distribution of land and wealth endowments. Since each of these classes face different shadow prices for inputs, the economic returns to land and wealth also differ across classes. Over time, it is these differences in asset returns or the 'class competitiveness regime' that

[9] Other recent studies that explore the effect of imperfect factor market on conservation investments in a dynamic context include Shiferaw (1996) and Wik and Holden (1996). Greperrud (1997) develops a theoretical model to analyze soil conservation adoption decisions by subsistence households in a context of imperfect markets for insurance.

determine the ability to accumulate land or wealth and thereby induce structural changes in the distribution of land.[10]

Whether incentives generated by the shifts in competitive regime actually affect structural change depends on how well the land market works (Carter and Zegarra, 1995). Whether agrarian structure evolves towards increasing polarization or towards a more equitable distribution depends on whether the likely labor advantages of small farms outweigh their disadvantages in the capital market. Ultimately, which rural policies -- land, labor, or credit market reforms -- can generate a significant shift towards a more equitable agrarian class structure depends on these empirical questions.

## VI. Modeling agrarian institutions: informal finance

We have seen that the pervasiveness of institutional gaps, which has worsened in the context of economic transitions and adjustment policies, is one of the important current hurdles for successful rural development. Recent advances in the NIE applied to agrarian institutions provide important guidelines for rural policy directed at this task. Institutional gaps concern a wide array of agrarian institutions including rural finance, marketing arrangements, research and development, technical assistance, and rural insurance. One area in which there has been remarkable progress in both theory and implementation is rural informal finance. In this section, we focus on this subject as an example of successful theoretical advances in support of rural policy.

### 6.1. Formal and community-based finance: limitations and comparative advantages

To be successfully completed, credit transactions require control of adverse selection (AS) and moral hazard (MH), and provision of some insurance to avoid losing good borrowers who face a bad shock. Insurance itself requires control of AS and MH, and sufficient resources to absorb the negative shock.

Control of AS and MH is demanding in information and punishment instruments. Acquiring adequate information for a bank can be prohibitively expensive. Hence, banks resort to second-best devices such as:

a. Requirement of collateral that could be seized if repayment does not take place. This mechanism controls for AS and MH, but does not per se offer access to insurance. The main problems are exclusion of those who do not own collateral and absence of insurance, leading to both inefficiency and inequity.

b. By incorporating limited liability (i.e., insurance, which assumes sufficient control of moral hazard) in a contract, AS can be mitigated by a combination of keeping the interest rate lower than the equilibrium level and credit rationing (Stiglitz and Weiss, 1981). This mechanism also entails efficiency costs due to the interest rate distortion and the rationing mechanism that cannot identify the best projects under imperfect information.

Members of rural communities have access to local private information and to instruments for enforcement not available to banks. Banks have a comparative advantage in securing resources for lending and diversifying risk over space and activities. This calls for the design of intermediary institutions that provide access to the banking sector's resources while at the same time mobilizing the community's informational, monitoring, and enforcement advantages to improve the delivery of credit (Aryeetey, 1996).

Some informal financial institutions like money lenders and RoSCAs (Rotating Savings and Credit Associations) are based on community relationships only. Interlinked credit contracts (for instance with merchants who themselves have access to the formal banking system), village agents working for commercial banks, credit and savings cooperatives, and group lending call upon both formal financial

[10] The term 'class competitiveness regime' comes from Carter and Zegarra (1995) who examine agrarian class evolution in Paraguay.

institutions and community relationships.[11] Among such alternative institutions, we develop the theory of group lending which is particularly promising for rural development finance.

### 6.2. The theory of group-lending: peer selection, peer monitoring, and mutual insurance

Group lending is generally organized by a specific financial institution that serves as an intermediary between a bank, which is the original source of funds, and borrowers. Borrowers form groups to access loans. The financial institution may extend loans to all group members individually or to the group as a whole. Individual loan amounts may be equal or different, although for successful functioning of the group itself, differences cannot be too wide across borrowers. Even though some institutions require initial savings deposits, all members are net borrowers. Interest rates paid by borrowers are usually high, although less than on funds obtained from money-lenders. The fundamental characteristics of a group lending scheme are: 1) groups form voluntarily and members self-select, and 2) group members are jointly liable for the loans. Joint liability implies that members cannot obtain further credit until all outstanding loans in the group have been repaid, or they may be required to pay a penalty if any member defaults.

Using simple models, we show how the joint liability clause creates incentives for members to use locally public information for the purpose of exercising peer selection and peer monitoring, to apply social pressure to force repayment of loans, and to extend insurance to each other or help with repayment in case of genuine difficulties. In all these models, we assume that there is an infinite supply of capital at a fixed cost $\rho$. The bank's function is to design a contract that will allow the delivery of this capital to borrowers, and we assume that the bank makes no profit, i.e., all benefits are returned to borrowers.

*The benchmark equilibrium of individual credit with adverse selection*

Following Morduch (1999), imagine that there are two types of potential borrowers, "safe" $S$ and "risky" $R$, in given proportions $s$ and 1 - $s$. Project $i$ has probability of success $\pi_i$, net return $R_i$ per dollar invested, and thus an expected return $\overline{R}_i = \pi_i R_i$. Risky borrowers have a lower probability of success ($\pi_R < \pi_S$) but a higher return if they succeed. Borrowers are assumed to be risk neutral, with $m$ their fall-back option without a loan. To focus on the issue of adverse selection, we assume that there is no moral hazard, i.e., the bank can enforce payment when the project is successful. The bank extends insurance to borrowers through a limited liability clause which pardons dues in case of project failure.

If the bank knows each borrower's type, its first best option is to offer a loan contract with a gross interest rate (including both principal and interest) $r_i = \rho/\pi_i$ to borrowers of type $i$. Safe borrowers, who repay their loan more often, have a lower interest rate than risky borrowers, but all borrowers on average pay the cost of capital $\rho$. With this personalized contract, all socially profitable projects, i.e., with expected return $\overline{R} \geq \rho + m$, are financed and credit delivery is efficient.

However, when the borrower type is not known, the bank can only offer the same rate $r$ to all borrowers. The rate that ensures zero profit to the bank is $r = \rho/\pi$, where $\pi = (1-s)\pi_R + s\pi_S$ is the average probability of success in the population. The average cost of capital to safe borrowers is $r\pi_S$ which is higher than $\rho$. Safe borrowers subsidize risky borrowers, and will only take loans for projects with expected return $\overline{R}_S > \rho\frac{\pi_S}{\pi} + m$. At the same time, risky borrowers pay an average cost that is lower than the opportunity cost of capital, and hence are likely to undertake projects that are not socially profitable. Asymmetric information on borrower types thus penalizes safe borrowers and subsidizes risky borrowers, inducing a misallocation of capital, i.e., inefficiency in credit delivery.

*Peer-selection improves the pool of borrowers and increases efficiency in credit delivery*

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[11] Descriptions of alternative institutions are given in Otero and Rhyne (1994) and Krahnen and Schmidt (1994).

Adapting the model of assortative matching developed by Becker (1981), Ghatak (1997) shows that the joint liability clause induces borrowers to sort into homogenous groups. This process allows for lower interest rates and raises the social efficiency of credit distribution.

In a two-person group contract, a borrower is liable to a fine $c$ if his associate fails to repay his loan (i.e., if his associate's project fails since there is no moral hazard), and he himself has a successful outcome. A borrower of type $i$, associated with a borrower of type $j$, will therefore expect to repay $\pi_i\left(r+\left(1-\pi_j\right)c\right)$. Comparing these expected costs across borrower-types, we can see that any borrower would prefer to associate with a safe rather than a risky borrower. However, the benefit that a risky borrower would gain in teaming up with a safe borrower rather than a risky borrower is lower than the cost that the safe borrower would incur in the mixed group. Hence there is no mutually beneficial way for risky and safe borrowers to form mixed groups. Joint liability thus leads to assortative matching into homogenous groups.

With assortative matching, safe borrowers when successful pay an interest rate $r+\left(1-\pi_S\right)c$ which is lower than $r+\left(1-\pi_R\right)c$ paid by risky borrowers when they themselves are successful. Increasing the fine $c$ creates an effective price discrimination between safe and risky borrowers that brings the contract closer to the social optimum. This is shown as follows. The bank's zero profit rule creates a link between $r$ and $c$, allowing in particular a lower $r$ when higher fines $c$ are imposed. Substituting this relation into the average cost for safe borrowers shows that safe borrowers will find it profitable to borrow whenever the expected return of their project is sufficiently high:

$$\overline{R}_S > \rho\frac{\pi_S}{\pi} + m - c\frac{\pi_S\pi_R}{\pi}\left(\pi_S - \pi\right).$$

Can the bank set a sufficiently high level of $c$ to achieve the efficient price discrimination of the first best contract? Not necessarily, because there is an upper limit to the fine $c$ set by the fact that the total liability, interest plus fine, cannot exceed the net return to the project $r + c \le R_S$.

One can show that group credit lowers the limit for $\overline{R}_S$ safe borrowers and raises it for risky borrowers. This simple model thus shows that group liability can attract back into the credit scheme the projects of safe borrowers that are socially profitable but are excluded in an individual loan scheme, and can eliminate some socially inefficient projects by risky borrowers who benefit from the subsidy they receive in the individual scheme.[12] Thanks to peer selection, group lending is thus a more constrained-efficient institution.

In a different set-up where loosing access to credit after a default represents a large loss to any borrower, Sadoulet (1997) shows that groups may form heterogeneously provided the safer borrowers receive transfers from the riskier borrowers in compensation for the insurance provided. In essence, this is obtained by adding a term $\left(1-\pi_i\right)\left(1-\pi_j\right)L$ in the expected cost of the loan, where $L$ represents this loss. This is another scheme by which incorporation of the poorer segments of the population, that often face a more precarious and riskier set of options for their activities, is made possible.

*Peer monitoring*

Group lending can also curb opportunistic behavior that would induce default. The peer monitoring mechanism is illustrated in a simplified version of a model by Stiglitz (1990), similar to the one developed by Besley (1995). Borrowers are assumed to be homogenous, but can choose between a risky and a safe project. Suppose, for the sake of the argument, that the safe project is socially optimal, i.e., $\pi_S R_S > \pi_R R_R$. Under an individual loan program, there is a critical $r$ above which $\pi_R\left(R_R - r\right) > \pi_S\left(R_S - r\right)$ and the risky project is always chosen. Thus, if the zero profit rate for safe

[12] A rigorous analysis of incorporation of borrowers should go further in allowing for the shares of safe and risky borrowers to be endogenous, and jointly determined with the participation of borrowers.

projects, $\rho/\pi_S$, is above this critical limit, the risky project will be chosen in equilibrium, resulting in socially inefficient distribution of credit.

Under a group lending scheme, joint liability will induce both borrowers to choose either the risky or the safe project, for the same reason that makes heterogeneous borrowers exercise peer selection. With interest rate $r$ and fine $c$, the expected return for an individual of a group having chosen project $i$ is $\pi_i\left(R_i - r(1-\pi_i)c\right)$. This indicates that an increase in the fine raises the relative profit of the safe project if the variance of the risky project is higher than the variance of the safe project, $\pi_R(1-\pi_R) > \pi_S(1-\pi_S)$. Under these circumstances, a sufficiently high level of fine induces the choice of safe projects. With peer monitoring, joint liability improves social efficiency in allocating credit to the safer projects.

*Insurance*

A third dimension of group lending is to provide an environment conducive to mutual insurance among borrowers (Besley and Coate, 1995). In its simplest form, the idea is that the bank only needs to assess a fine to group default greater than twice the interest rate. This naturally leads borrowers to prefer to pay for their partner whenever they can rather than letting the group default. The equilibrium group solution is that each partner pays for the other when he himself can cover the total dues and his partner does not pay his own share. Assuming further that the group has the ability to control for moral hazard internally, the equilibrium is that each borrower will pay if he can, and pay for both loans if he can and his partner cannot pay his share. The capacity to punish in order to control moral hazards often draws on interlinked transactions among members or on the mobilization of social collateral or pressure from the community which can ostracize a member for his bad behavior. This provision of insurance increases the repayment rate for the bank. The drawback of the scheme is that whenever one of the partners could repay his loan but not both loans, the whole group will default. Overall, jointly liability increases the repayment rate if the incidence of mutual insurance overweighs the incidence of group default when one of the partners would have been able to pay his share.

In most contexts, the bank has no ability to control moral hazard behavior and hence cannot provide limited liability. If one thinks of the fine as being the denial of future loans, mutual insurance increases the ability for borrowers to remain in the credit scheme when they face adverse shocks. This is clearly welfare improving compared to no insurance at all, and it explains why some borrowers may choose group credit even when they have access to individual credit (Sadoulet, 1997). It is noteworthy, however, that this mechanism keeps the burden of insurance within the group, which is second best compared to what could be achieved if the less risk averse bank could play the role of insurer.

### 6.3. Evidence on the importance and impact of group lending programs

The group-lending approach to credit delivery started in the early 1970s in El Salvador, India, and notably in Bangladesh with the Grameen Bank and the Bangladesh Rural Advancement Committee (BRAC). Since the 1970s, group lending programs have expanded in number, size, and geographical coverage.[13] At present, there are 168 Grameen Bank replications in 44 countries. In Latin America, Acción Internacional provides assistance to implement a well defined lending technique to affiliates in 14 countries. An important characteristic of the program is institution building and the transformation of NGOs into regulated institutions, a status achieved by BancoSol in Bolivia, for example. In Africa, several initiatives have sought to develop the group lending methodology, and there also we see the development of second level organizations such as the Kenya Rural Enterprise Program (KREP), an umbrella organization that provides technical and financial assistance to local NGOs. Group-lending has also been introduced in the United States: Acción Internacional has established six programs geared towards the poor in Southern California, New Mexico, Texas, Chicago, and New York. In its Directory of Microenterprise Programs, which covers 195 programs assisting 210,000 low income microentrepreneurs in 44 states, SELP (Self-Employment Learning Project, from the Aspen Institute) notes that 20% of the programs operate group lending schemes.

[13] Sources of information on group lending programs are: Zeller, Schneider, von Braun, and Heidhues (1997), Otero and Rhyne (1994), and the webpages of Acción Internacional and FINCA.

Most group-lending programs are still relatively young and small, with fewer than 10,000 borrowers. Some of them, however, have reached a sizable scale: the Grameen bank now lends to two million clients, mostly women, BRAC was serving 700,000 micro entrepreneurs in 1992, Acción Internacional and its affiliates reached 176,000 micro entrepreneurs in 1996, and BancoSol serves one third of all the banking sector clientele in Bolivia. The rapid growth of these institutions creates challenges of internal organization and source of funding that we will address in the next section.

While the purpose of these programs is to improve the welfare of their clientele, few impact analyses are available. The main difficulty in addressing this question is proper control for selectivity of clientele and non-random program placement. Econometric correction for these selection bias problems would require identification variables, i.e., variables that affect program participation but do not affect directly the effects of participation. Short of finding such variables, survey design needs to include proper control groups (Coleman, 1997). Controlling for these effects, Pitt and Khandker (1998) find that each dollar lent by Grameen raises annual household expenditure by 17 cents. If the program has a permanent effect on income generation, then the proper value of the program should be an income stream of 17 cents per year rather than just 17 cents (Morduch, 1998).

While group lending was born and expanded mostly in urban contexts, village banking was developed mainly in rural settings. Village banks are community-managed credit and savings associations of 20 to 50 members. Members of the village bank self-select and offer a collective guarantee. An important difference from group lending is the building of local resources through a compulsory savings program, and an expectation that the village bank will become self-sufficient. FINCA, a pioneer of this lending technology, was working in 14 countries, serving approximately 70,000 borrowers in more than 2,600 village banks in 1997. Recently introduced FINCA programs in the United States, in the Washington-Baltimore metropolitan area and in rural Minnesota, differ in many ways from their counterparts overseas: borrower groups in the U.S. are comparatively small, averaging six members, with members mostly in the service sector, and loans are much larger. However, group-solidarity remains an essential characteristic. The village banking method has been replicated in more than 80 other programs in 32 countries, notably by CARE, Catholic Relief Services, Freedom from Hunger, and Save the Children.

A critical issue when judging the effectiveness of these institutions for rural development is to assess their capacity to include the poor. Targeting the poor is embedded in the rules of eligibility, with for example upper limits on land holdings (Grameen Bank and BRAC) and targeting of women (Grameen Bank and FINCA). While there is evidence of substantial mis-targeting (Morduch, 1998) and loss of control by women over the loans (Goetz and Sen Gupta, 1996), statistics on clientele from the institutions' records and from surveys show that group-lending reaches a clientele that would not be served by the formal banking system. Borrowers do not have collateral acceptable to banks and loans are substantially smaller than what banks deal with. In that sense, these institutions allow inclusion of poorer borrowers than the previously existing financial system. What is not clear, however, is who are the excluded. Due to lack of information on the excluded, one can only infer exclusion by any institution from the rules and criteria for eligibility or from descriptive statistics on the clientele population. An affiliate of Acción Internacional in Guatemala, Genesis, for example requires that merchants had a fixed location and stall on the local market for at least one year in order to qualify. The reason for this is easy to understand. In a market environment where merchants are fluid and residence unknown, the only element that constitutes some sort of membership to a community is permanence on the work place. On the other hand, this very condition excludes all new potential entrepreneurs that need start-up capital.

There is an unsettled debate about whether it is appropriate for a financial institution to try to reach the "poorest of the poor", rather than concentrating only on the segment of "bancable poor" and, if the latter, how far can it go in successfully transforming poorer households into bancable poor. This debate relates to another issue on whether these lending institutions should strictly follow the rules of good business and at a minimum financial self-sufficiency, or also be seen as welfare agencies efficiently channeling transfers and subsidies.

### 6.4. Lessons for institutional building for rural development

The financial institutions described above illustrate some basic principles of a new approach to institution building for rural development. These institutions are designed to harness the comparative

advantages of communities in information and enforcement and to link them to the larger market. Their success relies on the conditions that ensure that 1) community information and enforcement capacity are sufficient, and 2) members become full partners in the market place.

*Building on communities*

A community's advantage in accessing information on its members' actions comes from geographical and sociological factors. Proximity of living quarters or businesses, frequent encounters and interactions, stability of the community and long term relationships, all contribute to reduction in information costs. Homogeneity in ethnicity, religious affiliation, caste membership, or wealth is also found to be conducive to tighter links among members. While these conditions are typically satisfied in rural areas, credit institutions have also managed to build on whatever embryonic community exists in urban market settings. Training in "community" behavior is an important element of group lending programs that are located in urban environments.

Contract enforcement depends on the incentives that members have to stay in the program and on the community's capacity to exclude or punish for opportunistic behavior. A major difference in types of community endeavors is whether the group of beneficiaries is predetermined, or whether there is selective inclusion/exclusion. In group-lending programs, exclusion from access to credit is in itself an important deterrent to opportunistic behavior, and this all the more if the institution has built in dynamic incentives by increasing loan size in reward for good repayment performance. Exclusion is not, however, possible when programs dispense public goods for the community, or when members have inalienable rights (right to grazing on common property, right to access water, etc.). The expected benefit of remaining in the program depends on the long term prospects of the program. Many failures in microlending were precipitated when clients, perceiving some weakness in the program, assumed that it would be short lived, and then defaulted on their loans. The unfortunate historical experiences with short lived development programs have in certain areas generated a culture of opportunistic appropriation of loans. A third determinant of the relative benefit of a program is the value of the exit option. Microcredit financial institutions prefer to operate in a context of monopoly, where clients' exit option is the moneylender with much higher interest rate. If financial institutions were competing, borrowers could always default and join another program. This situation has drawbacks, as monopolies always have, with limited product differentiation and non-competitive prices. This is partially avoided when informal financial institutions are non-profit, but it recreates another set of incentive problems typical of NGOs (Bebbington and Farrington, 1993). The threat of exclusion can be an effective punishment if institutions that compete share their black lists of defaulters, like credit bureaus in the MDCs. When potential exclusion is not a sufficient threat, communities can resort to other means of pressure to curb opportunistic behavior. Means of enforcement range from the interruption of other interpersonal linkages, to the mobilization of social norms of behavior to denounce, shame, and eventually have the community ostracize the offender.

The mesh of interpersonal and community relations which facilitate communication, information, and control is part of what has been coined as "social capital" (Coleman, 1990). There is the interesting issue here of how much social capital can be "created" by development agencies, as opposed to being taken as an exogenous attribute of history. Can new communities be formed around common interests or needs (such as professional associations and interest groups), build linkages, and learn to cooperate? How much is cooperation "habit forming" (Seabright, 1997) and can cooperation be sustained beyond the initial phase of intensive training programs?

The issue of exclusion relates to a larger concern for social differentiation. In the context of microenterprise finance, social differentiation will obviously increase between those who have the minimum start-up "capital" or meet the minimal conditions to qualify for the program and those who do not. Furthermore, in group-lending, groups tend to form homogenously, as theory predicts, with wealthier and better entrepreneurs joining together and less skilled or endowed borrowers joining in other groups. This is bound to increase differentiation among groups and individuals. Incorporation and support of the weaker by the stronger requires another type of social network, based on patronage relationships (Fafchamps, 1992b) or transfers for insurance services rendered (Sadoulet, 1997). In general it takes very peculiar circumstances for better endowed individuals to actually need the less well endowed and hence pull them into participation and support them on some unequal exchange basis (Ostrom and Gardner, 1993).

Identifying best practices to extend as much as possible inclusion of the poorer rural households into solid credit groups is thus an important pending issue in the use of microfinance for rural development.

*Institutional requirements*

At the level of the institutions themselves, two issues are of importance: 1) the process of their emergence and 2) their sustainability.

Comparing village banks and RoSCAs illustrates the role of external agents for the emergence of new institutions. A RoSCA is a group whose members meet at regular intervals to contribute a predetermined amount of money, with members taking turns collecting the total amount contributed. The RoSCAs offer to their members the possibility of accumulating savings for a lumpy purchase, and serve as intermediaries between depositors and creditors (Besley, Coate, and Loury, 1993). RoSCAs are for the most part indigenous institutions that have emerged throughout the world and particularly in Africa. While the range of services they offer is quite limited, they are simple to operate, with minimum administration, no start-up costs, and simple rules to design and enforce. For this reason, they spontaneously emerged and spread without external intervention. In contrast, the emergence of group-lending or village banks almost all required the involvement of an external leader or agency.

Initialization of a financial service in a new area entails higher costs than the subsequent operation of the service due to startup costs (equipment, recruitment, and training of local agents) and provision of a range of services without having yet a sufficient scale to spread the costs. One can argue that innovative institutions have costs of diffusion of techniques and training that are higher than standard commercial banking services but entail positive externalities beyond the community that is served. This justifies the allocation of subsidies at the onset of new programs. Acción Internacional, for example, supports its new affiliates with subsidies and training for three years, after which the operation is expected to be self-sufficient. Another important role of external agents is the transmission of expertise. Management techniques to lend to the microenterprise sector are being tried, tested, and improved in experiences that take place all over the world, and considerable benefits and lower risks of failure can be achieved by allying with a larger organization, such as Acción Internacional, FINCA, and other similar large NGOs which have the benefit of cumulative experiences. Most of these institutions depend on strong leaders especially at the onset of the program when s/he may be under strong pressure to accommodate individual needs. External promoters may sometimes find it easier to pressure community members to comply with regulations. As time passes, rules become institutionalized, patterns are established, and local institutions may be able to function on their own (Holt, 1994).

Beyond the start-up years, financial self-sufficiency is almost a prerequisite for sustainability of the services offered. Programs that perform poorly with revenues falling short of costs and requiring a continuing flow of grants are vulnerable to the willingness of donors to continue providing them with funds. The very vulnerability of a program weakens its credibility and may induce rational borrowers to default on loans. Even when they cover their operating costs and loan losses, programs that depend on soft sources of funds at below market rates receive an important implicit subsidy. Dependence on soft sources of funds represents a constraint for expansion of the programs as these funds are limited. This restriction prevents institutions from reaching economies of scale to spread their fixed management costs that further hamper financial self-sufficiency. Hence, programs that want to develop need to reach a level of efficiency and cost reduction that allows them to borrow from the commercial sector. Only when this level of self-sufficiency has been attained can we consider that the institution has fulfilled the goal of linking the local community to the larger market, and in doing so has both helped the poor gain access to market opportunities and provided the capital market opportunities for profitable operations. Many of the well-known programs have reached this level where most subsidies are eliminated, with only a small share of their funds acquired at subsidized rates. A few programs now aspire to transform to take on financial intermediation, i.e., to expand their services to the full array of credit and savings services offered by banks (Otero and Rhyne, 1994).

The participation of NGOs to financial intermediation poses challenges to them in terms of sophistication and technicality of management which they did not need to have in their prior activities. It also highlights an important dilemma between the social development objective of the original NGO and the donors, and the profit objective of a banking institution (Otero, 1994). The social agenda of these

organizations is to incorporate a certain number of poor into the capital market. While this has proved to be feasible and financially viable, the more the institution goes in the direction of financial intermediation, relying on banking procedures to remain viable and cover its costs, the more difficult it may be to incorporate the more risky clientele with costly lending techniques, and the more the easier wealthier clientele may seem attractive. The institution thus risks being caught between two worlds, with criticisms from the NGO community for having lost its commitment to the poor, and from the banking community for not being credibly viable.

The debate about self-sufficiency of the Grameen Bank illustrates another important dilemma, even in the realm of an NGO organization (Morduch, 1998). Although the Grameen Bank has been reporting profits every year since 1986, a detailed accounting of implicit subsidies in the form of concessional interest rates for the capital obtained from foreign donors and the Bangladesh Central Bank shows that beneficiaries received an overall subsidy of about 25 cents per dollar borrowed. This is in contrast with some of the more advanced group lending programs initiated by Acción Internacional and Indonesia's BRI which are free of any subsidy. However, Grameen has focused its attention on a substantially poorer segment of the population than these other institutions. This population would probably be excluded from the lending operation if Grameen were to charge full costs. Yet, impact studies show that households clearly benefit from the loans, not only in terms of higher income, but in many other aspects of welfare including empowering women, encouraging better health practices, promoting education, and encouraging social cohesion (Morduch, 1998). For these functions, the proper counterfactual to which Grameen should be compared is the cost of alternative welfare programs, implying the need to clarify objectives when designing new financial institutions for rural development.

Financially sustainable programs are less limited in their scope and, while reaching a population which is less poor, can have a strong impact on poverty by their scale. The issue is not so much to argue for one or the other of these programs, but to accept that both serve different population groups.

## VII. Community relations and behavior[14]

The community is an important unit of intervention for rural development. It serves functions that support individual decentralized actions and contracts. These functions include the circulation of information among members (e.g., on market opportunities, new technologies, and strategies to migrate) and the mobilization of social capital (through permanence of the community, interlinkages, and social norms) for the enforcement of contracts. In particular, the strength of local social norms can be a powerful substitute to costly enforcement mechanisms, thus helping community members manage informal financial institutions and mutual insurance schemes. The community can also organize to undertake centralized functions such as governance for the provision of local public goods, the management of common property resources, the creation of incentives for local investment, and the organization of local safety nets.

Community failures in collective action arise when prisoner dilemma behavior prevails, leading to the breakdown of cooperation. This incentive structure has been used to explain a range of community outcomes including the under-provision of public goods and the over-appropriation of rival resources extracted from common access resources (Hardin, 1968). This is, however, not an inevitable outcome, far from it (Ostrom, 1990; Baland and Platteau, 1996). There are two types of situations that lead to this virtuous community outcome. One is when the payoff from community level non-cooperative games is identical to cooperative outcomes. This is the case for instance with the Chicken Game where some community member will perform a provision task irrespective of the behavior of others, simply because it is so important that the task be done (Bardhan, 1993). The other is based on the ability of the group to genuinely cooperate, although this ability is conceptualized in two quite different ways. One type of model is based on social stability in the community, limited availability of exit options, and the observability of individual actions. Dynamic repeated games lead to applicability of the Folk Theorem. Credible threats of punishment are necessary to trigger cooperation, such as exclusion of community benefits. Social norms of trust in reciprocity are important in helping start an intertemporal cooperative process, such as tit-for-tat arrangements. An alternative framework assumes that the community has instruments of observability and enforcement, although these are costly. If the costs of enforcement are fixed, cooperative behavior will be

[14] See the chapter by Elinor Ostrom in this volume.

triggered by benefits that exceed fixed costs. If, in addition, the costs that the community has to incur to observe and enforce cooperative behavior depend on the incentives that members have to cheat, then the quality of cooperation will depend on the community's efficiency in countervailing these incentives (McCarthy, Sadoulet, and de Janvry, 1998).

The literature is replete with identification of conditions that promote community cooperation. They include factors that: (1) Increase the benefits from cooperation (a truly closed access resource with well defined boundaries and a well defined set of members (Ostrom, 1992; Wade, 1987); a smaller number of members over which to distribute the gains from cooperation (Olson, 1965; Bendor and Mookherjee, 1987); resource abundance that is neither too high or too low (Bardhan, 1993)). (2) Lower monitoring costs (smaller groups, greater proximity and homogeneity (Wade, 1987), longer-term relationships (Hirschman, 1970)). And (3) increase the ability to enforce rules (leadership, high cost of exit option (Hirschman, 1970), homogeneity and perception of fairness in the distribution of gains from cooperation (Johnson and Liebcap, 1982), interlinkages among community members (Besley and Coate, 1995), credibility of threats and commitment of sanctions, availability of conflict resolution mechanisms (Ostrom, 1992), shared social norms (Sethi and Somanathan, 1996), and trust capital (Seabright, 1993)).

While the village-based community is a natural organizational unit, many cooperative institutional functions are not fulfilled at the community level but within specialized sub-coalitions. In many situations, the community is too large, too heterogenous, and too ridden with conflicts to prevent free riding. Sub-coalitions allow better monitoring and enforcement, both by reducing the number of participants and by allowing screening (which cannot be done at the community level). Mutual insurance thus rarely occurs at the community level. For instance, mutual insurance along irrigation canals (water smoothing) occurs among self-selected subgroups, usually on a kinship basis (Murgai, Winters, Sadoulet, and de Janvry, 1998). This is the reason why tests of mutual insurance that looked for consumption smoothing at the community level may have been mis-specified and found evidence of imperfect smoothing (see for example Deaton (1992b), Townsend (1994), Ligon, Thomas, and Worrall (1997), and Gertler and Gruber (1997)). Among ejidatarios, regulation of grazing on common property pastures frequently occurs within sub-coalitions (Wilson and Thompson, 1993). Sharecropping contracts among close kin allow mitigation of Marshallian disincentives through interlinked transactions and are thus preferred to contracts with non-kin (Sadoulet, de Janvry, and Fukui, 1997). Hence, the community is frequently not the social unit over which cooperation occurs and where new institutions emerge. And, reciprocally, these arrangements could emerge and be efficient for rural development without functional rural communities if making private information locally public, social capital, and repeated interactions can be engineered over alternative social units. Assisting rural communities achieve higher levels of cooperative behavior in the provision of local public goods and the extraction of common property resources is thus an important and much neglected dimension of rural policy, particularly in the context of extensive devolution of resource control to local communities (Arnold, 1999). Improved cooperation can lead to efficiency, welfare, and environmental gains.

## VIII. Regional linkages and endogenous growth

Rural policy has a regional dimension that creates opportunities to induce income effects via complementarities among economic activities. A number of analytical tools that apply at the national level to study multiplier effects, market effects, and external economies effects thus also have validity for rural development. There has been extensive use of multiplier analysis to quantify the regional income effect of an increase in autonomous income (e.g., migrant remittances) or the effect of a technological change in an export sector on the regional production of nontradables (Haggblade, Hazell, and Brown, 1989). Multiplier effects have been generalized in the Social Accounting Matrix Framework to account for backward linkage and final demand effects (Subramanian and Sadoulet, 1990; Taylor and Adelman, 1996). For rural areas, final demand effects are typically larger than intersectoral linkage effects due to the low intermediate demand content of agriculture and microenterprise activities. Since there are markets that close at the regional level, multimarket (Quizon and Binswanger, 1986; Braverman and Hammer, 1986) and CGE (computable general equilibrium) models with regional disaggregation have also been used. In some instances, these models have been applied at the village level (Taylor and Adelman, 1996). Such models are effective to trace the short run effects of exogenous shocks, changes in price and tax policies, technological change, and different income redistribution schemes. Social disaggregation allows an analysis of the income distribution effects

of these shocks and reforms across land or income classes. These models are, however, weak in allowing for market and institutional failures and for non-linear effects associated with externalities and economies of scale.

The endogenous growth literature has much to offer to the understanding of regional development and the design of rural development interventions. Positive externalities in specific firms and activities create complementarities whereby one action reinforces other actions. This is the case for the adoption of new technologies by one firm or the decision to invest by one firm in a particular location. Adoption and investment by one firm will reduce costs for other firms and induce them to do the same. This behavior, conceptualized for instance in the assurance game, typically creates multiple growth equilibria based on different expectations about the behavior of others. Hence, a region or a community may find itself locked in a low level equilibrium trap because agents have mutually low expectations about the behavior of others. Coordination among actors is thus necessary to escape the low level equilibrium and switch to a higher income equilibrium. This may apply to market expansion effects for regional nontradables produced with economies of scale, or to the use of intermediate inputs produced with economies of scale (Ciccone and Matsuyama, 1996). Coordination in investment (Rosenstein-Rodan's "big push") will create these market expansion effects. Coordination may thus help a region switch from an equilibrium based on activities with decreasing returns to scale to an equilibrium based on activities with increasing returns to scale, escaping a low level equilibrium trap and entering into self-sustaining growth. When there are time lags in achieving scale and capital markets fail, activities with increasing returns to scale, when more efficient industries are already in place in other regions or countries, will typically require a phase of protection or subsidies. This is the infant industry approach that has justified implementation of import substitution industrialization policies. In rural development, economies of scale are typically due to high fixed costs in setting up new institutions and reaching critical levels of learning-by-doing and learning-from-others. Subsidies to cover these costs or long term loans to future beneficiaries are needed for these institutions to be introduced in the region.

There are many reasons why coordination may fail, maintaining regions in poverty traps. Gains and losses from a rural policy reform may be hard to value, particularly if there are many market failures. The interpersonal distribution of gains and losses may be uncertain, leading agents to prefer the status quo over the risks of change (Fernandez and Rodrik, 1991). Financing may not be available, for instance for a land reform that redistributes land from inefficient large farm to efficient small farms. And, when there is a lag between future benefits for gainers and present losses for losers, commitment devices may be lacking to guarantee that compensation will indeed be paid, creating a time consistency problem. Useful commitment devices for this purpose may include reputation based on exposure to democratic elections, delegation to specialized agencies with legal and administrative rules removed from political pressures, guarantees of future transfers by reputable foreign institutions, and sunk costs that create irreversibilities. Social norms may also block the emergence of new patterns of behavior until a critical mass of individuals abiding to these new patterns has emerged, a process of change analyzed in evolutionary economics (Basu, 1995). Unless coordination allows this critical mass to emerge, the status quo will prevail, even if highly inefficient (Akerlof, 1976). Triggers to the emergence of this critical mass, as we have seen for financial institutions, include charismatic leadership, better information on the expected gains from cooperation (Hirschman, 1984), and external catalytic agents such as NGOs. Identifying best practices to activate these triggers is a key dimension of rural policy.

## IX. Conclusions: toward a new approach to rural development[15]

Combining the new context for rural development with the theoretical advances in household behavior, institutional economics, community behavior, and endogenous local growth has allowed to rethink approaches to rural development and to experiment with novel initiatives. We only briefly mention

[15] There are three additional areas of theoretical advances that would need to be covered to give a complete background for the design of rural policy: (1) The decentralization of governance, (2) the political economy of pro-rural development coalitions, and (3) the definition and targeting of welfare programs for the poor who cannot benefit from income generation-oriented programs. We refer the reader to other chapters of the Handbook for these subjects.

here some of the key features of this new approach. It remains in general only weakly conceptualized and experiments are dispersed and poorly informed, suggesting a rich research agenda for rural economists.

The general principles on which a new approach to rural development are based are: (1) a macroeconomic and sectoral policy context that does not discriminate against rural development, (2) decentralization of governance and improved capacity of local governments, (3) coordination between local agencies and between local and national agencies, (4) organization of households in GROs and mediation by NGOs for relations to the state and the market, (5) empowerment through the participation of organized local agents in the definition of priorities for public investment and the allocation of subsidies, (6) mobilization of resources both locally through taxation and user fees, and for transfer to the region, (7) devolution of management of common property resources and local public services to user groups, (8) institutional reconstruction to mitigate market and government failures and complement opportunities offered by the market and the state, (9) greater access to assets for households to help them escape poverty traps and initiate a process of accumulation, (10) improved performance of markets and reduction of anti-poor biases in the performance of markets (Carter and Barham, 1996), and (11) political pressures to deal with environmental issues which offer opportunities for significant resource transfers in support of rural development initiatives that promise conservation and sustainability.

Progress in the theory of rural economics allows a better understanding of the following elements of rural development interventions:

1) Household behavior

Accounting for the role of private information, transactions costs, limited commitment, costly enforcement, market constraints, and exposure to risk helps provide interpretations of the static and dynamic behavior of households. We have seen that this second best context explains why there are important spillovers across activities in resource allocation (e.g., between food and cash crops), biases in investment portfolios (e.g., toward liquid productive assets), and rigidities in supply response as many households opt for self-sufficiency or are constrained on other markets. These behavioral patterns all have efficiency costs that can be reduced by perfecting markets and promoting mitigating institutions. In particular, seeking to reduce transactions costs opens a whole array of rural development interventions beyond the farm.

Ex-ante adjustments to price risk differ considerably across households according to market integration, with net sellers reducing production, although less than pure farmers, while net sellers may increase it. Anticipated constraints and shocks induce households to smooth their long term consumption paths, for which they need access to remunerative and secure savings opportunities and to financial institutions for borrowing. Unanticipated constraints and shocks have large negative impacts on welfare as households need to cope with them as they come. Reducing the welfare costs of these risks requires access to flexible lines of credit expectedly less costly than money lenders and to safety nets such as guaranteed employment programs (Subbarao et al., 1997).

Many households are susceptible to poverty traps. In static analysis, these traps are due to under-endowments in assets when there exist minimum threshold requirements for their productive use. This calls upon making socially profitable transfers and long term loans to help households escape these traps and initiate sustainable income growth. In dynamic analysis, use of liquid income generating assets for smoothing creates persistence in income shocks and potentially collapse into poverty traps. This also can be prevented by emergency assistance programs to avoid decapitalization of productive assets and help stabilize assets prices. Duration analysis of household behavior stresses the volatility of participation in new activities. Hence, not only must adoption be induced but abandonment prevented. This suggests paying attention to investment in maintenance and conservation activities if booms are not to be followed by busts, as has been the sad story of too many rural development programs.

Household asset endowments and circumstances are highly heterogenous, inducing households to pursue a broad range of investment and income strategies. The implication is that there are many roads out of poverty and that rural development initiatives must capitalize on this diversity. Hence, there is no silver bullet for successful rural development. Heterogeneity calls upon rural development interventions that differ across classes of households according to their potential. For instance, program interventions must differentiate between households with agricultural potential, with no agricultural potential, and with

pluriactivity potential, calling in each case on a sharply different set of instruments for rural development (see de Janvry et al., 1995; Echeverria, 1997). Interventions must also differ across time periods, for instance to relax specific seasonal credit constraints or target nutrition interventions during the lean season. It is precisely because of this heterogeneity in a context of asymmetric information between households and development agencies that the fundamental task of rural development is to help households reveal their demands for intervention, stressing the importance of decentralization and participation.

2) Institutions and contracts

Institutional failures need to be addressed not at the level of their symptoms (e.g., by providing subsidized loans to credit constrained households), but of their structural determinants. This requires identifying the sources of market failures (the causes of adverse selection and moral hazard) and the role of institutional innovations in making markets work for rural households or in mitigating market failures. Markets for credit, insurance, technical assistance, staple foods, labor, and modern inputs are typically ridden with incompleteness and distortions. The development of new institutions must capitalize on the advantages offered by locally public information, the social capital encountered in communities or ad-hoc coalitions, continuity of social relations among rural inhabitants, and the strength of social norms. This often requires costly interventions aimed at preserving and enhancing the social capital present in local institutions and organizations.

Mechanism design can be used in devising contracts to link the local institutions with global institutions that have the comparative advantage of diversifying risks and accessing deep markets. We have seen that this approach has been successful in designing new institutional arrangements to give poor rural households access to financial services. Many communities are, however, unable to harness this potential and some are dysfunctional to growth. An important field of intervention thus consists in reinforcing the ability of communities to engage in cooperative behavior. This requires costly investments in the circulation of information, the accumulation of social capital, and the formation of leadership. These investments must be done at the level of self-selected sub-coalitions if conditions do not hold in the community at large. External triggers and start up funds are often needed for this purpose. Combating social exclusion by calling on intermediary NGOs with expertise in promoting entrepreneurship among the poor is needed to extend the benefits of institutional changes toward poorer households.

3) Endogenous local growth

Coordination failures can maintain whole communities and regions in low level equilibrium traps. Rural development must thus assume a geographical dimension. Coordination can be achieved through the promotion of local dialogue among potential investors. Since many markets close at the local level, making these markets work efficiently is fundamental for locally efficient resource use, most particularly the land rental and sales markets. However, to prevent massive displacement of a potential thriving rural middle class, liberalizing land markets should follow rather than precede setting the conditions that will enable smallholders to be competitive.

4) Administrative design

Decentralization of governance, participatory development, and civil society-based institutional reconstruction call upon administrative designs for rural development that differ markedly from the state-based centralized approach followed in the 1970s for integrated rural development. A typical approach is one where funds are channeled to a Local Economic Development Agency in which participate representatives of local government, deconcentrated public agencies, NGOs, and community organizations (Romero, 1996). These agencies receive demands for the funding of projects that emerge from organized groups in the community. Assistance for the formulation of these projects can be given by NGOs or by private experts if communities receive vouchers to defray the cost of these services. The Local Economic Development Agency then allocates competitively loans, subsidies, and technical assistance to the best projects according to predefined criteria. This demand-led pattern of development must confront in its design ways to reduce predation (Rausser, 1982) and to create incentives for targeting poor households.

5) Investment opportunities

Reducing poverty requires access to profitable investment opportunities that will sustain income growth. Hence, as was learned in the community development movement of the 1950s and 1960s, setting a macro-economic context that endows rural areas with opportunities for profitable projects is a precondition for rural development. Creating new investment opportunities for households requires changes in asset endowments, technology, institutions, regulations, information, infrastructure, and market demand. These *premium mobile* for growth are in part externally determined (e.g., via the progress of globalization and demands for new products and services) but are also the responsibility of governments and development agencies. Households and organized groups must then be assisted in identifying investment opportunities, formulating projects, identifying market niches, and mobilizing the necessary resources.

6) Expertise

Besides the expected demands in resource transfers, this new approach to rural development places heavy emphasis on the roles of behavioral patterns, imperfect information, transactions costs, market incompleteness, mitigating institutions, social capital, social norms of trust and reciprocity, local governance, organizations, coordination, and cooperation. The interventions needed to deal with these issues are "soft" in that they are intensive in human capital, information, hands-on expertise, and social capital as opposed to capital expenditures. However, precisely because they substitute these instruments for financial resources, they are extremely difficult to implement, particularly on a large and sustainable scale. Using them successfully will require systematic experimentation with alternative designs, and participatory monitoring and evaluation to learn from these experiences and innovate alternative practices. This is where the challenge in implementing this new approach to rural development currently lies.

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