



**RURAL DEVELOPMENT FROM A TERRITORIAL PERSPECTIVE
CASE STUDIES IN ASIA AND LATIN AMERICA**

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Executive summary

This paper reviews the contribution of agriculture and rural development to poverty reduction by examining the transformation of five territories in four countries of Asia (Malaysia and People's Republic of China) and Latin America (Brazil and Peru) that have experienced substantial reductions in poverty. While the four countries fall into three distinct groupings based on national statistics on the importance of agriculture and the growth of Gross Domestic Product, the five territories included in the study were among the poorest in their respective countries. At the same time, all five have experienced great reductions in poverty during the last two decades--a transformation that they achieved by taking substantially different paths that implied different roles of agriculture.

The cases included were: a) Petrolina-Juazeiro in Brazil, a 55,000 km² territory that has turned into the main exporter of high value fruits in Brazil since the mid-1990s; b) the Sichuan Province in the People's Republic of China, characterized by great migration of the rural population to cities in the coastal provinces where the industry has been growing rapidly; c) the Southern of the Yunnan Province in the People's Republic of China, a poor province dominated by ethnic minorities and low migration of its rural population that has experienced a rapid expansion of high value crops since the mid-1990s; d) the Terengganu Province in Malaysia, a province that went from producing basically rice, oil palm, and rubber until the mid-1980s to becoming the country's main producer of oil and gas, experiencing a substantial decrease in the weight of agriculture and rapid rural-urban migration since the early 1990s; and e) the Puno-Cusco Corridor in Peru, a region characterized by the dominant presence of native populations that has experienced progress in poverty reduction since the mid-1990s, based on the modernization of agricultural and non-agricultural activities.

The objectives of the study were the following: (i) to analyze the transformation of the five territories, focusing mainly on identifying the dominant strategies that rural households implemented to exit out of poverty; (ii) to understand the relative importance of different 'assets' (human, physical, financial, natural, and social capital) in the successful adoption of 'exit roads' from poverty; (iii) to analyze the role of agriculture and other economic activities in rural poor households to exit from poverty; and (iv) to analyze the role of government, identifying the connections between the 'exit roads' of poor people and policies, projects, and other government interventions and evaluating their contributions to different 'assets'.

The main conclusions from the case studies are the following:

a) All five territories experienced great reductions in rural poverty, but taking different paths that imply different roles of agriculture and other economic activities. The dominant strategies of rural households to exit out of poverty since the early 1990s varied with the territory. In Petrolina-Juazeiro, the dominant strategies of rural households to exit out of poverty were small farmers' intensification and diversification of production focused on high value crops for export and the domestic market (table grapes, mango, banana, coconut, and others) and working as wage workers in irrigated agriculture—about 60% of workers in irrigated agriculture were permanent and 40% were small family farmers in dryland areas working seasonally as wage workers. The diversification of agricultural production into high value crops (mainly tobacco and tea) was also the dominant strategy to exit out of poverty adopted by rural households in Yunnan (China). In contrast, most rural households in Sichuan (China) and Terengganu (Malaysia) since the early 1990s exit out of poverty by the migration of the young household members to cities, where they worked in industry and sent back remittances to the family members who stayed in the villages. In the Puno-Cusco Corridor, the dominant strategies were seasonal migration to work as wage workers in mining and agriculture, agricultural intensification, and diversification into non-agricultural

activities, with the most frequent situation being for poor households to migrate seasonally to complement their incomes and save to invest in improving agriculture and starting non-agricultural activities, later focusing on them once they started to provide higher revenues.

b) Agriculture played a key role in poverty reduction in all the cases studied, though this role changed over the years. Although migration was the main strategy of rural households in Sichuan (China) and Terengganu (Malaysia) during the 1990s and 2000s, as explained above, agriculture was key in poverty reduction in both cases during the late 1970s and the 1980s, a time period during when both territories experienced substantial poverty reduction. In the case of Sichuan, rural households took advantage of policy reforms that the Chinese government implemented in the late 1970s, turning collectives into family farming and liberalizing agricultural prices and marketing. In the case of Malaysia, rural households participated in land development settlements implemented by government agencies in public lands during the 1970s and 1980s, which provided not only land to landless households, but also technical assistance, training, and credit around plantations of oil palm and rubber.

c) The role of agriculture in the reduction of rural poverty depended on several factors, including: (i) the availability and potential of the natural resources; (ii) the access of the poor to land, which in turn depends on land tenure structure, population growth, and population density; (iii) the context of industrial growth, which determines the existence of opportunities for the rural poor to find availability jobs out of agriculture; this relates—but it not explained solely—to the stage of economic transformation of the country/region; and (iv) the existence of barriers to rural-urban migration, such as government regulations or incentives aimed at restricting migration, high costs of migration, or language barriers faced by potential migrants.

d) The stage of each country's economic transformation was one of the key factors in the role of agriculture in poverty reduction, as it determined the existence of opportunities for rural poor households to exit out of poverty by working in other economic sectors. Between the late 1970s and during the 1980s, agriculture represented a large share of the China's and Malaysia's GDP and industrialization was still in its early stages. Thus, the industry did not offer substantial employment opportunities, so migration was low and the main strategy that rural households adopted to exit out of poverty consisted of agricultural intensification and on diversification of agricultural production. In the 1990s, as industrialization grew rapidly and the share of industry in GDP became increasingly higher, the industry became an important source of employment, attracting migrants from rural areas who were unable to find an exit road out of poverty based on agriculture. In contrast to China and Malaysia, Brazil and Peru did experience industrialization and rural-urban migration. However, the pace of industrialization was not high enough to generate employment for the cities' population and the migrants from rural areas. Thus, migration was not the main strategy for poverty exit. To sum up, agriculture played the main role in poverty reduction when rural households faced few possibilities of employment out of agriculture, either because the industrial sector is not growing fast enough to absorb surplus labor (e.g. in Brazil and Peru), or because the economy was at an early stage of the economic transformation, with the industrial sector not being large enough to absorb the surplus labor available (e.g. China in the 1970s, Malaysia until the late 1980s, as well as other Asian countries today like Cambodia, Laos, and Vietnam).

e) Population density and population growth were important variables influencing the potential role of agriculture in the reduction of rural poverty, as they influenced the access to land of the new generations in rural households. This was one of the main factors explaining the dominant strategy to exit out of poverty that rural households implemented in Sichuan, as the rural population had grown so fast during the 1990s that the area of farmland per household became very low, as the new

generations received part of the land when they got married. With such small farm areas, it was clear for most rural households in Sichuan that it would be impossible for both the older and the younger generation to live on the land. In Terengganu, the area of land available to rural households was also too small for the new generations to live on the same land, so they had to look for opportunities elsewhere. In contrast, in Petrolina-Juazeiro and Yunnan and in some communities of the Puno-Cusco Corridor, low population density and population growth made it possible for households to live from agriculture in the average landholdings area available.

f) The characteristics of the natural resources available also influenced greatly the role of agriculture in the reduction of rural poverty. The increasing demand and prices for fresh fruits, vegetables, and other crops and animal products have created new opportunities for small farmers in regions with natural resources of the characteristics required for producing them (climate, altitude, etc.). With the exception of Sichuan, the natural resources and climate of all the other territories studied here were exceptional to produce high value crops for export and the domestic market, creating possible exit roads out of poverty based on agriculture.

g) The experience of the Puno-Cusco Corridor shows that projects based on community-driven development may have great positive results in reducing rural poverty. When they are based on a real participation of communities in decision-making, giving them power to manage funds, select service providers, and implement small income generation and infrastructure projects, community-driven projects can have substantial impacts on human and social capital.

1 Introduction

The decreasing weight of agriculture in GDP and employment in the process of economic transformation and the experience of countries of East and Southeast Asia, in which industrialization and urbanization have been accompanied by extraordinary achievements in poverty reduction, has frequently led analysts and policymakers to question or neglect the role of agriculture in poverty reduction.¹ Rural development projects and programs have also been long criticized for their disappointing results in terms of poverty alleviation. Rural elites frequently took the most advantage of projects, credit, and technical assistance.² Little attention was paid to building local institutions that could coordinate rural development efforts.³ Rural development programs were also often plagued by implementation problems because they are too complex and difficult to coordinate.⁴ In addition, the sole focus on agriculture of traditional approaches of rural development has been criticized for ignoring the relevance of non-agricultural rural activities in the livelihood of rural households, the relations between rural and urban areas (especially mid-size towns and cities), and the increasing role of local governments and local institutions in rural development—which partly relates to the relevance of decentralization policies in many developing countries.⁵

In contrast to these critical views, other analysts have stressed that agriculture plays a key role in reducing poverty due to the large proportion of the poor living in rural areas and the strong linkages of agriculture with the rest of the economy. In addition, agriculture (and non-agricultural rural activities as well) has an important role to play in countries that have not yet developed an industrial sector in urban areas that generates employment for potential large numbers of rural migrants.⁶ Thus, policies that promote broad-based productivity growth among small farmers and lower prices of staple foods to consumers are expected to generate pro-poor growth.

These opposing views suggest a need for a better understanding of the role of agriculture in poverty reduction, especially in terms of its contribution and role in different country and regional contexts. This is important because poverty continues to be high in developing countries, and poverty is disproportionately concentrated in rural areas, with the gap

¹ Coincidentally with an increase in the importance of industry and services, the relative weight of agriculture in the Gross Domestic Product, employment, and exports have fallen dramatically in most Asian countries. In East and Southeast Asia, the share of agriculture in GDP fell from 35 to 14 percent in the three decades to 2000, and in South Asia it went down from 45 to 24 percent. Among others, see Byerlee and others (2005).

² For a detailed account of these problems in World Bank-funded agricultural projects in the Brazil's Northeast, see Tendler (1993a and b).

³ See Donaldson (1991).

⁴ For example, see Grindle, Merilee (1981 and 1986).

⁵ For studies about non-agricultural activities and their relevance in generating incomes among rural households, see Haggblade and others (2002), Reardon and others (1998), etc.

⁶ Even in the Asian region, where the attention often tends to focus on the economic transformation of countries like Malaysia, People's Republic of China, and Viet Nam, others like Azerbaijan, Cambodia, Kazakhstan, Kyrgyzstan, Lao, Myanmar, Sri Lanka, and Uzbekistan, have not yet developed an industrial sector and largely based on agriculture.

between rural and urban poverty widening over time. Thus, an approach to rural development has been emerging that focuses on the territory as the central unit of analysis, incorporating the wide range of actors, economic activities (both agricultural and non-agricultural), and institutions.⁷

This paper reviews the contribution of agriculture and rural development to poverty reduction by examining the experience of five territories in four countries of Asia (Malaysia and People's Republic of China) and Latin America (Brazil and Peru). While the four countries fall into three distinct groupings based on national statistics on the importance of agriculture and the growth of Gross Domestic Product, the five territories included in the study were among the poorest in their respective countries. At the same time, all five have experienced great reductions in poverty during the last two decades--a transformation that they achieved by taking substantially different paths that implied different roles of agriculture.

The objectives of the study were the following: (i) to analyze the transformation of the five territories, focusing mainly on identifying the dominant strategies that rural households implemented to exit out of poverty; (ii) to discuss the role of agriculture in the different cases; and (iii) to analyze the type of government interventions that played the main role in poverty reduction.

The report is organized as follows. After this introduction, section 2 describes the conceptual framework and methodology; section 3 focuses on the main exit roads out of poverty adopted by rural households in each of the territories, analyzing the characteristics of the territories, the institutional and policy context, and the main strategies adopted by the rural poor to exit out of poverty and the role of government and other factors; section 4 analyzes conclusions that emerge from the comparison of the cases, which relate to the role of agriculture and the type of government policies and other interventions that led to good results in terms of poverty reduction.

2 Conceptual framework and methodology

The conceptual framework used to analyze the key factors that led to poverty reduction in each of the territories draws heavily from the Sustainable Livelihoods (SL) approach, which applies a multidimensional view of poverty that encompasses not only material deprivation derived from income, but also low levels of education and health and the vulnerability and exposure to risk. The SL framework originates in the literature on food security and famines, which studied vulnerability based on an integrated view of how people make a living.⁸ It later evolved to identify and analyze different strategies of the poor to deal with poverty and vulnerability, the existence of different 'exit roads' out of poverty, and the influence of policies, projects, and institutions.⁹

⁷ Among others, see Shejtman and Berdegue (2004), De Janvry and Sadoulet (2004).

⁸ See Sen (1981) and Swift (1989).

⁹ Among others, see Carney (1998), Bebbington (1999), Ellis (2000a and 2000b, 2003), and Scoones (1998). For applications to specific case studies, see Bagchi et al (1998) and Murray (2001).

In brief, the basic ideas of the SL approach are the following: (i) poverty is viewed not only as material deprivation derived from low income, but also as a scarcity of assets or resources (physical, financial, natural, human, and social capital) that determines the capacity of households to generate income; (ii) the historical, political, economic, social, and policy context in which poor households live is key in their capacity to find exit roads out of poverty; (iii) poor households implement strategies to rise from poverty based on the resources that they have and the context that they face. Possible strategies include agricultural intensification and diversification, wage employment in agricultural or non-agricultural activities, non-agricultural rural enterprises, and migration. (iv) the outcomes in terms of poverty reduction results from the evolution of the context, its influence on resources available to poor households, and the strategies implemented by poor households. In addition, a key feature of the approach is that it transcends the boundaries between conventionally discrete sectors (urban/rural, industrial/agricultural, formal/informal, etc.).

The methodology consisted of case studies of five territories in four countries that have experienced substantial reductions in poverty: a) Petrolina-Juazeiro in Brazil, a 55,000 km² territory that is part of the Northeast region (the poorest of the country) that has turned into the main exporter of high value fruits in Brazil in the 1990s; b) the Sichuan Province in the People's Republic of China, one of the poorest but at the same time fastest growing provinces of the country, characterized by great migration of the rural population; c) the Southern of the Yunnan Province in the People's Republic of China, a province dominated by ethnic minorities and low migration of its rural population characterized by the rapid development of high value crops since the mid-1990s; d) the Terengganu Province in Malaysia, one of the poorest of the country that went from producing basically rice, oil palm, and rubber to becoming the main producer of oil and gas, experiencing a substantial decrease in the weight of agriculture and rapid rural-urban migration; and e) the Puno-Cusco Corridor in Peru, a region characterized by the dominant presence of native populations that has experienced progress in poverty reduction based on the modernization of agricultural and non-agricultural activities

The objectives of each case study were: a) to understand the main strategies that poor households implemented to exit out of poverty; b) to understand the relative importance of different 'assets' (human, physical, financial, natural, and social capital) in the successful adoption of 'exit roads' from poverty; c) to analyze the role of agriculture and other economic activities in rural poor households to exit from poverty; and d) to analyze the role of government, identifying the connections between the 'exit roads' of poor people and policies, projects, and other government interventions and evaluating their contributions to different 'assets'. In addition, the different cases are compared in order to identify common characteristics that run across them, as well as specific conditions and characteristics that help explain their positive outcomes.

The collection of information included both fieldwork and desk review of background information and historical record of government policies in each territory. In Petrolina-Juazeiro, a great deal of the information was collected during 16 months in 1997 and 1998, with an additional visit of one week in September 2006 to update information and evaluate changes that had taken place in the last few years. The cases of Sichuan (China), southern Yunnan (China) and Terengganu (Malaysia) were visited for three weeks each between

December 2004 and September 2005, and the Puno-Cusco Corridor was visited for three weeks in March 2006.¹⁰

Fieldwork was based on qualitative methods, including mainly interviews to rural households, leaders of rural villages and grassroots organizations, representatives of firms' and workers' association, owners, managers and employees of agricultural firms and non-agricultural enterprises, policy makers and technical staff at government agencies both at national and local levels, and politicians at central and local levels. The main objective of the interviews with rural households was to identify the main strategies that they adopted to exit out of poverty and what interventions (especially government policies and programs) helped them find and implement an 'exit road' from poverty, especially through their contribution to their different types of 'assets'. The objectives of interviews with policy-makers and government officials were to obtain relevant data about the economic transformation of the territories and the evolution of poverty, as well as to identify and understand the main policies and projects that influenced poverty reduction.

All the interviews were open-ended and lasted between half an hour and two hours, depending on the person interviewee, and they were based on an outline of questions that depended on the specific informant. Many of the interviews with farmers also included field visits to the crops and farm facilities. In all cases, visits to firms to interview wage workers were separate from those to interview owners or managers, agronomists, and small farmers, so that workers could be interviewed without the presence of supervisors and managers. Desk review involved mainly reconstructing the historical record of government interventions in each of the territories, including a revision of published articles, books, and reports from government, universities, international agencies, and other sources. Finally, interviews with policy-makers and technical staff of government agencies during the fieldwork also served to improve the understanding of specific government policies and other interventions.

3 Analysis of exit roads out of poverty

This section focuses on the analyzes of the cases, including: a) the most relevant assets of each territory (natural resource base, characteristics of the physical, financial, human, and social assets) and the access of the poor to them; b) the institutional and policy context and their influence in the selection and adoption by rural households of specific exit roads out of poverty; c) the strategies adopted by poor households to exit from poverty, considering the assets that they had available and the context that they faced; and d) the identification of the key factors leading to poverty reduction.

¹⁰ Fieldwork in Malaysia and China was carried out as a part of a Special Evaluation Study implemented by the Operations Evaluation Department of the Asian Development Bank. Results of this study are presented in ADB (2005) and can be found in <http://www.adb.org/Documents/SES/REG/Rural-Poverty-Targeting/ses-rpt.pdf>. In the Puno-Cusco Corridor, fieldwork was part of an interim evaluation carried out by the International Fund for Agricultural Development (IFAD) to the Project for the Development of the Puno-Cusco Corridor, funded by IFAD and the Government of Peru. In Petrolina-Juazeiro, it was part of dissertation fieldwork whose results are presented in Damiani (1999).

Petrolina-Juazeiro (Brazil)

Petrolina-Juazeiro is a 53,000 km² and 510,000 inhabitants area in the states of Bahia and Pernambuco that is part of the São Francisco River Basin in Northeast Brazil, including the municipalities of Petrolina, Santa Maria da Boa Vista, and Lagoa Grande of the state of Pernambuco and Juazeiro, Casa Nova, and Curaçá of the state of Bahia. In contrast to the Northeast of Brazil, a 1.5 million km² region (18% of the country's area) with a semiarid climate and periodic droughts that is the poorest of the country, Petrolina-Juazeiro is a great contrast of dynamic irrigated agriculture, agro-processing industries and services (input supplying, banking, consulting, commerce, medical services, commerce), well-known in Brazil as the most important producer and exporter of high quality fruits in the country.

In the late 1960s, Petrolina-Juazeiro was no different than most of the rural areas in Northeast Brazil. Its economy was based on a backward agriculture, dominated by the production of cotton, livestock, and subsistence crops (mainly corn and beans). By the mid-1990s, it had experienced a great reduction of rural poverty based on the emergence of the irrigated production of high value crops, including mango and table grapes mainly for export and a range of crops mainly for the domestic market (mainly sugarcane, guava, banana, coconut, and others). By 2005, the total exports of grapes and mango from Petrolina-Juazeiro reached close to USD 110 million, which represented around 40 per cent of the total exports of fruits from Brazil. Petrolina-Juazeiro accounted for 98 percent of Brazil's exports of grapes and 92 percent of mango. Irrigated agriculture contributed to a great proportion of GDP in the territory and became the most important source of rural employment since the 1980s. Small tenants not only grew a wide range of high-value crops, but also they increasingly focused on high-value, perennial crops and decreased their areas with annual crops. In addition, the production of high value crops increased the demand for wage skilled labor, it promoted the upskilling of labor, and it was accompanied by increasing wages and improvements of working conditions. These developments attracted migrants from rural areas in Northeast Brazil and even from the southeast of Brazil—an opposite outcome to the usual out-migration from the rural areas of the semiarid Northeast region.

Assets available. The natural resource base in Petrolina-Juazeiro is characterized by poor soils and a semiarid climate, with an average annual rainfall of 450 millimeters and periodic droughts that used to force the out the migration of large numbers of the population. Until the 1960s, the land was concentrated in landowners who produced mainly a low productivity livestock, while landless tenants living in landowners' land produced cotton and subsistence crops (mainly corn and beans) under sharecropping relations. While sharecroppers cultivated cotton usually interplanted with corn and beans, landowners grew cattle in natural pastures and in the cotton leftovers from the harvest. Sharecroppers usually received land and inputs in exchange for a share (usually 50 per cent) of the production.¹¹ In addition, they were often dependent on the landowners to cover essential needs, such as

¹¹ For more information about the traditional social and economic organizations typical of Petrolina-Juazeiro and the Northeast region in general, see Hirschman (1963), Robock (1957), Kutcher & Scandizzo (1981), and Barreira (1992). For specific analysis about sharecropping relations, see Johnson (1971).

medicines and medical treatment. More than 70 percent of the adult population in rural areas was illiterate.

As it will be explained later, this situation changed dramatically since the early 1990s, partly due to heavy investments in irrigation infrastructure carried out by federal government agencies. Irrigation led to a great increase in the productivity of land, with high value crops for export and the domestic market replacing the traditional production of livestock, cotton, corn, and beans. In addition, irrigated agriculture was accompanied by great economic and social changes, including the establishment in the territory of agricultural firms from other regions of Brazil that brought about entrepreneurs with views different from those of the traditional local elites. These new actors promoted the creation of growers associations that became relevant not only in solving production problems, but also in signaling government agencies what were the key problems of the territory. Furthermore, the high demand for wage labor of irrigated agriculture led to the strengthening of rural unions.

Institutional, economic, and policy context. The economic and social transformation of Petrolina-Juazeiro was characterized by a strong role of the federal government, which created since the late 1940s several agencies to promote the development of the São Francisco River Basin. The most important one was the São Francisco Valley Commission (*Comissão do Vale do São Francisco, CVSF*), created in 1948, later transformed into the São Francisco Valley Superintendence (*Superintendencia do Vale do São Francisco, SUVALE*) in 1967 and into the São Francisco Valley Development Agency (*Companhia de Desenvolvimento do Vale do São Francisco, CODEVASF*) in 1974. While they initially promoted small-scale irrigation and basic infrastructure in medium-size cities, these agencies focused from the late 1960s on large-scale irrigation projects in which they not only constructed water reservoirs, pumping systems, and delivery canals, but also expropriated lands appropriate for irrigated agriculture and created “irrigation perimeters,” each of which served to irrigate between 3,000 and 20,000 hectares of land. In these irrigation perimeters, they divided the land into plots, built on-farm irrigation infrastructure (internal pumping, pipelines, sprinklers, and drainage systems), social infrastructure (schools and health posts), and housing. Once they finished with these works, they leased the developed land to producers and carried out the operation (water distribution and collection of water fees) and maintenance of the projects.

By 2006, CODEVASF had built six irrigation projects in Petrolina-Juazeiro with close to 46,000 hectares of irrigated lands including more than 200 agricultural firms, about 2,200 small farmers, and more than 100 professionals specialized in agriculture. Growers out of the government-sponsored irrigation projects had developed an additional area of 77,000 hectares of irrigated lands, making a total of 120,000 hectares with irrigation.¹² A proportion of the total land was allocated to small farmers who were selected among landless families from the region. Small farmers had about 6 hectares of land each in the public projects, and by 2006 they accounted for 45.2 percent of the total irrigated area. They received free training and extension services financed by CODEVASF, and they had

¹² Information provided by CODEVASF

access to subsidized long and short term credit from public banks, mainly the Bank of the Northeast.

Irrigated agriculture led to a great increase in the demand for wage labor, which in turn had a positive influence in rural workers unions in Petrolina-Juazeiro, which increased substantially their membership and fees collection, as well as your capacity to negotiate for better wages and working conditions with employers. In addition, pressures from the unions led to a more active role of the federal Ministry of Labor in monitoring labor contracts in the region.

Poverty exit strategies. The interviews to rural households in Petrolina-Juazeiro showed that the main strategies that they implemented to exit out of poverty were wage employment in irrigated agriculture and small farmers' diversification of production into high-value crops.

a) Wage employment in irrigated agriculture. As it was explained above, the irrigated production of high value crops in Petrolina-Juazeiro led to a great rise in the demand for labor, especially workers with specific skills that were in short supply in Northeast Brazil. In fact, in contrast to the previously dominant products—beef cattle and dryland production of crops like manioc, beans, and corn—irrigated crops are intensive in the use of labor because they involve a technology that requires workers to perform a large variety of tasks, such as handling irrigation equipment, plowing the lands with tractors, making treatments against pests and diseases, and harvesting production. In addition, irrigation not only allows to increase yields, but also to grow crops in the dry season, when the land is idle under dryland agriculture, thus obtaining several harvests per year, and to substituting high-value for low-value crops. By 1996, irrigated agriculture in Petrolina-Juazeiro employed nearly 40,000 wage workers (30% of the rural labor force in the region), out of which 29,000 (72%) worked in the two main non-traditional export crops, namely table grapes and mango. By 2006, the number of wage workers employed in irrigated agriculture in the region had reached more than 100,000. An unusually high proportion of 60% of the labor force directly involved in agricultural production was permanent and 40% of it comprised women.

Most of the rural households that exit out of poverty by working as wage workers had been sharecroppers growing subsistence crops who had started working part time in irrigated agriculture and eventually ended up leaving their work as farmers, as they were able to obtain higher and more stable incomes. Thus, they left the lands and moved to cities like Petrolina, Juazeiro, and Santa Maria da Boa Vista. Those who had worked for a longer time had been able to receive training and thus were able to get permanent jobs and higher wages. In addition, I found that many of the households diversified their incomes because women had started to work as wage laborers (in fact, about 60 per cent of the workers in table grapes production were women).

Rural workers in Petrolina-Juazeiro (both in crops for export and the domestic market) were able to obtain substantial benefits, some of them unusual among rural workers in Brazil. First, they received wages substantially higher than the legal minimum wage in Brazil and than the average wage of most Northeast rural workers. The first contract

between the rural workers' unions and the growers association (Valexport) was signed in 1992, establishing a minimum wage 10% higher than the legal minimum wage in Brazil. Annual contracts signed during the 1990s included further improvements (the contract signed in 1998 established a minimum wage 21.7% higher than the legal minimum). Because the federal government in Brazil approved significant increases in the minimum wage between 2002 and 2006, the premium agreed over the legal minimum became less important, decreasing to 10% in 2006. In addition, it is important that growers frequently paid their workers higher wages than the minimum agreed in the labor contracts plus additional benefits, in order to keep their skilled their workers and reduce the transaction costs involved in searching and training new workers.

In addition, most workers received higher wages for overtime and night work (50% and 80% respectively) and, in contrast to most Northeast rural workers, were registered and received fringe benefits (social security and medical insurance) that represented about 50% on top of the wage.¹³ Two thirds of the workers were trained in a variety of skills, including managing irrigation equipment, fruit packing, pruning trees, among other tasks, and they receive premiums for productivity. Lastly, rural wage workers in Petrolina-Juazeiro had gained a number of important improvements in labor conditions, such as the right to have bathroom facilities and clean drinking water in the workplace and transportation within the farm and from the workplace to their homes.

Improvements in wages and labor conditions led growers to introduce some labor-saving technologies, but this was limited by the difficulties of introducing mechanization in crops like table grapes and mango. Such favorable conditions in employment, wages, and labor conditions attracted substantial numbers of farmers to work at least part time in irrigated agriculture, as well as landless workers from both the Petrolina-Juazeiro territory and all over the Northeast of Brazil who migrated to the region, turning it into one of the few territories in the Northeast with a net rate of in-migration rather than out-migration.¹⁴

b) Small farmers' introduction of irrigated high value crops. About 2,200 landless households in Petrolina-Juazeiro were able to exit from poverty by producing in lands that they received in the government-sponsored irrigation projects. As it was explained above, public irrigation projects included a mix of agricultural firms and small farmers who were selected among landless families in the Petrolina-Juazeiro region. These small farmers initially produced mainly traditional crops (mainly beans) that they knew because they had grown them in dryland conditions. However, they were slowly able to introduce high value crops that led to an increase in their income. By 1996, small farmers already grew a large proportion of the areas with irrigated high-value crops in Petrolina and had increased their yields to levels frequently higher than those obtained by agricultural firms.

Vulnerability. The strategies adopted by rural households to exit out of poverty also tended to help reduce their vulnerability to shocks. As explained earlier, most rural poor

¹³ Rural workers' unions in Petrolina-Juazeiro have been able to negotiate wage increases over the Brazil's legal minimum every year since 1994, year in which they obtained a 10 percent premium over the legal minimum.

¹⁴ While the population of Petrolina-Juazeiro more than doubled between 1970 and 1990, it increased by 50.1 percent in the states of Pernambuco and Bahia as a whole.

households used to depend on subsistence crops that suffered from extreme climate conditions. The average annual rainfall of 450 mm in Petrolina-Juazeiro is very concentrated in a few months that are those when farmer cultivate their crops. However, variability over the years is high, which leads to some good years but some very bad ones with total losses for these farmers. In contrast, irrigation allows producers to control the amount of water used, reducing dramatically their vulnerability to climate variations. This was highly beneficial both for households that became small irrigators and those that left agriculture to become wage workers in irrigated agriculture.

Irrigated agriculture did face risks related mainly with price variations in the international market. As a result, many small irrigators did experience losses and left the government irrigation sponsored. Interviews with CODEVASF and water user associations estimate that about 40% of the original households established in the government-sponsored irrigation projects had turned their lands to other producers. Most of them, however, did not fall back into poverty because they became wage workers in irrigated crops. In fact, I interviewed several wage workers who had been producers earlier on, and most of them stressed that their income was higher and more stable as wage workers than when they depended on agriculture.

Key factors in poverty reduction. This section focuses on the key factors, in particular government interventions, that influenced the type of poverty exit strategies selected by rural households and their capacity to implement them successfully. The most important in Petrolina-Juazeiro were:

- a) Government interventions that facilitated the access of poor households to land, new technologies, and marketing, including:
 - (i) Provision of land in government-sponsored irrigation projects. CODEVASF—the federal government agency in charge of building large-scale irrigation projects in Petrolina-Juazeiro—included landless households as beneficiaries that were selected based on a set of criteria. Each of the selected households received an area of between 6 to 12 hectares of land appropriate for irrigated agriculture, as well as farm-level infrastructure (pipelines, sprinklers, and drainage system) and housing. While the on-farm infrastructure was given for free, the land was expected to be paid. However, CODEVASF started to enforce payments fifteen years after project construction—a period in which inflation was high—so small farmers ended up paying highly subsidized prices. In addition, the agency provided small farmers with subsidized water for irrigation and a whole set of free services, including training in crop and irrigation technologies and agricultural extension.
 - (ii) Promotion among small farmers in irrigation projects of a sequence of different crops over time. CODEVASF implemented in Petrolina-Juazeiro two different strategies over time: (i) from the late 1960s to the early 1980s, it pushed small farmers to grow annual crops other than beans, it attracted tomato-processing firms from São Paulo to establish in Petrolina-Juazeiro, and it promoted contract farming in tomato in collaboration with the Bank of Northeast Brazil, which

provided short-term credit to small farmers; and (ii) starting in the mid 1980s, CODEVASF promoted the introduction by small farmers of perennial crops, mainly banana, mango, and grapes, through programs that provided technical assistance, training, and subsidized credit for investment through the Bank of Northeast Brazil. This deliberate strategy implied supporting a sequence of crops over time, starting with crops with simpler technology and marketing and less investment and working capital (notably annual crops like melon, watermelon, and industrial tomato for the domestic market), and later shifting gradually to diversification through the introduction of crops with more complex technologies and marketing and higher requirements of capital (perennial crops like table grapes and mango for export). Such a sequence allowed small farmers to learn about irrigation technology, to obtain revenues to maintain their families while growing at the same time crops whose first revenues required three years, and to capitalize their farms.

- (iii) Attracting processing industries and promoting contract farming with small farmers. CODEVASF encouraged backward linkages from tomato-processing industries to agriculture, assuming a negotiating role to attract firms from São Paulo to open facilities in Petrolina-Juazeiro. The agency successfully negotiated with two large tomato-processing firms (CICA and ETTI) in 1975-1976 to establish in Petrolina-Juazeiro, promising them that it would encourage small farmers through its extension agents to grow industrial tomato. In addition, it negotiated with the Bank of Northeast Brazil for this agency to create a new credit line for working capital to small farmers who grew industrial tomato and signed contracts with processing firms. The tomato industries turned into important actors in the modernization of small farmers' agricultural production because they not only purchased their tomato, but also provided inputs and disseminated new production technologies among them. In addition, the cultivation of industrial tomato was a key stage that played a crucial role in small farmers learning how to produce irrigation crops and that allowed them to start growing perennial crops.
- (iv) Agricultural research in the crops appropriate for small farmers. Government agencies (CVSF in the 1950s, SUDENE in the 1960s, and CODEVASF in the 1970s and 1980s) invested heavily in agricultural research, including large studies on the characteristics of the natural resources and the potential of soils for different crops with irrigation. The results of agricultural research carried out in Petrolina-Juazeiro were instrumental in attracting agricultural and agro-processing firms to the region. Another important research program was carried out as a result of an agreement between CODEVASF and the Agricultural Research Institute of Pernambuco (*Instituto de Pesquisa Agrícola de Pernambuco*, IPA-PE), an agency of Pernambuco's state government that had carried out research on tomato and other crops since the 1930s. This program led to the generation of varieties of industrial tomato in the early 1980s that became the best and most well-known in Brazil, and were key to attract the tomato-processing firms that established in Petrolina-Juazeiro in the late 1970s.

- (v) Intermediating in the transfer of technology from firms to small farmers. The Bank of Northeast Brazil played an instrumental role in providing not just credit, but intermediating in the transfer of technology between agricultural firms and small farmers. Both small farmers and firms applying for investment credit had to present project proposals that detailed, among other things, the technology to be applied. When assessing proposals, technicians of the Bank of Northeast Brazil not only required from small farmers' projects the same technological standards than from firms, but also made them apply the same new technologies proposed by the firms' proposals--many of which were unknown even by government research stations and extension agencies.

- b) The strengthening of rural workers unions. With the emergence of irrigation, the local rural unions in Petrolina-Juazeiro, which were previously dominated by small farmers without irrigation, experienced important changes in their membership. Most small farmers in irrigation projects signing up as members of the local unions and becoming the majority of the membership. Several of these new members became leaders of the unions and brought with them a number of new issues. For example, negotiations of the unions with CODEVASF for lower water fees or for extensions in the payment of these fees in years of poor harvests became common until the late 1980s. During the second half of the 1980s, further changes occurred in the composition of the local rural unions in Petrolina-Juazeiro as a result of the establishment of commercial firms engaged in irrigated agriculture, which hired large numbers of wage workers. As a result, membership of the rural unions in Petrolina-Juazeiro started to change as wage workers became members, with unions increasing dramatically their number of members and fees collected.

- c) Government agencies (state and municipal offices of the federal Ministry of Labor) that facilitated the relationship between growers and workers, participating as mediators in contract negotiations and monitoring growers' compliance with labor contracts.

Sichuan Province (People's Republic of China)

Located in the southwest of China, Sichuan is still one of the poorest provinces in China. Its economy has grown at similar rates to China as a whole since the early 1990s (over 10 per cent each year), with an important growth of the industrial sector and a decrease in the share of agriculture in GDP. Although agriculture still employed over 60 per cent of Sichuan's labor force in the mid-1990s, it only accounted for a little more than a quarter of its GDP, with industry accounting for 42 per cent and services 32 per cent. Sichuan is also characterized by high population growth and fast migration of rural population to urban areas, especially to coastal provinces of China that have experienced the fastest industrial growth in the country. In spite of these changes, Sichuan's per capita was ranked 26th among 31 provinces in China, with a GDP of CNY 5,118 (USD 2,689) in 2001.

Rural poverty has fallen substantially in rural Sichuan since the late 1980s. According to official statistics, rural poverty went from 35 percent in 1985 to 7 percent in 1996.¹⁵ The number of households living in poverty in the villages visited ranged between less than 3% in the better-off areas and between 10 and 20% in the poorer villages. Most households interviewed (including both poor and non-poor) said that their life was better than 5 or 10 years earlier, stressing that they were now able to consume a wider variety of food and that they had been able to improve their houses and to purchase furniture, equipment, and motorcycles. Most households interviewed also had savings accounts.

Assets available. Sichuan is a large and diverse province. More than 90 per cent of the province is hilly or mountainous. Its population is concentrated in the central and eastern parts of the province, where soils and climate are more suited to agricultural production. Thus, while it has 10 per cent of China's population, Sichuan contains only 6.5 per cent of China's arable land. This results in extremely small average landholdings (an average farm size of 0.23 hectares in 1996, which continued to decrease over time). At the same time, land is distributed quite equally.

Household characteristics were important determinants of rural poverty in Sichuan. While the majority of households interviewed had an average of 4 members (a couple and two kids). In the absence of migration and reliance only in agriculture, having a large number of children made it more difficult for the household to cover the needs of food and pay for education and health expenses. In addition, land was distributed to households in the late 1970s, and no more land is available for the newly formed families. Thus, if grown-up kids remained in the village working in agriculture, they would demand land from the parents. This would lead to lower areas of land per household for both generations. On the other hand, there were cases of poor households comprised of old couples and just one child. In these cases, the only child had migrated and was not helping the old parents, or had stayed in the village but needed to sustain his/her own family, thus helping less than necessary with labor or cash.

Illiteracy rates in Sichuan have been above the average for China. By 1990, 23.6 percent of Sichuan's population were illiterate, while the average for China was 22.3 percent. By 1997, illiteracy had fallen to 18 percent in Sichuan and 16.4 percent in China. Great disparities in schooling were observed related with geography (flat vs. mountainous areas). In flat areas with quite good roads and communications with townships and county cities, most households valued education very highly, so they invested in their children's education, using savings and loans from relatives and financial institutions (Rural Credit Cooperatives). Most adults (both men and women) had completed primary school, with secondary school graduates commonly observed, and even many households having

¹⁵ Official estimates of poverty in China are based on the government's austere poverty line equivalent to USD 0.66 per day. The World Bank has developed an international poverty standard of USD 1 per day (in 1985 purchasing power parity dollars) for cross-country comparisons. Estimates based on the international poverty standard of USD 1 per day indicate substantially greater numbers of absolute poor in China, but confirm the continuing remarkable decline in poverty.

children attending university in Chengdu. In contrast, villages in more mountainous areas showed less school attendance.

One of the most important features of rural households in Sichuan has been the migration of their younger members to coastal provinces since the early 1990s (a process that will be explained in more detail in the next section). Thus, the visits to Sichuan showed that most rural households comprise old members and very young members who were respectively the parents and children of those who had migrated. This leads to a scarcity of labor for carrying out labor-intensive agricultural activities.

At the same time that it created problems to carry out agricultural activities, the large numbers of people who migrated created a dense network of connections between rural households and cities where household members have migrated. In fact, the interviews carried out to rural households in Sichuan showed that most had direct family members or people who they knew well and were in close contact who were living in cities like Guangdong and Shanghai. Thus, they had access to good information about the job market in the cities, such as the current demand for workers, wage levels, and even openings in specific companies, and about the costs of living and the availability of housing. Almost all of the households interviewed stressed that they would know where to stay if they needed to travel to cities in coastal provinces. Also, most said that those household members who had migrated had spent only a few days to get a job in the cities, and that they frequently left the village with a specific job more or less arranged in advance.

Institutional, economic, and policy context. China has been characterized by an outstanding record of economic growth since the late 1970s. Official statistics show that real GDP grew an average 9.4 percent a year in the period 1979-2002, exceeding 10 percent in the first halves of the 1980s and 1990s. Between 1996 and 2002, China's GDP has grown from being about two-thirds the size of the rest of East Asia combined (excluding Japan) to 1.2 times.¹⁶ Between 1978 and 1984, economic growth relates to important reforms in agricultural policies. In 1978, the government introduced the "Household Responsibility System", which turned collective production that had started in the 1950s into family farming, allowing the division of the land among work units or families and the sub-contracting of production quotas to these smaller units. In the initial period under this system, families sold a set amount of produced goods to government at stipulated prices, and anything produced above these quotas could be sold at higher prices to other buyers¹⁷. Later on, in the period between 1978 and 1984, the government progressively liberalized agricultural prices and marketing. All these policies created powerful incentives for families to work and invest in agriculture, as they could benefit directly from higher productivity and production, leading to crop diversification, higher use of labor and inputs, and higher land productivity, unleashing rapid agricultural growth and rises in rural incomes all over China. Total agricultural net value in the country increased by 55 per cent from 1978 to 1985 and agricultural productivity increased by 40%. The increase in agricultural production resulted in a large-scale reduction of rural poverty by the early

¹⁶ See World Bank (2003).

¹⁷ Hudson (1997).

1980s. Between 1978 and 1985, per capita per capita incomes of rural residents increased 132% and 125 million poor rural people were lifted out of poverty.¹⁸

Since the late 1980s, economic growth was linked mainly to the growth of industry, the shift from agriculture to manufacturing and services and rapid rural-urban migration. While the share of industry in GDP grew from 48 in 1993 to 52 per cent in 2003, the share of agriculture fell from 20 to 15 per cent in the period. In the same period, the share of agriculture in total employment went from 49 to 43 per cent. This context of rapid industrialization created employment opportunities great employment opportunities both for urban and rural population.

An additional important policy measure that affected rural households involved the relaxation of restrictions to labor mobility that took place since the late 1980s. The Chinese government had imposed a household registration system in 1952 with the objective of preventing laborers from migrating from rural areas. Each resident became registered and the access to social services became dependent of their place of residence. An urban welfare system was created that subsidized housing, medical care, education, childcare, and pension to urban residents, excluding rural residents from them. Although the registration system has remained, it has been significantly relaxed since the late 1980s, promoting labor mobility among regions and sectors.¹⁹

In addition, the evolution of Sichuan was highly affected by a poverty reduction strategy launched by the central government in 1994 under the 8-7 Plan (National Plan for Poverty Reduction). This Plan had the objective of eliminating extreme poverty within seven years, designating 592 poor counties located in mountainous and semi-arid areas in the central and western parts of China. The Plan emphasized the responsibility of local leaders for the effectiveness of poverty reduction work in their jurisdictions, having the following specific objectives: a) to assist poor households with land improvement, increased cash crop, tree crop and livestock production, and improved access to off-farm employment opportunities; b) improving rural infrastructure by providing townships with road access and electricity and improving access of rural villages to drinking water, and c) investing in basic social services, including mainly primary education and curative health. In addition, the plan introduced policy incentives for enterprise investors in poor counties (mainly tax exemptions), and it reduced or exempted agricultural taxes, and exempted poor households from paying the ‘special tax’—a tax that used to be paid by all households.²⁰ It also assigned responsibility to developed cities and provinces. As it will be explained later, this led to the establishment of collaborative ties between developed city/provincial governments with poor counties, some of which focused on facilitating migration of rural population to industrialized cities and provinces, mainly through training and job searching services.

Finally, local governments became active since the late 1990s in their investments in urban infrastructure in mid-size cities and towns and in aggressively attracting new investments,

¹⁸ See Asian Development Bank (2004)

¹⁹ Fang and others (2002)

²⁰ See World Bank (2004)

especially in the industrial sector. However, I found that most of the people employed in industries and services in Sichuan came from the urban areas themselves, and most rural families interviewed had no relatives working in these cities and towns.

Poverty exit strategies. The interviews to rural households in villages of Sichuan showed that the main poverty exit strategies that they had implemented were: a) agricultural intensification and diversification between the late 1970s and the late 1980s, as a result of incentives created by the Household Responsibility System; and b) migration to urban areas to work in industry or services since the late 1980s. Surprisingly, trade and other non-agricultural activities in rural areas was not an important poverty exit strategy, in spite of the high population density. Some households did invest in small shops or restaurants, but most did so after they had exit from poverty, most often using savings from remittances sent by migrant relatives, or sometimes by migrants themselves who returned to the village for personal reasons, using savings to start new activities.

The interviews carried out to rural households in Sichuan showed that migration became the main poverty exit strategy adopted by the rural poor in the last 10 to 15 years, with the young generation having migrated in most of the households. About 90% of the households in villages visited in Sichuan had members who had migrated to other provinces. Most migrants were young family members, and about 50% of them of them in the villages visited had left small children to be taken care by the older family members. Most migrants went to coastal provinces, with some going to internal provinces (Xinjiang, Qinghai, and Guizhou), where they worked in industry, construction, and services. Because migration started quite a long time ago, most households had contacts in other provinces and good information about job opportunities for other members in case that they wanted to migrate.

Most migrants sent back remittances twice or three times a year (an average of CNY 1,000 or USD 125 per year), depending mainly on the time since they had migrated—usually the longer time the higher remittances. In addition, migrants brought some additional cash when they visited the family in the holidays, and helped with additional cash if the household faced emergencies (e.g. sickness of a family member). The family members who stayed in the villages used remittances mainly for consumption, improvement of the housing conditions, and dealing with health problems. Even when they were unable to send remittances, migration of the younger family members helped improve the household situation because it relieved their burden, reducing the expenditures in food, clothes, health, and others. In addition, even in cases in which migrants sent little or no money because they could barely cover their own expenses in the cities where they worked, most sent remittances to help in exceptional family circumstances, such as the sickness of a family member. Finally, about 5% only of the households interviewed had migrant members who had returned, most of them as a result of personal reasons like taking care of old and sick parents or (less frequently) of children who had grown up and could not be taken care anymore by the old parents. Some of them used savings to start new businesses or new commercial agricultural activities like fish, pig, or fruit production. In the villages visited, the households that did not have remittances as the main source of income were very few. These households usually had shops in the village or township, worked as wage workers in nearby townships, or they had exit from poverty through agricultural intensification or

diversification as main strategy because they had more land, usually left to them by relatives who had migrated.

To sum up, migration had several positive effects: (a) it served to improve the situation of the migrants themselves, who were usually surplus labor in their families before migrating; (b) it relieved the burden of the family members who stayed; (c) it helped reduce the population pressure in the villages; (d) remittances sent by migrants became the main source of cash income for the household members who remained in the village and the most crucial to pay for expenses in education fees, construction of new houses, marriages and funerals, medical services, and medicines; while the household members who stayed usually continued to work in agriculture, most did agriculture for family subsistence, with little or nothing sold in the market; (e) remittances increased the cash available in villages, enabling informal lending among villagers, as poor people were able to borrow more easily; (f) some migrants in Sichuan returned to their hometown and invested savings from wage incomes in agriculture or rural industries/services.

Migration was not free of problems. Migrant workers in China often do not have basic protections. Low wages and late payment, forced overtime, poor working conditions and occupational injuries are common.²¹ Since migrant workers were not a part of China's urban labor force before the economic reforms, they also suffer from other disadvantages, such as the lack of urban residential status and welfare entitlement. In addition, they frequently have limited education and skills, and they lack organizational experience, all of which have made them vulnerable to exploitation and mistreatment.²² Recent surveys in China have shown that migrant workers in cities frequently were not fully paid for their work. A survey released in mid-August by the National Economic Research Institute under the China Reform Foundation showed that a quarter of 3,288 migrant workers questioned said they had not been fully paid. Also, an investigation by the National Bureau of Statistics last year discovered some companies that hired large numbers of migrants charge their staff 20 to 30 per cent of their wages as a "deposit", but money was rarely paid back.²³

Vulnerability. The interviews carried out to rural households in Sichuan, both poor and non-poor, showed that illness of the older family members was by far the most important source of vulnerability. In fact, I visited several households that had fallen back to poverty because they had to spend a lot of money in medicines and sometimes in services not covered by the public health services. Most of the poor households interviewed were those whose members were unable to work, such as disabled, old people (70s-80s) living alone, or chronically sick, and who in addition were not receiving enough help (or no help at all) from their children. In all these cases, households had limited or no productive labor, had substantial expenditures in medicines, and their productive family members (if any) could not migrate because they needed to stay to take care of the old, sick, or disabled. Meanwhile, some families were poor because they were making a great effort to pay for

²¹ See Chan (1998a and 1998b).

²² Before the reform, the government banned rural-urban migration, imposing a residential registration system (named *hukou* system) that prevented the access to entitlements like education and health services to people out of their places of residential registration.

²³ China Daily, front page, August 17, 2005. A complete version of the article can be found in http://www.chinadaily.com.cn/english/doc/2005-08/17/content_469781.htm

education fees of their children (usually senior high school or college), spending a high proportion of their cash income and getting indebted to do that. In a great majority of the cases, this latter problem seemed to be short or medium-term, as the parents were usually in working age and still worked in agriculture, and it was a custom that the children would help in repaying back loans after they graduated and started working. However, several families visited that were in such a situation still had their children in high-school or college, so it was impossible to know precisely the final outcome.

In most cases, migration was accompanied by a reduction in the vulnerability of rural households. Remittances sent back by migrants to the family members who stayed in the village. While part of these money was used to cover expenses in clothes and other items and some to improve the housing conditions, part was saved to deal with emergencies. Most of the households interviewed in Sichuan had savings accounts in the Rural Credit Cooperatives, and most savings came from remittances. In addition, it was found that migrants usually sent higher amounts when they were needed for facing health-related expenditures. Others ways of dealing with health related expenditures was asking loans from relatives and neighbors (usually with no interests involved), and formal institutions (mainly Rural Credit Cooperatives). However, long-term sickness became a difficult burden that eventually ended up draining family savings and compromised the access to both formal and informal credit, as the family could not pay back additional loans.

Key factors in poverty exit. This section identifies the key factors, in particular government interventions, that influenced the type of poverty exit strategies selected by rural households and their capacity to implement them successfully. The most important in Sichuan were the following:

- a) Policy reforms that turned collective production into family farming and liberalized agricultural prices and marketing, played a key role in the selection of agricultural diversification and intensification as the main poverty exit strategy between the late 1970s and the late 1980s. As it was explained, the agricultural policy reforms implemented in the late 1970s and early 1990s created great incentives for rural households to use more inputs, work more intensively, and diversify into new crops and non-agricultural activities. This is coincident with the findings of the literature that analyzes the development of China, which argues that poverty reduction between 1978 and the mid-1980s is linked mainly to agriculture and non-agricultural activities.
- b) The context of rapid industrial growth in the coastal provinces that took place in the 1990s, coupled with the lifting of restrictions to labor mobility in the late 1980s, created employment opportunities to potential migrants from rural areas. This became key for migration to urban areas becoming the most important poverty exit strategy of rural households (with the migration of their younger members) in Sichuan during the 1990s and 2000s.
- c) Elimination or reduction of agricultural taxes paid by rural households to local governments. These taxes had been in place since the early days of the People's Republic of China and were imposed by local governments. The central

government decided in 2004 to completely eliminate them within 5 years. Since then, 27 out of 31 provinces had abolished them, while the other four provinces and regions lowered them significantly and were expected to eliminate them in 2006. The elimination of agricultural taxes was highly appreciated by all households visited because it increased the cash available to them.

- d) Elimination of taxes on special agricultural produce. These taxes started to be imposed in November 1983 to a number of cash crops (tobacco, tea, rubber, bamboo, mushrooms, silkworm, nuts, melon, banana, apples and other fruits, among others) with the objective of restricting their expansion over areas with grain at a time in which the government was worried about producing enough grains to supply the domestic market. These taxes were eliminated for all special agricultural products, with the exception of tobacco. This policy provided new incentives to the cultivation of cash crops, increasing the net income available to farmers and commercial firms involved in their cultivation.

In recent years, the Chinese central government started several programs to deal with the remaining poor and with vulnerability, consisting mainly of measures to increase substantially the access to education and health. However, these programs were very recent and their effects were still to be evaluated. One of these efforts included started testing programs to improve the access of poor households to health services: (i) the Rural Cooperative Health Program, an insurance-type of program for all rural households (not only the poor) who joined and paid CNY 10 (USD 1.23) per person per year; the program reimbursed part of the costs incurred in medical expenses for serious sickness, expensive medical fees, and hospitalization fees; members who did not get sick during one year could receive a free physical examination; and (ii) the “Salvation Program”, which provided subsidies to hardcore poor households to partially cover major medical bills; this program was in its pilot stage, covering only some counties in all provinces of China (among them Sichuan).

Both programs faced difficulties, in particular insufficient financing. In addition, some poor households interviewed argued that they could not even pay the CNY 10 per person per year required by the Rural Cooperative Health System. The government tackled this problem by making possible the use of subsidies of the Salvation Program to pay the fees required by the Rural Cooperative Health Program. Other problems included not benefiting those who were not seriously ill and figuring out if the sickness was serious or not. In spite of these difficulties, the programs’ direction seemed to be right because they addressed one of the main causes of rural poverty and vulnerability.

Finally, other two government programs helped the poor with direct transfers: a) the “Five Guarantee” program, which provided (as stipulated in the Chinese Constitution) help in food, housing, clothing, and medical care to individuals or households without capacity to work, means of support, and family to help them; and b) the “Minimum Living Standards” program, which provided cash income to hardcore poor households in rural areas to cover the gap between their actual income and the poverty line. According to the interviews carried out with local and provincial leaders, the latter program had fallen short of expectations, especially in middle and west provinces, where it covered a small number of

households due to insufficient budget from local governments. Thus, it ended up covering counties mainly in coastal provinces.

Yunnan Province (People's Republic of China).

Yunnan is one of the five southern border provinces of China, neighboring Vietnam, Laos, and Burma. With a GDP per capita of CNY 4,840 (USD 2543) in 2001, Yunnan ranked 28th out of the 31 provinces of China, being one of the poorest and least industrialized, with an average GDP and rural income per capita that are two thirds of the national average. Yunnan is characterized by a great diversity of topography and climate, going from alpine mountains in the north to hills in the south. The total population is over 41 million, with 24 ethnic minorities reaching about 13 million (32 percent of the population) and dominating in rural areas. While Yunnan accounts for about 3.4 per cent of China's population, its share in national GDP is only about 2.2 per cent. The average annual GDP per capita growth rate for the whole Yunnan province during 1999–2003 was 6.2%. The share of agriculture in GDP in 2003 was 21 percent, falling from 42 percent at the end of the 1970s. Agriculture experienced substantial changes in the 1990s as a result of the expansion of high value crops (mainly tobacco, tea, and sugarcane in the south and flowers in the north).

According to official statistics, rural poverty in Yunnan fell from 41 percent in 1985 to 23 percent in 1997. However, poverty in the counties in the southern part of the province that were included in the case study (Yuanjiang, Mojiang, Simao, and Meng Lian) was higher than 30 percent. Households' income levels within villages were quite homogeneous, but I found a great variation between villages, with the poorest being located in more remote and mountainous areas with poor roads. In some of the villages visited, the average income of poor households was CNY 625 or USD 77 per year, while in others it was CNY 865 or USD 106 per year. Using the definition of poverty used by the rural households themselves (based not only on enough food to eat but insufficient cash income to cover other needs considered basic), the proportion of poor households varied greatly between almost no poor in the better-off villages to close to all in the poorest ones. Most households interviewed (including both poor and non-poor) said that their life was better than 5 or 10 years earlier. Food shortages seemed not to affect even the poor households, though their consumption of meat was low and some said that they occasionally experienced periods with difficulties to access enough food. Poor households did lack cash income to satisfy other needs, such as clothes or bringing to the doctor a sick family member.

Assets available. In contrast to Sichuan, the Yunnan Province has been characterized by a very low population density, which leads to a high availability of land per household. In fact, the households visited in Yunnan had an average of 1.3 to 2 hectares of land, which represented close to ten times the land available per household in Sichuan. In addition, Yunnan is characterized by deep and fertile soils that could be used for a wide variety of crops, and its latitude location and altitude between 1,200 and 1,500 meters are very appropriate for growing certain crops like tobacco, tea, and coffee. As it will be explained later, this created conditions for the establishment of commercial firms that promoted the cultivation of these crops under contract relations with small farmers. However, this

territory is also characterized by poor roads, a mountainous geography, and a sparse distribution of villages, which makes investments in roads more costly.

As it was mentioned above, most households in rural Sichuan were ethnic minorities with high illiteracy rates. The interviews that I carried out with rural households showed that most of the adult population (specially women and the elder) could not speak at all or had very limited command of the Mandarin language dominant in other parts of China (especially in urban areas). Because rural-urban migration in Yunnan had been very limited, most households did not know anybody who had migrated, so they had very scarce information about employment opportunities in specific cities, especially from other provinces. Most of the households interviewed expressed that they were reluctant to migrate to urban areas due to language and cultural barriers.

In contrast to Sichuan, where poor households usually included those with disabled or long-term sick family members and that did not receive sufficient help (or no help at all) from their children, the largest proportion of poor households in the villages visited in Yunnan were ‘productive poor’, i.e. they were poor even though they had family members in working age and no sick or disabled family members. Most of these poor households did not have any cash crops and no migrants in the family who could send money back. In contrast, households that had been able to produce crops of higher values had been able to exit out of poverty and/or to accumulate some physical assets (even if they were still poor). About half the tobacco producers that were visited had their own drying houses—a higher proportion in those villages that started tobacco earlier. Drying houses was very important because fresh leaves are highly perishable and lose quality very quickly after the harvest, so they need to be dried. Thus, it was one of the first investments made by households once they had some resources available. The cost of both infrastructure and the equipment was subsidized by the tobacco company. Some households had purchased motorbikes.

Institutional, economic, and policy context. As Sichuan and other provinces of China, Yunnan was highly affected by the national context of economic and industrial growth and by policies implemented by the central government. The most important were the following:

- a) The transformation of collective production into family farming introduced by the “Household Responsibility System” in 1978 and the liberalization of agricultural prices and marketing between 1978 and 1984. In Yunnan, these policies led to higher productivity and production of corn and increasing rural incomes. However, rural poverty in Yunnan remained among the highest in China, which related partly to low productivity of agriculture and difficulties in the marketing of production.
- b) Investments in rural roads and basic infrastructure (especially water supply) in villages of poor counties as a part of the 8-7 Plan. Most of the villages visited had adequate water supply for domestic consumption coming from infrastructure constructed within the last five years by programs financed by the central government. In addition, counties received funds to improve rural roads connecting villages with counties. Better roads played a key role in the

decisions taken by specific companies that decided to promote the cultivation of tobacco, tea, and sugarcane among small farmers under contractual arrangements, as they preferred to work in villages with good roads than in more isolated villages with poor roads.

- c) Elimination or reduction of agricultural taxes paid by rural households to local governments. As explained in the case of Sichuan, the elimination of these taxes increased the cash available to rural households.
- d) Elimination of taxes on special agricultural produce. This was very important in Yunnan because they focused on cash crops, some of which became very important in the south of the province (tobacco and tea). Thus, this policy generated incentives to the cultivation of cash crops and increased the net income available by farmers.

In contrast to Sichuan, the context of economic and industrial growth in China did not have such an important influence on rural households, as it did not attract young household members to migrate (as it was the case of Sichuan) due mainly to cultural factors.

Finally, an additional contextual variable that had an important influence in the poverty exit strategies adopted by rural households in the counties visited in Yunnan was the change in cropping patterns among farmers in counties of the north of Yunnan that used to cultivate tobacco. In fact, Yunnan has been for some time the most important province producing tobacco in China.²⁴ A company (Yuxi Hongta Tobacco Group Ltd) that is part of a larger government conglomerate (Hongta Group) was the most important processing firm in the province, producing with small farmers under contractual arrangements.²⁵ The company had its main processing facilities of the company in the Yuxi county in the north of Yunnan, signing contracts with farmers in counties nearby. Partly as a result of the upgrading of an expressway that linked Yuanjiang and Mohei (a 147 km section that was part of the road connecting Kunming, capital city of Yunnan, and Thailand), transportation costs decreased substantially, making it easier for farmers to sell in Kunming due to the decrease in transportation costs. Thus, a large proportion of the tobacco producers in northern counties of Yunnan decided to shift from tobacco to other crops of higher value, especially flowers, that they sold in Kunming.

As it will be explained in the next section, the reduction in the area with tobacco made the Yuxi Tobacco Group to search for new production areas. After carrying out some studies, the company identified that climate and soil conditions in mountain areas in the south of the Yunnan were exceptionally good for tobacco, so it decided to expand the tobacco cultivation there based on similar contractual arrangements with small farmers.

²⁴ Seven of the top 10 enterprises of the Chinese tobacco industry in terms of the quantity of cigarettes inter-provincially allocated for monopolistic sales by the central government in 2000 were Yunnan-based enterprises

²⁵ Besides tobacco manufacturing, the Hongta Group has diversified into other industries, including energy and transportation, banking and finance, insurance, real estate, medicine, and light chemical.

Poverty exit strategies. The main poverty-exit strategy adopted by rural households in Yunnan was agricultural diversification through the introduction of cash crops, mainly tobacco (especially in the villages visited in Yuanjiang and Mojiang), tea and sugarcane (mainly in those visited in Simao and Meng Lian). Seasonal migration and wage employment were two additional livelihood strategies that households adopted, but they usually did not lead to their exit from poverty.

Most of the households visited in Yunnan had agriculture as the major source of income, growing rice and corn and having small livestock (chicken, ducks, and pigs), all of them mainly for the households' consumption. In addition, non-poor households also had cash crops, including mainly tobacco, tea, and/or sugarcane. Many of the non-poor households had one or two buffaloes to help in working the land, and about half of those working with tobacco had been able to build simple drying rooms that they used for drying the leaves after the harvest.

Since the early 1990s, private and government-owned commercial firms that produced high value crops established in Yunnan, signing contracts with individual small farmers, purchasing their production and providing them with technical assistance and inputs. This model became quite common in several of the counties visited in Yunnan for the production of tobacco, tea, coffee, and sugarcane. As it was mentioned in the previous section, tobacco was strongly promoted by a government-owned company (the Yuxi Tobacco Group) that decided to increase the area cultivated with tobacco in counties located in the south of Yunnan, partly to compensate for the reduction in the area cultivated by growers in Yuxi (many of whom started to grow higher value crops) and also due to the excellent natural conditions (latitude, altitude, soils, and availability of water for irrigation). Under the contracts, the firm provided seeds, technical assistance, training, and financial support for building simple on-farm facilities for drying the tobacco leaves. In addition, local governments attracted firms that started cultivating tea, coffee, and sugarcane, all of them under contract farming arrangements. In all cases, the local governments used their great power at the community level to organize agricultural production, convincing farmers to start cultivating the new crops.

As a result, many farmers replaced areas of paddy rice with tobacco, though most maintained the production of paddy rice under irrigation and added tobacco in dryland areas, sometimes reducing the area with rice. A low proportion had started to cultivate tobacco under a rotation with wheat—a production system promoted by the tobacco company in order to avoid the negative effects of monoculture.

In addition to tobacco, private companies had started to promote the cultivation of tea and sugarcane. Tea was cultivated under three models: a) a wage-based cultivation on company's land, usually by households coming from other places; b) cultivation in households' land under contractual arrangements; the company financed the investment in new tea plantations, while the household commits to keep the land for tea cultivation for 80 years and to sell to the tea company. In the Menglian county, I visited a private company that had signed contracts with individual households that had their own tea plantations, providing them technical assistance, purchasing their production, and giving inputs that were deducted from the payment of production after the harvest. In the Cuiyun county,

another commercial company obtained a long-term concession to invest in new tea plantations in public lands, signing contracts with households for the management of small areas of tea. Thus, households did not have their own areas of tea but worked in the company's plantations, receiving a "management fee" equivalent to CNY 450 or USD 55 per hectare per month during the first two years (during which there is no production) and between CNY 1 and 2 (USD 0.12-0.24) per kilogram of tea leaves during the production phase.

The cultivation of sugarcane in Menglian was somewhat different because a processing private firm had promoted the crop and become the main buyer from small farmers. However, the firm did not want to deal with the transaction costs of negotiating and supervising a large number of contracts with individual farmers. Thus, two people with connections and availability of capital became the major actors in organizing producers. The private firm signed a single contract with each of these intermediaries, who then had to convince farmers to grow sugarcane, obtained loans to provide them inputs, and purchased the sugarcane and sent it to the firm's processing facilities. Once the firm received the sugarcane, it paid the intermediary, who then paid each individual farmer. Many farmers relied on the intermediaries for other credit needs as well.

The cultivation of tobacco and tea was usually accompanied by intensification and higher productivity. Both recent and older growers of tobacco had to make progressive adjustments to their technology that implied: a) intensification in the use of the land (more labor and more inputs per unit of land); b) a more timely use of fertilizers and pesticides; c) the use of a new variety of tobacco in some villages. The timely use of pesticides was the result of efforts from the company to increase productivity and quality, and most households were slowly doing so. For that purpose, the company provided inputs whose costs were deducted from the payment due to farmers after the harvest.

In contrast to the villages visited in Sichuan, where most households had members who migrated to other provinces and sent back remittances, migration to other provinces was rare in the villages visited in Yunnan. Thus, most households had no income from transfers of migrant family members. This was mainly a consequence of very low education levels and language barriers. Most villagers were of minority groups, had completed only a few years of primary school, and spoke little or no Mandarin. In addition, they did not have social connections with other provinces because there was no history of migration as in the Sichuan province. Thus, most interviewees feared migrating to other provinces because they did not know anyone and had heard many stories of people not receiving their payment from their employers. Migration to other provinces was more common only in villages closer to the border with Myanmar. This was the result from efforts by the local government of the Menliang country, which had established a program in collaboration with the governments of Shanghai and Canton provinces that linked migrants with firms in those provinces.

Seasonal migration was more common, with usually one household member going to work in agricultural activities during the off-season (October-January), most often to townships closeby, where workers received daily wages of between CNY 10 (USD 1.2) and 25 (USD 3). However, their employment was often unstable, so most stressed that they were able to

bring home little or no money at all. Thus, off-farm employment seems to have served mainly to sustain the seasonal migrants themselves and to relieve the burden of the rest of the family, rather than being an important source of family income.

Finally, wage employment in tea production was an additional important poverty exit strategy adopted by many households. In one of the villages visited, the tea company owned 667 hectares of tea plantations, giving individual households the responsibility of managing areas of about 0.15-0.20 hectares per person. Some of these households had worked for the company for more than fifteen years, while others had been resettled by the government from mountain areas of low productivity, receiving construction materials to build their houses, a small amount for food needs during the first few months, and a small piece of land to grow their crops (usually corn to feed pigs and chicken). Each household had to carry out all the farming activities, such as fertilization, control of pests and diseases, and harvesting, receiving a piece rate of CNY 13 (USD 1.6) per kilogram of small younger leaves and CNY 1 (USD 0.12) per kilogram of larger leaves. In exchange, they received a monthly payment of CNY 30 (USD 3.7) during all-year, plus a payment per kilogram of collected leaves during the harvest times (nine or ten months per year). Although the payment was low, it was better than their earlier income, and most families interviewed were able to obtain a net annual income of CNY 1,500 (USD 405).

Vulnerability. As in Sichuan, the interviews to rural households in Yunnan showed that sickness of family members was the most important source of vulnerability for rural households, especially when it involved old family members who required medicines for a long time. In addition to increasing households' income, the introduction of high value made possible to reduce vulnerability it made possible for them to save more. However, the situation was less comfortable than in Sichuan, as it was found that a very low proportion of the households interviewed had savings accounts in the Rural Credit Cooperatives and another substantial proportion were savings in other forms, e.g. by having some animals that could be sold in an emergency. Informal credit to deal with emergencies was not very relevant, though some households borrowed from neighbors.

As it was explained in the case of Sichuan, the Chinese central government started testing programs to improve the access of poor households to health services, including the Rural Cooperative Health Program (an insurance-type of program) and the "Salvation Program" (a program providing subsidies to hardcore poor households to partially cover major medical bills). However, the alter in a pilot stage, covering only some counties in southern Yunnan, so it was found that rural households still did not know it.

Key factors in poverty reduction. The key factors that influenced the type of poverty exit strategies selected by rural households, their capacity to select and implement them were the following:

- a) The establishment of commercial firms in the region to promote the cultivation of high value crops through contract farming. This created new opportunities for small farmers that used to cultivate basically subsistence crops to diversify their production and obtain higher incomes. The contracts included not only the companies' commitment to purchase production from small farmers at an agreed

price, but also their provision to small farmers of training, technical assistance, and credit in the form of inputs paid at the time of harvest and, in the case of tobacco, the construction of drying houses. Commercial firms were key because, in contrast to individual small farmers, commercial firms had better access to financial resources, know-how in agricultural technology, and capacity to operate in changing product markets. As it was explained in the previous section, these firms were attracted by the high potential of the natural resources in southern Yunnan. In the case of tobacco, it was important that growers in the north of the province that used to be the main suppliers of the company had shifted to other crops of higher value (mainly flowers). In some cases (e.g. in tea), the prices paid to farmers for their production were very low, or payments charged for loans (e.g. in sugarcane) were too high or for too long time. This situation is similar to what critics of contract farming have found in other countries, arguing that it has frequently been characterized by low prices received by small farmers mainly due to their limited access to information and capacity to negotiate with firms.²⁶ However, it must be recognized that most if not all of the households working with cash crops that were visited in Yunnan said that they were better now than before cultivating them. In addition, comparative experience shows that some of the problems of contract farming can be dealt with the creation of farmers' organizations that make possible collective bargaining and measures that strengthen their negotiation capacity.

- b) Policies of the local governments to attract agricultural firms. Counties and municipalities in southern Yunnan played an active role in attracting new businesses. In recent years, the Chinese central government pushed strongly local governments to attract foreign and national investments. As a result, many county governments created Business Bureaus and provided benefits (like tax benefits and concessions for the use of public lands) to attract investors. In villages visited in Yunnan, local governments focused on attracting investments of agricultural and agro-processing companies because they recognized that the characteristics of their counties made it very difficult to attract manufacturing industries, and at the same time that they had a great availability of natural resources. Part of the efforts focused on investments in upgrading or constructing roads connecting villages with small and medium-size towns and cities, as the commercial firms had told them that it was too difficult if not impossible for them to work with farmers in villages located in remote places or without good roads. Technicians from the tobacco company who were interviewed stressed that the availability of good roads was one of the important factors that they considered in the decision to incorporate a village

²⁶ There is an extensive literature on contract farming offering opposing views on its potential effects on small farmers' incomes. Several authors have been highly critical of contract farming, considering it in a dependency theory framework as an exploitative extension of international capital. For example, see Lappe and Collins, 1977. Watts (1990) has considered contract farming as a system for self-exploitation of family labour and frequently characterized by company manipulation and abrogation of contracts. Little and Watts (1994) argue that the problems arising from unequal power relationships as well as market fluctuations, often make contract farming unsustainable in the long term. In contrast, other analysts have argued that contract farming and outgrower schemes have very often led to a significant rise in living standards. For example, see Glover (1983 & 1987), Glover and Ghee (1992), and Glover and Kusterer (1990).

to tobacco production. If the quality of roads was poor, rain could prevent the transportation of harvests to the factories, leading to product losses. In addition, local governments provided long-term concessions of public lands to produce cash crops like tea. More important, the county governments engaged actively in collaborative relations with the companies of tobacco, tea, and sugarcane that established in their counties, convincing farmers to introduce them, using village leaders as first growers to generate trust among other farmers, and training village leaders to help in the provision of technical assistance to other farmers.

- c) Collaborative arrangements between local governments of Yunnan and other provinces to strengthen skills of potential migrants and facilitate their migration. As it was mentioned earlier, the 8-7 Plan approved in 1994 assigned responsibility to developed cities and provinces to help in the development of poor provinces, municipalities, and counties. This led to the establishment of collaborative ties between developed city/provincial governments with poor counties. In the case of southern Yunnan, I found that the Menliang county had agreements with the governments of Guangdong and Shanghai to help migrants to those destinations. The county government helped migrants with transportation costs, while the Guangdong and Shanghai governments helped them to find jobs through a specialized office that made contacts with specific companies. In addition, the Guangdong and Shanghai governments provided funds to organize training courses in Menliang given to the potential migrants before they migrated, so that they started their new jobs with some basic skills. During the first year, the job was considered an internship in which the participant received a lower wage but gained experience.

The Terengganu Province (Malaysia)

Located in the northeast of Peninsular Malaysia, the Terengganu province has been one of the poorest of the country. In 1990, the province had the highest incidence of poverty in Peninsular Malaysia, with 36.2 percent of households living below the national poverty level in 1990.²⁷ Its economy was based on agriculture, mainly the production of paddy rice by small farmers and livestock. In the 1970s, large gas and oil reserves were discovered in the coast of the province and a strong gas and oil industry was developed, becoming the most important economic activity in the province. At present, Terengganu accounts for about 65% of Malaysia's known crude oil reserves and 36% of the country's gas reserves. As a result of the development of the oil and gas industry, the province's GDP grew rapidly and the share of manufacturing grew to 19.6 percent of the province's GDP in 2002. At the same time, the share of agriculture fell to less than 5 percent. However, agriculture, livestock, fisheries and forestry sector still employs more than 92,000 people or 27% of the province's total workforce. The main crops are oil palm, rubber, and paddy. Statistics from the Terengganu State Economic Planning Unit show that the number of households living under the national poverty criterion in the state had declined to 17 percent in 1995 and to 1 percent in 1999. The number of hardcore poor households (households with

²⁷ ADB (2001).

income less than half of the poverty line) also declined from 5.4 percent in 1995 to 3.3 percent in 1999.

Assets available. Terengganu is characterized by a low population density and a climate and agro ecological features that generated a great potential for the production of rubber and oil palm, as well as extensive flat areas with high capacity to accumulate water that made possible the cultivation of paddy. Until the 1970s, large areas of public lands in the province were occupied by forests. As it will be explained later, the federal government decided to promote the development of these public lands as a part of its development with equity, turning them into oil palm and rubber plantations and establishing in them poor households.

As in the rest of Malaysia, the lands of Terengganu were occupied by estates and small landholders. Most landholders have less than 2 hectares of land, and two types can be distinguished. The first one is independent, non-organized smallholders, which represent about two thirds of the rubber producers and all the producers in other crops with the exception of oil palm. The second category includes households that were initially landless and received land and housing in land development schemes implemented by the government agencies in the 1970s. These smallholders represent around one third of the rubber producers and almost all of the oil palm producers. In addition, I found landless households whose members (mainly the household head) were employed in processing industries (oil palm or plywood) managed by government-owned companies that were located in rural areas or small towns and households that rented land to grow paddy.

The highest incidence of poverty has been traditionally concentrated in the landless and in the non-organized smallholders. As it will be explained in the next section, the federal government made great efforts in the 1970s and 1980s to deal with rural poverty by creating land settlements and establishing in them landless households. Nearly all of the households that were interviewed in Terengganu had enough resources to cover their needs of food, electricity, water, and other basic items. For example, settlers in a land development scheme in visited in Ketengah Jaya (Terengganu) obtained an average monthly income of RM 700 per month from their palm oil plantations and other sources. In most cases, these incomes were enough to cover the families' expenditures in food (about RM 400), the utilities bills (RM 100 for electricity and water). In addition, the majority of the households visited had been able to save for improving their houses and buying household equipment like fridges, TVs, radios, VCRs, and other electronics. Some settlers had even been able to purchase lorries that they used as an alternative source of income.

The interviews to rural households showed a sharp contrast in the education and skills of different generations within each household. Most of older members of the household, which were the beneficiaries of land development schemes or obtained employment in oil palm mills owned by government companies, had completed primary education, some had done some secondary education, and a few were illiterate. In contrast, the younger generations had completed or were studying secondary school, some had been able to obtain degrees as teachers, nurses, and some (in more unusual situations) were even studying towards university degrees. This phenomenon is explained by government

policies to increase the education levels of the population, investing in infrastructure and making secondary school compulsory. In addition, nutritional and health conditions did not seem a constraint in the capacity of households to implement different livelihood strategies, as all household members had free access to outpatient services and medicines, with the government investing heavily in hospitals, health clinics, and improved management.

Finally, while villages had some traditional organizations to solve problems collectively, they relied mainly on formal institutions promoted by the government, especially the village leaders, who played an important role in identifying problems and demands and providing information about them to the state government. At the same time, villagers relied very much in their social networks in their decision of where and when to migrate to cities to look for better job opportunities or, in some cases, to send their children to study at universities. For example, the interviews showed that a great proportion of beneficiaries in the land development schemes arrived there through a close relative or friend who provided the information and support during the initial weeks in the area. Most households whose children were working in industries in Kuala Lumpur or other cities in Western Malaysia said that their children initially stayed with relatives in those cities while they were searching for a job.

Institutional, economic, and policy context. Terengganu was strongly influenced by the historical, political, and economic context of Malaysia as a whole. In fact, current characteristics of Malaysia are strongly influenced by its period under British rule. At that time, a large part of its economy was controlled by British capital invested in rubber plantations, tin mining, and timber production, being most of the products exported. As most of the workers for these plantations were brought from China and India, Malaysia became a multiracial and multiethnic society, with more than half of the population being Malay, 37% Chinese, and 12% Indian at the time of its independence in 1957. Most of the Malay and indigenous (aborigine) populations lived in rural areas, carrying out subsistence farming and fishing activities and being the poorest of the ethnic groups. Meanwhile, the Chinese population concentrated in urban areas, owned the majority of business in the cities, and had substantially higher income levels. Finally, the Indian population also concentrated in the urban areas, carrying out small businesses and also performing as unskilled wage workers.

In 1969, an important ethnic conflict took place in the wake of an election campaign based on racial issues. Riots took place in Kuala Lumpur, leading the government to declare a state of national emergency and suspend the Parliament until 1971. This problem had a dramatic effect in the government policies implemented in the following three decades. One of the most important was a New Economic Policy that was guided by the definition of social unity as the only goal of national development policies, as well as the key place given in the development strategy to poverty eradication and restructuring of the economic balances among racial groups. This political context gave a great priority to policies and programs to reduce poverty and improve income distribution, including the access to free education and health services, highly subsidized housing, and access to water supply and electricity, among others. Other programs distributed government-owned land to landless poor families, and provided long-term and subsidized support for investment costs, free or

subsidized agricultural inputs, and free technical assistance. Price policies were also implemented to control variations in the prices of rice and other essential foodstuff. This led to stable prices for farmers (especially in rice) and consumers, reducing drastically the potential negative effects of price variations. Finally, policies were implemented to reduce income inequalities between the *Bumiputera* population and the other ethnicities, including mainly public sector employment, promotion of an increased share in ownership of private businesses, and greater access to education and training through fellowships.

In addition, the country has been governed since the 1970s by a political coalition characterized by strong leadership that gave continuity to the application of the national goal and strategy. Policies were implemented through national plans that provided an active and direct role to the government in economic and in selected activities. Macroeconomic policies gave high priority to promoting a stable and attractive investment environment that encouraged foreign investments in selected activities. Also, heavy investments in infrastructure (highways, electric power, telecommunications), the creation of free trade zones, and the provision of tax breaks became relevant instruments to promote private investment. As a result, Malaysia experienced an outstanding record of economic growth that reached an annual average of 6.7 per cent during 1971-1990 and 7.0 per cent during 1991-2000. The manufacturing sector was the leading sector, provoking major changes in the labor market, which went from relatively high unemployment to full employment and more recently to labor shortages (especially in West Malaysia).²⁸

During the 1970s and 1980s, agriculture played an important role in poverty reduction. As poverty was concentrated among landless and small farmers, the federal government invested substantial resources in creating land settlements in public lands, establishing in them landless families, and cultivating in them large-scale plantations of oil palm and rubber. Thus, many rural poor households benefited from land in these settlements between the 1970s and 1980s. These lands had oil palm or rubber plantations that these families had to manage under the technical assistance of the government agency involved. In addition, beneficiaries of the land settlements received a simple house in new towns created by the federal government.

Since the early 1990s, the high record of economic growth became a major factor in poverty reduction. First, the manufacturing sector created opportunities for employment to both the urban and rural population, and the labor shortage favored a slow increase in wages. The industry concentrated in the western side of the Peninsula, attracting Malaysians who migrated from other states, among them Terengganu. Second, economic growth gave the government resources necessary to implement a wide range of programs targeting the poor. As a result, the incidence of poverty among households was markedly reduced. In Terengganu, the percentage of poor households fell from 53.1 per cent in 1980 to 10.7% in 2002. The incidence for Malaysia was further reduced to 4.7 per cent in 2004.²⁹

²⁸ Among others, see Khan (2002) and Malaysia Economic Planning Unit (2004).

²⁹ Poverty in Malaysia is measured based on the Poverty Line Index (PLI), which is based on the minimum requirements of a household for food, clothing, and non-food items such as rent, fuel, transportation, communication, and power. Since the average cost of living has been different in Peninsular Malaysia, Sabah, and Sarawak, different PLIs were defined for each of them. However, no differentiation has been made for

In addition, the federal government implemented other policies that played a key role in reducing poverty, including: a) public investment in education, which enabled the majority (especially the young generation) to enhance their human capital—a critical condition for obtaining high-payment jobs; b) universal provision of free or highly subsidized medical services, which reduced risks/shocks difficult to cope with by individuals, c) stabilization policies of agricultural prices, which minimized shocks faced by rice farmers and low-income consumers; d) programs aimed at changing the distribution of assets, promoting a higher participation of the Bumiputera in public employment, business ownership, and the professional population; and e) a philosophy of growth with equity, which led to social stability—a critical condition attracting foreign direct investment and job creation by private companies.

In addition to national policies, the most important aspects of the context in Terengganu were the following: a) the growth of oil and gas industry, which attracted people from rural areas to work directly in the industry and related construction work; and b) the implementation of land development schemes based on oil palm and rubber implemented by federal government agencies and government-owned companies. These government agencies that created land settlements on public lands based on oil palm and rubber plantations, constructed and operated palm oil mills, and developed medium-size towns for the new settlers. Most of these programs were targeted specifically to small farmers. The most important agencies were the Federal Land Development Authority (FELDA), the Federal Land Consolidation and Rehabilitation Authority (FELCRA), and the Rubber Industry Smallholders Development Authority (RISDA). FELDA and FELCRA created land settlements on government lands based on palm oil and rubber plantations, respectively, while RISDA focused on rubber. All of them provided landless households with land and housing, long-term loans for plantation and replantation, planting materials, inputs, and technical assistance, signing contracts with them for the purchase of production. In addition to land settlements, these federal agencies constructed townships where wage workers lived. In the case of Terengganu, Ketengah (a federal agency that implemented the first and second Township Development Project) also developed townships to provide housing and services to those working in processing industries and as managers in the plantations.

Poverty exit strategies. The most important strategy to exit out of poverty of rural households identified in Terengganu were: a) agricultural intensification and diversification; b) wage employment in non-agricultural activities in rural areas; and c) migration to urban areas to work in industry and services.

Agricultural intensification and diversification was the main poverty exit of rural households in the 1970s and 1980s, when agriculture was still important in Malaysia's economy and the federal government invested substantial resources in rural development programs and projects. These programs aimed at increasing the incomes of the agricultural

urban and rural PLIs. In addition, Household Hardcore Poverty is defined as the condition in which the monthly household income is less than half the PLI. The Economic Planning Unit (EPU) revises the PLI periodically based on information collected from household surveys or inflation figures.

labor force through raising productivity and modernizing traditional production. The main efforts of the federal were of two types: a) rural development programs that focused on developing irrigation infrastructure and drainage facilities, providing access to credit and extension services, building marketing outlets, and rehabilitation of farms and tree crops; and b) creation of large-scale land development schemes for the landless and smallholders carried out mainly by the Federal Land Development Authority (FELDA) and the Federal Land Consolidation and Rehabilitation Authority (FELCRA), the regional development authorities, and the state agencies. Almost of the households that I interviewed that used to be poor and had been able to exit from poverty in the 1970s and 1980s had done either by establishing in land settlements where they cultivated oil palm or rubber, or by getting access to irrigation or other substantial improvements in their conditions of agricultural production.

In addition to agricultural production, a low proportion of rural households (between 5 and 10 per cent) in areas with oil palm and rubber plantations had exit from poverty by obtaining wage employment in processing industries owned by government companies. These workers comprised usually older household members who lived in other villages and were landless, so they had come to the village where they lived at present attracted by the possibility of obtaining land in the government land settlements or a job in the processing industries. Furthermore, farmers in land settlements producing oil palm or rubber frequently worked part-time in construction (which in turn had grown substantially as a result of the growth in oil and gas industry in Terengganu). Thus, wage employment in these cases was usually part of an effort to diversify the households' sources of income.

Finally, migration became the most important strategy of rural households to exit from poverty since the early 1990s. In fact, most of the rural households that I visited of all types—smallholders in land development schemes, isolated smallholders cultivating rice and other crops—had remittances as a major source of income. Even in those households that had exit from poverty a long time ago as a result of rural development programs and land settlements, the young members of the family had migrated to cities in Peninsula Malaysia to work in industry in services. This is the result of a context of economic and industrial growth that created opportunities for potential migrants, and also due to the very limited land available for redistribution. Asked why they had migrated if the family was able to cover all basic needs from agriculture, the response from the overwhelmingly majority of those interviewed was that the land available was enough for the family but insufficient for the children when they grew up and got married, so they had to search for new opportunities elsewhere. In addition, as most of the young household members had received a much higher education than their parents (some of whom were even illiterate), they had higher expectations of obtaining a better paid job that also offered better working conditions than in the countryside. In fact, most rural households gave a lot of value to their children's education, so they invested heavily on it and even to send their children to study in technical schools and occasionally to universities in cities. As in the case of Sichuan (China), a high proportion of households had family members or friends who had migrated, so they had connections in cities and good information about labor markets, job opportunities, and costs of living in the cities, all of which made it easier to make a decision about migration. It also facilitated sending young household members to study. An

important proportion of the migrants (though significantly lower than in Sichuan) sent money back to their families.

Vulnerability. As in Sichuan and Yunnan, the main source of vulnerability of rural households in Terengganu related with health-related problems of family members, especially when the household comprised older couples or old people living alone. However, vulnerability was substantially lower because the central government invested heavily in hospitals, health clinics, and improved management and it provided free access to outpatient services and medicines to all households. While government officials interviewed recognized that maintaining these policies was becoming very difficult due to the high cost, and that the services were experiencing some reduction in quality, it still played a key role in reducing vulnerability.

Key factors in poverty exit. The key factors that influenced the type of poverty exit strategies selected by rural households, their capacity to select and implement them were the following:

- a) The rural development programs implemented by the federal government in the 1970s and 1980s, which provided opportunities for small farmers to modernize their production (especially through improvements in irrigation infrastructure) and for landless households to obtain land and support services in land development schemes focused on oil palm and rubber, as well as for some of them to obtain wage employment in processing industries of oil palm and rubber. These programs were key for rural households that were able to get out of poverty between the early 1970s and the late 1980s.
- b) The context of economic growth and industrialization was the key factor in the capacity of rural households to exit from poverty, creating opportunities for the young family members in industry and services who found impossible to live on agriculture due to the family's limited availability of land. After more than a decade of substantial rural-urban migration, I found that most households had been able to build connections in the cities that not only made it easier for other family members to migrate, but also for some of them to study in technical schools and universities the cities.

Puno-Cusco Corridor (Peru)

The Puno-Cusco Corridor comprises 14 provinces of the departments of Puno and Cusco in the Andean region of Peru, located along a 344 km-highway that links the cities of Puno and Cusco (capital cities of the two departments). Being part of the Andean region, the Puno-Cusco Corridor is characterized by a mountainous geography, with altitudes between 2,900 and 4,300 meters over sea level. Most of the population is of native (quechua and aymara) origin.

The Puno-Cusco Corridor experienced great changes since the beginning of the 1990s. At that time, about 90 per cent of the rural population (about 600,000 people) were poor, infant

mortality rates were high (close to 186/1000) as well as illiteracy rates, with 54 per cent of women and 22 per cent of men being illiterate in Cusco and 42 per cent of women and 15 per cent of men being illiterate in Puno. In Cusco, poverty fell to 72.7 per cent of the households in 2001 and to 59.2 per cent in 2004, while in Puno it fell to 79 per cent in 2001 and 77 per cent in 2004. While the households living in extreme poverty fell from 50.2 per cent in 2001 to 25.9 per cent in 2004 in Cusco, they went from 50.7 per cent to 49.8 per cent in Puno.³⁰ GDP in Cusco grew from USD 1.3 million in 2001 to USD 1.8 million in 2004, while GDP per capita increased 33 percent. In Puno, GDP increased from USD 897 mil in 2001 to USD 1.2 million in 2004 and GDP per capita raised 35% in 2001.

Assets available. The Puno-Cusco Corridor is characterized by a great diversity of local conditions. Highlands of between 3,000 and 4,500 with cold weather and poor soils are dominant, but valleys of lower altitude with milder climate and good soils provide good conditions for agriculture. Poverty has been strongly related to small areas of land per family, low productivity of agriculture (which traditionally focused on basic grains and small livestock), and difficulties of farmers to access technical assistance and markets—partly related with poor roads and markets infrastructure.

While illiteracy rates were high, the native populations are often characterized by being hard working and having great initiative, with the aymaras being well-knowns for their good marketing skills. In addition, communities are usually highly organized, undertaking collective action to solve problems that they face.

Finally, one of the particular features that influenced the recent evolution of the Puno-Cusco Corridor has been the great inflows of tourists attracted by sites of historical and cultural value located nearby the city of Cusco and in the city itself. Tourism has led to a substantial increase in the demand for locally-made handcrafts and other local products. Coincidentally, changes have taken place in tastes and preferences of tourists, with an increasing relevance of services that allow closer contact with local cultures. As it will be explained later, many communities and groups in the Puno-Cusco Corridor took advantage of these trends, increasing the production and improving the quality of their handcrafts with new designs and starting new services demanded by tourists, notably performing as guides in historical sites and receiving tourists in their communities, where they frequently stay overnight in the homes of the local residents.

Institutional, economic, and policy context. The Puno-Cusco Corridor was highly influenced by political and policy changes that took place in Peru since the early 1990s. During the 1980s, Peru had been affected by hyperinflation, increasing poverty, and civil unrest. Guerrilla-related violence had taken over 25,000 lives and cost an estimated US\$ 22 billion in material damage. In 1990, with the country on the verge of an economic and social collapse, the new government applied a dramatic program of stabilization and structural reform, removing price controls, freezing public sector wages, cutting social spending, implementing a tax reform, and privatizing public enterprises in several areas, such as refineries and electric power generation. In the agricultural sector, the government

³⁰ The information about poverty levels comes from the National Households Surveys that are carried out annually in Peru.

also implemented important reforms, reducing the size of the Ministry of Agriculture and giving it a normative and regulatory role. Public enterprises in charge of marketing rice and inputs were closed down, price controls in agricultural products were lifted, public extension services were suspended, and agricultural research stations focused on commercial agriculture were transferred to the private sector. In addition, the government promulgated a series of land laws to encourage investment and promote the modernization of agriculture, raising limits on land ownership imposed in the land reform of the late 1960s past and allowing the land to be a tradable commodity. Lastly, the Agrarian Bank—a development bank specialized in the agricultural sector—was closed down in 1992 and, as a result of stabilization policies, agricultural credit became highly restricted.

Partly as a result of policy reforms, the Peruvian economy grew at high rates. Between 1991 and 2005, GDP grew at an average rate of 3.9 per cent annually. In addition, the government was able to win its battle against terrorism, which in turn led to substantially safer conditions in the rural areas and made possible large public investments in rural infrastructure—specially roads and electrification—during all the 1990s and the 2000s. Investments in telecommunications were also very important, improving greatly the access of the population to cellular phones, as well as the availability of low-cost internet services.

During the 1990s, the government of Peru also implemented in the Puno-Cusco Corridor several programs and projects that aimed at reducing poverty. In the early 1990s, the Government of Peru created the National Fund for Compensation and Social Development (FONCODES) to implement a social investment fund that aimed at providing a compensatory mechanism for the negative effects of stabilization and structural reform programs. The program provided grants to small community groups to implement small social infrastructure projects.³¹

Most important, the government implemented projects that focused on providing access to poor rural households to technical and financial services. The most important one was the Puno-Cusco Corridor Project, implemented by FONCODES since the late of year 2000 with financial support from the International Fund for Agricultural Development (IFAD).³² The project transferred funds to beneficiary groups and communities to help them implement income generation projects, not paying for investments but only for part of the costs of technical assistance and training. In addition, the project gave incentives to poor women groups to save in individual accounts opened in formal financial institutions of the Corridor, it provided grant funds to cover part of the cost of marketing infrastructure at the local-community level, and it supported small producers to improve the marketing of production through product registration, information, and contacts with buyers.

Finally, the period after late 1990s was characterized by decentralization policies implemented that gave power and resources to local governments. Although these policies took place recently, they have been showing great effects in local participation, which in

³¹ In the 2000s, this project also started to give grants for income-generation initiatives.

³² The Puno-Cusco Project had an estimated cost at design of USD 30.8 million, out of which 61percent would be an IFAD loan, 16 percent would be financed by the Government of Peru, and 23 percent would be contributions from the project beneficiaries. The expected closing date of the project is December 31, 2007.

turn is helping mobilize new ideas and initiatives from communities that turn into business opportunities. In fact, a chapter on Decentralization of Peru's Constitution was modified in 2001 and a new Law providing the basis of the decentralization process was approved in July 2002. In November of that year, elections were held of regional and municipal authorities and a new Organic Law of Regional Governments was approved, stating that the regional and municipal governments would have political, economic, and administrative autonomy on matters of their competence. The same Law assigned regional and municipal governments responsibilities of promoting regional development, investments, and some public services. Local governments also received increasing resources. As a result, local governments were significantly strengthened and new forms of participation emerged, including among others the participatory preparation of municipal budgets.

Poverty exit strategies. In the Puno-Cusco Corridor, the main strategies out of rural households to exit out of poverty were agricultural intensification, diversification into non-agricultural activities, and seasonal migration.

Agricultural intensification resulted from changes in agricultural production technology, mainly in livestock, dairy, and guinea pig production. Changes in livestock included mainly the shifting from traditional livestock production based on breeding in natural pastures to intensive production based on fattening with fed produced on-farm. In dairy, households focused on using improved pastures, better management of livestock, and occasionally the use of cows of higher quality. In guinea pig, households went from a traditional production based on the use of traditional breeds that were raised inside the kitchens to the use of breeds of much higher productivity that were raised in specially conditioned and fed with cultivated pastures.

Diversification comprised of a range of non-agricultural rural activities, but the largest proportion of households focused on commerce and textile products. I found households in several communities that had focused successfully in tourism activities, such as performing as porters or tourist guides for hikers and visitors, or receiving tours that stayed overnight in the communities, with rural households cooking traditional meals, performing traditional dances and songs.

Finally, seasonal migration was important among poorer households, and it was in fact in most households that were still poor, in which the household head migrated seasonally to work in mining in mining or in tropical areas of the department of Cusco. Seasonal migration was important not only for providing an income to cover family essential needs, but also to save money needed to pay for small investments needed in the intensification and diversification of production. When they were able to succeed in these alter strategies, most households stopped using seasonal migration as a livelihood strategy.

Vulnerability. In the Puno-Cusco Corridor, the main sources of vulnerability for rural households were health-related problems and unexpected losses in animal products and crops losses due to diseases and pests, price variations in agricultural products, and crop losses due to climate shocks. The interviews carried out to households showed that most of them had savings. While a high proportion saved in the form of animals and partly in cash, a growing number of households saved in formal financial institutions. The more successful

rural households had been in increasing their income by agricultural diversification and intensification, the more they were able to save and deal with emergencies.

Key factors in poverty exit. The key factors in the households selection and implementation of the above-mentioned strategies to exit out of poverty were the following:

- a) A context of economic growth that promoted the growth in population and economic activities of small and mid-size cities and towns in the territory. Between the late 1970s and late 1990s, the population of the city of Cusco increased from 120,000 to 360,000 inhabitants, Puno went from 40,000 to 90,000, Sicuani from 12,000 to 30,000 inhabitants, Ayaviri from 10,000 to 18,000, and Juliaca from 40,000 to 145,000. This growth in population, along with the slow increase in the income of the population, led to a growing demand in these cities (and also in the larger ones like Lima) for agricultural products produced by poor households in the Puno-Cusco Corridor, especially beef, dairy, and guinea pigs.
- b) The consistent growth in the inflow of foreign tourists, their increasing movement beyond visiting the most traditional historical sites, with an increasing importance for products and services with high cultural content. By 1997, tourism already generated about USD 250 million per year in the Puno-Cusco Corridor—a value that had more than doubled by 2006. The growth of tourism created great opportunities for rural households, especially in textiles, tourism, and handcrafts.
- c) Investments in roads and communications facilitated the access to markets in large, mid-size, and small cities, as well as the access of tourists to places other than the traditional attractions.
- d) Community-driven development projects that provided support for improving traditional economic activities and starting up new businesses. More specifically, the Puno-Cusco Corridor Project played a key role by transferring funds to community groups for them to contract technical assistance and training necessary for the implementation of specific income generating projects. The access to these funds was based on the competition among farmer groups and communities, which had to present and defend specific ‘business plans’ in public hearings with broad participation of communities, local governments, and central government agencies working at the local level. By December 2005, more than 41,000 beneficiaries from 45,000 families had become part of more than 1,600 organizations that had received a total of USD 3.32 million from the project to implement 2,100 business plans, contracting about 3,400 providers of technical assistance and training. These mechanisms not only led to great positive changes in agricultural and non-agricultural activities, but also contributed to the strengthening of social and human capital, as participants had to open and manage bank accounts, decide on their priorities, select and contract extension services providers, and supervise the quality of their work. In addition, the project allocated funds in a competitive way, organizing events in which farmer groups presented their business plans and local committees comprised of representatives from the project, local governments, local NGOs, and beneficiaries decided about the merits of each proposal. This process not

only promoted transparency, but also contributed to social and human capital, as the public competition of business plans presented by farmer groups and communities required that they prepared themselves and agreed on medium and long-term views about the evolution of their communities. Furthermore, the project encouraged the use of native dialects and traditional clothes and customs, as well as their application in income generation projects (e.g. taking advantage of the demand by the tourists visiting the region).³³

- e) The Puno-Cusco Corridor Project was successful in encouraging savings by poor households in formal financial institutions through the provision to rural women of incentives to the opening of savings accounts. These incentives were given as a cash contribution to each savings account opened by poor women at the time of its opening, plus matching contributions to additional deposits during 38 months. The project's incentives could not be withdrawn until the end of the 38-month period. These mechanisms had been instrumental in the opening of savings accounts by more than 6,000 women by October 2006. As a result, households' savings rates had increased, and about 5 per cent of the women had been able to access other financial services. Savings were used for emergencies (less frequently for starting new income generating activities), so they had a great impact in reducing the vulnerability of households to shocks, such as illness of family members or fall in product prices.

4 Some tentative conclusions

About agriculture and poverty reduction

This section analyzes the main findings from the case studies, searching for some common patterns and attempting to generate general conclusions about the role of agriculture in poverty reduction and the role of government interventions.

Agriculture played a key role in poverty reduction in all the cases studied, though this role changed over the years. In Petrolina-Juazeiro (Brazil), Yunnan (China), and the Puno-Cusco Corridor (Peru), agriculture is currently the key driving sector in economic growth and poverty reduction, providing the main exit road out of poverty to rural households through wage employment, increase in agricultural productivity, and diversification of agricultural production. In contrast, agriculture has been relatively unimportant in Sichuan (China) and Terengganu (Malaysia) in the last decade, as the strategies that most rural households implemented to exit out of poverty consisted of migration of younger household members to cities where they worked in industry and services and sent back remittances. However, agriculture was key in poverty reduction in both territories during the late 1970s and the 1980s, a time period during which both territories experienced

³³ See Molano (2005) for a detailed and innovative evaluation of the impacts of the Puno-Cusco Project on the assets of poor households who participated of the project. For more information about the project, see <http://www.corredorpuno-cusco.org>

substantial poverty reduction. In the case of Sichuan, rural households took advantage of policy reforms that the Chinese government implemented in the late 1970s, turning collectives into family farming and liberalizing agricultural prices and marketing. In the case of Malaysia, rural households participated in land development settlements implemented by government agencies in public lands during the 1970s and 1980s, which provided not only land to landless households, but also technical assistance, training, and credit around plantations of oil palm and rubber.

One of the key factors in the role of agriculture was the stage of each country's economic transformation—something that has been long addressed by the development literature. Between the late 1970s and during the 1980s, agriculture represented a large share of the China's and Malaysia's GDP and industrialization was still in its early stages. Thus, the industry did not offer substantial employment opportunities, so migration was low and the main strategy that rural households adopted to exit out of poverty consisted of agricultural intensification and on diversification of agricultural production. In the 1990s, as industrialization grew rapidly and the share of industry in GDP became increasingly higher, the industry became an important source of employment, attracting migrants from rural areas who were unable to find an exit road out of poverty based on agriculture. As it will be explained below, this was not the result of the very limited access to land for the younger generations, especially when the population density in rural areas was high and the area of farmland per household was already too small. In contrast to China and Malaysia, Brazil and Peru did experience industrialization and rural-urban migration. However, the pace of industrialization was not high enough to generate employment for the cities' population and the migrants from rural areas. Thus, rural households did not have migration as a major strategy for poverty exit. Therefore, when rural households faced few possibilities of employment out of agriculture, either because the industrial sector is not growing fast enough to absorb surplus labor (e.g. in Brazil and Peru), or because the economy is at an early stage of the economic transformation, with the industrial sector not large enough to absorb the surplus labor available (e.g. China in the 1970s, Malaysia until the late 1980s, as well as other Asian countries today like Cambodia, Laos, and Vietnam).

An additional factor that influenced the role of agriculture in poverty reduction was the evolution of the households' availability of land, which were the result of population density in rural areas and the growth rates of the rural population. In Petrolina-Juazeiro and Yunnan, and in some communities of the Puno-Cusco Corridor, population density was low and it was possible for households to live from agriculture in the average landholdings area available. In contrast, population in rural Sichuan had grown so fast during the 1990s that farm areas per household became very low, as the new generations received part of the land when they got married. With such small farm areas, it was clear for most rural households in Sichuan that it would be impossible for both the older and the younger generation to live on the land. In Terengganu, the area of land available to rural households was also too small for the new generations to also live on the same land, so they had to look for opportunities elsewhere.

In addition, the assets available were important factors in the role that agriculture could play. With the exception of Sichuan, the natural resources and climate of all the other

territories were exceptional to produce high value crops for export and the domestic market, creating possible exit roads out of poverty for poor households based on agriculture.

To sum up, the role of agriculture in poverty reduction depended on: a) the availability/potential of the natural resources; b) the access of the poor to land, which in turn depends on land tenure structure, population growth, and population density; c) the context of industrial growth, which determine the existence of opportunities for the rural poor to find availability jobs out of agriculture; this relates—but it not explained solely—to the stage of economic transformation of the country/region; and d) the existence of barriers to rural-urban migration, such as government regulations or incentives aimed at restricting migration, high costs of migration, or language barriers faced by potential migrants.

In the villages visited in Sichuan, land was distributed quite equally, but population growth had led to small areas of land per household, which compromised the possibilities of the new generations to build their livelihoods doing agriculture. Many rural households in Terengganu faced the same problem of increasingly less land per household because of the subdivisions among the new generations. Meanwhile, land settlements created by government agencies made it possible to poor households to get out of poverty by producing oil palm and rubber, but the new generations from those households had to look for new opportunities. Because there was no more public lands available, there have been no more possibilities to create new land settlements. Thus, the that received land in settlements promoted by government agencies based on oil palm and rubber production rural households agricultural intensification was the most important rural households

About the role of government

The comparison of the cases leads to some conclusions about the role of government policies and programs in helping rural poor households select and implement poverty exit strategies. These policies and programs included the following:

a) Policies that promote agricultural growth. The cases show that some government policies and interventions effectively unleashed agricultural growth in territories with favorable agroecological conditions (soils, water, climate, topography, etc.), contributing to promote diversification and technical changes in agriculture. Some of these policies included:

- (i) Liberalization policies that generated incentives for small farmers to work more intensively, diversify their production, and apply technical changes. These policies showed the strongest effects when governments controls had been in place over production and marketing. Examples are the de-collectivization of agricultural production and the marketing liberalization of agricultural products in China in the late 1970s, which generated a great wave of poverty reduction in the case of Sichuan and allover China. More positive results on poverty reduction were associated to an equitable land distribution prior to the implementation of liberalization policies and when small farmers had access to

technical assistance and credit necessary for financing the new crops and technologies.

- (ii) Investments in irrigation and roads infrastructure and on telecommunications. The case of Petrolina-Juazeiro shows that these were essential but not sufficient condition for the diversification of production into high value crops, increase in land productivity, and access to new markets. Poverty reduction of high value crops took place when: - small farmers had access to land, which often required redistribution policies, as it happened in the government-sponsored irrigation projects in Petrolina-Juazeiro and in the oil palm and rubber plantations in Terengganu; - when small farmers were able to access new technologies and credit necessary for investments, which also often required specific government interventions, as it happened in Petrolina-Juazeiro and Terengganu; and – when the high value products were associated with a high demand for skilled and permanent wage labor.
- (iii) Collaborative relations between the public and the private sector. The cases of Yunnan and Petrolina-Juazeiro showed that close links between government agencies and private firms were key to the successful efforts to in diversify agriculture into high value crops and obtain positive impacts on poverty. In both cases, government agencies (of the federal government in Petrolina-Juazeiro and of the county governments in Yunnan) actively seek to attract private firms with capital and know-how about production and marketing of high value crops to invest in their territories. In the case of Petrolina-Juazeiro, CODEVASF negotiated with private firms mainly from Sao Paulo to attract them to the irrigation projects, providing subsidized land and irrigation infrastructure and initially convincing small farmers to establish contract relations with processing firms. CODEVASF also promoted the creation of Valexport, an association of exporters of mango and grapes that played a key role in the marketing of production, in implementing a fruit-fly control program essential to enter the US market, and in signaling government the type of support needed. CODEVASF not only promoted the creation of Valexport, but also initially financed part of its operation costs. Valexport also worked with the federal Ministry of Agriculture in the implementation of the fruit-fly monitoring program. In Yunnan, county governments attracted large private and government-owned firms producing tobacco, tea, and sugarcane, providing them with land concessions. In addition, they played an active role in convincing small farmers to start cultivating those crops. Community leaders were the first ones in their respective communities to receive training about the production technologies of tobacco, tea, and sugarcane, they were the ones who first started cultivating those crops, they actively worked to convince other farmers to sign contracts with firms, they were responsible for making sure that all farmers in the community applied the technologies recommended by the processing firms, and they were even responsible for organizing the harvest.
- (iv) Competitive allocation of subsidies. The experience of Petrolina-Juazeiro and the Puno-Cusco Corridor showed that while subsidies were key in making

possible changes in the diversification and modernization of production, their allocation in a competitive way was the key to create incentives for good performance (instead of an across-the-board provision). In Petrolina-Juazeiro, CODEVASF provided subsidized land and irrigation infrastructure to firms based on competitive bidding in which firms had to present project proposals that were evaluated according to their introduction of high value products, export orientation, and employment creation. The competitive allocation of subsidies made possible to attract firms from more developed regions that brought know-how about agricultural technology and markets, playing a key role in introducing new products and in organizing the production chains—sometimes through contract farming. In the Puno-Cusco Corridor Project, funds transferred to farmer groups for contracting technical assistance and training were also allocated based on a competition among business plans proposed by each group. These business plans had to be presented and defended by the respective beneficiary groups in public events, and they were evaluated by local bodies comprised of representatives from the project, local governments, local NGOs, and the beneficiaries.

- (v) Development of human and social capital. In all cases, governments implemented projects and programs that developed new skills among the poor that were key in the implementation of changes in their production. The development of small farmers' or rural wage workers' organizations was also key for improving production and marketing of production and for defending the interests of the poor. For example, small farmers in the Puno-Cusco Corridor developed new skills about funds management, about how to better define their technical assistance needs, and about how to contract and supervise technicians that helped them increase their productivity and improve the marketing of their production. They applied the principle of learning by doing, receiving the power and funds from the Puno-Cusco Corridor Project to contract technical assistance and training, and thus deciding on the use of the funds, the selection of technicians, the negotiation with them about the salary to be paid and the work to be done, their supervision, and their evaluation.

b) Government policies and interventions that facilitated the transition of rural population to work in the industrial sector in urban areas.

- (i) Policies that lifted barriers to labor mobility. This included the lifting of barriers to migration that were common in socialist countries. More specifically, migration was strongly discouraged in China until the late 1980s through a system of registration that implied that migrants could have access to public housing and public services like education and health only where they were registered.
- (ii) Policies that facilitated the access of potential migrants to training, information, and contacts with employers at urban areas. In Yunnan, this happened as a result of agreements between the government of Shanghai and several county governments. The Shanghai government met with public and private firms to

define their demand for workers and the skills needed, and then implemented jointly with the county governments a selection of potential migrants and provided them with training before they would migrate to Shanghai. Once they were ready, workers were transported to Shanghai and were allocated to work in specific firms, receiving additional training during a try period of three months. Although this program had started recently, the interviews that were carried out suggested that it was having good results.

The experience of the cases shows that agriculture can play a key role in poverty reduction under certain conditions:

- a) When high value products (both agriculture and non-agriculture) that can be produced in the territory are intensive in the use of labor and require specific skills from workers. This was the case of Petrolina-Juazeiro (where there were labor organizations that struggled for higher wages and better working conditions of wage labor), the Puno-Cusco Corridor, and Yunnan.
- b) When poor households have access to areas large enough to make a living out of agricultural activities. This was the case of small farmers who had access to land in irrigation projects in Petrolina-Juazeiro, rural families in Terengganu that obtained land in the government-sponsored plantations of oil palm and rubber, the Puno-Cusco Corridor, and Yunnan. Better possibilities of broad poverty reduction are associated with more equitable access to land.
- c) When density and growth of the rural population are relatively low, as it was the case in Petrolina-Juazeiro, the Puno-Cusco Corridor, and Yunnan. In contrast, high density and high growth of the rural population will lead to increasingly smaller farm areas (in the absence of more land available to open for agriculture). Thus, new generations will find it more difficult to live from agriculture, as it was the case of Sichuan.
- d) When the rural population faces substantial barriers to migration, even when the industrial sector in other regions is growing fast and generating employment opportunities for potential migrants. This was the case of Yunnan, where most of the rural households were unwilling to migrate due to cultural and language barriers.

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