

Introduction

1 The research question

The high inequality of income and wealth in Latin America is, in the semi-feudal past as well as under the liberal market economy of today, taken as a fact of life. People exist in parallel worlds; the suburban rich with western income level and third world living expenses on one side and the shantytown poor who earn third world wages to cover urban needs on the other. Another contrast is the traditional life in rural areas compared to the modernity in the capital. Can modernization and market integration close these enormous gaps? This dissertation analyzes the very bottom of the income ladder to study whether a catch-up by the poor is possible.

The rural peasants in the Peruvian highland have a living standard and production system that is not very different from their pre-Hispanic ancestors. The introduction of free markets and the infrastructure improvement of the last two decades open for the integration of this marginalized and isolated majority of the population in the countryside with the modern Peruvian society. How can the poor peasants exploit these new possibilities successfully?

Modern development economics literature launches social capital and land reform as two important concepts to improve the livelihood in rural areas, see Durlauf and Fafchamps (2004), Bowles and Gintis (2002), Deininger (2003), de Janvry et al. (2001b), de Janvry et al. (2001a) and Carter and Salgado (2001). Both conditions are satisfied in the Peruvian highland. The peasants cooperate a lot and land is equally distributed. However, the extreme poverty demonstrates how they are still not able to succeed when they are connected to markets. The three articles in the dissertation consist of theoretical explorations and econometric analysis based on data from a questionnaire surveys on traditional cooperation, institutions and production that I conducted in Peruvian highland communities in order explain the slow pace of economic development.

2 Poverty and land reform

Poverty is widespread and runs deep in Latin America. The cruelty is especially striking as a small group at the top enjoys a Western standard of living. The gini coefficient for income distribution was above 52 percent for the majority of the Latin American countries in 2002 according to ECLAC (2004) (the exceptions are the "Social democracies" of Costa Rica and Uruguay, where the gini coefficient was anyhow as high as 45 percent). The gap between rich

and poor follows several dimensions in Peru: class, geography and race. Indians constitute the poor majority, while most members of the small upper class descend directly from the colonizing Spaniards. The category Mestizo refers more to a modern style of life than being of a mixed racial origin in itself. There is hence a sharp division between rural peasants of Indian origin living a traditional life organized in communities in the highlands one side, and the urban people on the other. Crossing this gap also implies a shift in cultural identity.

This division becomes apparent when looking at income figures. The analysis made by Herrera (2001) is state of the art when it comes to poverty estimation in Peru. He uses geographical differing consumption baskets on survey figures made by the Peruvian Statistical Institute (INEI) in 2000. 73 percent of the rural population in the highland is poor (the level is lower in the rural areas on the coast with 51 percent), while "only" 37 percent of the urban population is defined as poor. The difference is even larger when it comes to extreme poverty. 35 percent of the rural population, and as little as four percent of the urban population, are included in this category. In total, four out of five of those living in extreme poverty can be found in the countryside¹. This implies that the aim of reducing economic inequality and the aim of fighting poverty in the rural highland to a large extent coincide. Furthermore, the latter is probably the most efficient way to achieve the former.

High income inequality is normally due to unequal distribution of production inputs², which in a rural context where agricultural production constitutes the major component implies inequality in landownership. Land reform as a way of redistributing productive assets has been on the Latin American political agenda for centuries, sparking revolutions as farming land belonging to someone else is seen as the ultimate symbol of exploitation in a capitalist or semi-feudal system. The Mexican revolution confiscated large amounts of land from private landowners and created communities where the inhabitants have common property rights to the land (*ejidos*). Dimension of Peruvian land reform in the 1970's were similar, even though it was initiated by a military government.

¹Household consumption is measured in the local currency, Nuevo Soles. The actual consequence of monetary poverty depends on how the resources are used. Ruggeri (1999) finds the joint incidence of chronic deprivation and monetary poverty to be 54 percent. This implies chronic destitution among non-poor and no destitution among poor. Her main explanation is skewed distribution within the households as well as the choice of products the households actually consume (do you give the children milk or soda water?).

²The economic history literature often stresses how the initial distribution of natural resources, being land, minerals or oil, seem to be persistent. There is hence also an implicit effect of unequal resource distribution which runs through the (often inefficient) institutions in a society that maintain this system, see Engerman and Sokoloff (2002), Robinson (2000), Acemoglu and Robinson (2002). The typical example is the often mentioned "resource curse", i.e. a large stock of easily extractable resources makes it more important for the elite to develop a political system enabling the capture of the profits thereof.

A land reform transfers productive assets from the rich to the poor and is hence nearly by definition good for the poor. The conventional wisdom in development economics literature is that land reform also improves the overall efficiency in agriculture. Land reform hence represents a "win-win" policy opportunity since it decreases inequality and increases economic growth. The explanation for the latter is though to be the moral hazard problem in employing people in agriculture, see Deininger (2003), Carter and Salgado (2001), de Janvry et al. (2001a) and de Janvry et al. (2001b). The owner must either "burn" resources to control effort by their employees or the workers are left to decide a sub-optimal level of effort in some kind of share cropping agreement. There would be no efficiency loss in fixed rent contracts, but such contracts are normally not viable in developing countries since the landless are not able to bear the total risk involved in agriculture as discussed in Fafchamps (1999). There is actually no way a tenant could pay the agreed rent if the crop fails and therefore some kind of risk sharing with the involved negative efficiency effects is hence the only alternative.

Land is also an important instrument for saving in developing countries where credible financial markets are missing and inflation traditionally runs high. The political clout attached might also explain why people actually stock land with minor interest in actually farming it, see Deininger (2003). The resulting gap between the price of land and the resource rent on land (i.e. discounted future income of land as production input) makes it difficult for the poor to buy land in free markets, as the saving aspect is more important for the rich. The drawback of unequal land distribution is further aggravated by the fact that the rich often prefer to leave the land unused rather than renting it out to prevent future land disputes.

The Movement of Landless Workers (MST) in Brazil occupies such idle land with great success due to a double standard in the country's constitution. Private law secures private property rights, while social law instructs the owners to farm their land. The activists hence first occupy the land and then claim the property right, as the present owners do not comply with their obligations. A combination of the obvious waste of resources in idle land and the threat of popular revolt has given a renewed interest in land reforms. The approach advocated by the World Bank is somehow different from the previous land reforms. Securing property rights by giving legal entitlement to the owners constitutes the core. The main effect is expected to come by letting the more efficient peasants have access to land through a functioning land rental market, as the owners will be less afraid of land disputes³, see Deininger (2003).

³The Inter-American Development Bank (IDB) has for example financed a costly entitlement project in Peru,

The new policy also supports redistribution of land if some conditions are satisfied, e.g. voluntary market sales instead of forced confiscations. The state then pays the assumed discrepancy between land rent and the actual price on land due to the reasons given above. For example, the farmers in the Colombian scheme will only pay about 30 percent of the land-price according to Deininger (2003). There are several reasons to question the poverty alleviating efficiency of subsidizing land acquisitions. The fact that the price is higher than the long-term income possibilities implies that the financial support from the multilateral organizations can be considered a gift to the large landowners of today. The overprice will disappear over time as markets become more efficient and the country develops.

More important is the probable decline in the actual land rent itself. There is a conspicuous lack of good studies estimating the resource rent of land in agriculture, but the impression that there is a general decline. Modern inputs such as fertilizers, capital in form of machinery, human capital in the form of knowledge on new production methods and, even more significant, the marketing of products have become more important⁴, while the importance of land as a production input is considerably reduced. The overall effect of further world market liberalization is probably negative for agriculture product prices and hence the resource rent on land⁵. It will be rather ironic if the poor finally receive land in the moment it has become worthless beyond the possibility of practicing traditional self-sufficiency agriculture. Funds from governments and international donors are then probably better spent in other fields to reduce rural poverty.

A useful approach to find possible development implications of land redistribution is to study countries where this has actually taken place already. I therefore chose Peru as the empirical example for my analysis. A land reform initiated by the military regime of general Velasco in the late 1960's transferred large properties to the peasants who had actually worked the land⁶.

where legal documents of property rights for each plot in the whole country (with the exception of communitarian owned land). People who had farmed the land for the last five years were taken to be the owner, and ironically enough hence actually "punishing" owners who had rented out their land for a long period. Only the future will tell whether the owners will actually trust their formal property rights enough to start renting it out.

⁴Reardon et al. (2003) find that supermarket chains now controls between 45 and 75 percent of food retail in Latin America, up from 10-20 percent only 20 years ago. Peasants are seldom able to produce the standardized quality demanded by such chains.

⁵A typical example is the entry of Vietnam as a large player in the coffee market. The result is declining world market prices and the ruin of the Latin American coffee industry. When the larger share of the world population leaves poverty, the associated increase in demand for food might on the other hand lead to higher prices and land rents. A parallel example is the China effect on the world raw material market in the latter years.

⁶This policy has later been interpreted more as a pre-emptive strike against potential communist sympathies in the rural populations rather than reflecting a leftist agenda in the military itself. The intention was further to transform the rural elite to urban industrialists "by force".

28 percent of all arable land was redistributed according to Deininger (2003) and the reform benefited 31 percent of the rural households. It ended in 1980's, but the implemented transfers were not reversed as for example happened in Nicaragua. The defacto restrictions on land sales have led to further fragmentation as families split their property in each generation. The land reform in Peru hence plays an important background in this dissertation even though I do not analyze it directly.

3 Social capital and modernization

An equal distribution of land secures a minimal consumption level for everyone when the population is large compared to total agricultural land. Family size farms are further supposed to be technically efficient since moral hazard in labor effort is then not a problem. Equality within traditional isolated societies is hence supposed to be a good thing. However, the production and marketing technology in modern agriculture is radically different from traditional agriculture. Machinery, improved seeds and agrochemicals, irrigation, marketing and sales imply large units are more efficient than small units. An equal distribution of land is not an obstacle to such modernization if the smallholders are able to cooperate and act as one unit. This can be achieved through the market mechanism, e.g. all landowners rent out their land to one of them and then work as paid workers for him. However, this is not a very common solution due to market imperfections and institutional and sociological factors.

The other possibility is to cooperate as equal partners in farming land as a common project. Cooperatives are often defined as such cooperating units, but their structure actually resembles more a company with employees than voluntary cooperation. The community structure in the Peruvian highland opens for voluntary cooperation between the members. They share machinery, manage and maintain irrigation systems, exchange work, build infrastructure together, etc. at the same time as each plot of land is individually controlled even in the registered peasants communities with common property rights to land. A high degree of trust is needed in these cooperation schemes since the institutional powers to punish defectors are limited in many senses. The Peruvian communities are in modern jargon "rich in social capital". The simple definition of social capital, as stated in La Ferrara (2002) as "...trust, norms and networks", reflects that the content of this term is still rather blurred. When detailed legal contracts of exchange are in reality not possible to defend, e.g. due to institutional failures, surveillance and measurement problems, etc., the partners will have to trust each other to fulfill the agreement. In this situa-

tion several subgame-perfect Nash equilibria are possible. If I trust you, it pays off for you to trust me too and we enter an agreement. If I don't trust you, you will be worse off by trusting me too. Then there is no agreement and no pooling of resources to obtain efficiency. Social capital (or trust in this context) has hence a direct effect on productivity and income and can be seen as an input in economic production along more conventional production inputs like labor, physical capital, human capital and institutional capital⁷.

4 Questionnaire surveys

There is considerable faith amongst academics, international donors, governments and NGOs in the conventional view that both social capital and land reforms can spark off income growth for the poor in the third world. Furthermore, they are often considered to be interrelated phenomena. Deininger (2003), p. 124, as the leading World Bank researcher on land reforms even advocates common entitlement of land in order to secure socially desirable land use "...as long as they are a conscious choice by the group and the group has clear and transparent mechanisms for changing the land tenure regime, they are unlikely to be harmful".

This was an important reason why I choose to study two different districts in the Peruvian highland characterized by both social capital and equal land distribution after land reform. The Andes is the heartland of reciprocity according to anthropologists. Land is juridical or defacto commonly owned by the members of a community even though each household has individual user rights to a given plot. In spite of cultural, geographical and population similarities, the differences between the communities in economic activity, degree of cooperation, organizational capacity, market integration, etc. are rather large in this limited area.

I carried out my own questionnaire survey in the Peruvian highland for the analysis in this dissertation. I visited all 49 communities in the District of Tambo and made the interviews myself over a three-month period in spring 2002 in what I like to define as a "Low cost - Full control" project. This was manageable because I only made one interview, with one or a group of traditional "authorities", i.e. community council members, leaders of the self-defense commit-

⁷The economic literature has in the latter years started to analyze the explicit elements rather than the blurred social capital concept. The main idea is still that all these aspects facilitate cooperation, either separately or they are mutually re-enforcing. Strong norms of cooperation might lead to harsh punishments for defectors and they are hence trustworthy. If historical coincidence has coordinated the high trust equilibrium, then norms of trust and networks evolve more easily. The different aspect of social capital simply tends to correlate positively.

tees, respected elders, etc. in each community⁸. Through discussion they assessed agricultural production and calculated income per capita from different types of work, sales to markets, institutional aspects and not at least the degree of cooperation in the community, i.e. work exchange, infrastructure construction, assembly turn-out, etc. The main idea is that social capital is primarily a characteristic of a given society and not the individual itself. So in order to measure the effects of social capital, we have to compare average figures for whole communities and not the individual households. The "Low cost" approach hence made it possible to cover a whole set of communities in the restricted time of a fieldwork of two to three months.

The "Full control" of the researcher is the other advantage of this rather rough approach of statistics collection. By doing all the interviews myself in Spanish (only assisted once in a while in translation from Quechua by my combined local guide and research assistant) I was able to check whether the questions and answers were understood in a meaningful way. The need to mitigate the potential biases in the material that unfortunately often occur due to time pressure when research assistants do the interviews was an important reason why I chose this approach⁹. I was probably more willing to spend more time on each interview since I was both the producer and user of the data set. The low profile approach, traveling around hitch-hiking or simply walking from community to community on foot, further reduced the risk of strategic responses in order to obtain economic advantages, which is unfortunately a problem in full scale household interview team operations.

I also conducted a similar community level questionnaire survey in the district of Pazos to supplement two household level surveys from different years with variables reflecting institutions, trust and infrastructure.

⁸This community level questionnaire approach is based on Dayton-Johnson (2000) work on social and institutional capital in the Mexican irrigation communities which resembles their Peruvian counterparts in structure.

⁹The main challenge in questionnaire interviews is to *not* correct seemingly incorrect answers according to your own understanding, but rather try to ask again at a later stage in the interview. The moral hazard in using research assistants is unfortunately high. Paid helpers (without profound proper interest in finding the "truth") will often take short cuts to save time when they come across information that seemingly do not fit the picture, for example "he has a traditional outfit, so the degree of market integration can not be as high as he says". The negative correlation between being traditional and market sales later found by the researcher might hence just be a measurement error based on prejudice. A reasonable hypothesis is that the interviewer thinks it is important that data fits the ex-ante impression, in order not to be accused of doing a lousy job and hence risk loosing their employment.

5 Results

5.1 Too much cooperation

My questionnaire survey shows a large variation in the degree of traditional cooperation between the communities in the district Tambo, even though the geographical area is small; they share the same highland Quechua speaking culture and the agricultural practices are nearly identical. I chose work exchange, i.e. "I work for you now, if you work for me the same amount of time in a similar operation later", as the social capital indicator since this type of traditional cooperation is more based on trust compared to other forms of cooperation. The community council seldom uses its institutional power to punish defectors in such personal cooperation agreements and the loss of reputation is hence the main punishment channel. The variable *Work exchange* is defined as days participating in work exchange arrangements during a year by adult males. The average was 90 days during the year and the standard deviation for the communities was 76 days. This reflects that this custom has nearly fallen apart in some communities, while it constitutes the backbone in the working life of others.

The respondents in the questionnaire survey also estimated average income level aggregating different sources. I ended up using income from agricultural production since it reflects the overall living standard in the communities. Furthermore, the most important production inputs for this sector were included in the survey, which made it possible to estimate a production function. I was hence able to test the validity of the underlying assumption of the social capital literature: "The more trust and cooperation, the higher income". An econometric model explaining average agricultural income per capita gives a significant hump shaped effect of *Work exchange* when I control for land, water and other infrastructure and input variables. Starting at low levels of cooperation, income is increasing in days of *Work exchange*, but the effect peaks at 102 days. Above this level more cooperation will actually lead to lower income. The surprise is that more than 40 percent of the communities are above this level and hence have a negative marginal effect of *Work exchange*. In other words: They cooperate too much! This finding hence questions the economic rationale and validity of the ceteris paribus assumption of positive social capital effects.

There might be several reasons for such negative effect of social capital. One obvious candidate is that work exchange is some form of insurance mechanism, as people make the economically rational and conscious choice of production technique that gives a lower expected income to achieve less variation. There is however few signs of food sharing and other insurance mech-

anisms within such work exchange groups. They rather tend to look at each episode of work exchange as an independent and concluded incidence¹⁰.

A more likely source for the variation in the degree of cooperation is their level of integration with the modern society. Norms of cooperation evolved to solve coordination problems of the past and are not necessarily adjusted to kept pace with modernization and market integration processes¹¹. However, they are still alive since an individual breaking such "inefficient" norms unilaterally might find himself shut out in other tasks where cooperation is efficient. It seems reasonable to assume norms of cooperation are stronger in more traditional communities and weaker in the more modern communities. In this case "old" norms can induce cooperation in tasks that are now actually better solved alone.

To explore this hypothesis I construct a game theoretical model where I consider the effect of a negative shift in the payoff from cooperation in traditional tasks. However, norms (and punishment) that evolved to secure cooperation under the old production system are constant. An asymmetry in payoff from work exchange will lead the individual who has something to gain to propose even if the joint payoff from cooperation is negative. A refusal by the individual who got something to loose from this episode of work exchange will stop all future cooperation within this specific task and furthermore trigger some kind of punishment. He might hence still find it profitable to comply with the "call" in spite of the loss for this specific episode of work exchange. Communities were social capital previously entailed the optimal level of cooperation, might now cooperate too much.

5.2 Social capital maintains inefficient structures

The second paper is also an econometric analysis of the community questionnaire survey from Tambo. The 49 communities are divided into two types according to their experience during the war between the Shining Path guerrilla and the army. The resistant communities were populated during the violence, which lasted from the beginning of the 1980's to mid 1990's. In contrast,

¹⁰Two important inputs, capital and labor, are not included in the econometric model, but I argue in the paper that the omission does not bias the estimated effect of *Work exchange*. Capital is not an important factor in the Peruvian highland since peasants only use traditional technology. There are furthermore few teams of oxen and even then people tend to work together. The bias effects of labor might go in opposite directions. The more time people spend in the field, the less efficient work exchange becomes. The sociability effect will then on the other hand make people increasingly interested in working this way.

¹¹One example of reduced efficiency in work exchange can be the increased quality consciousness by the consumers buying products at the markets. It is then more important not to hurt the products while working in the field and the owner often takes more care than people working for him.

the return communities were abandoned completely during the conflict, but a large fraction of the refugees went back to their original communities when peace returned¹². Furthermore, it constitutes a "natural experiment" since the decision on whether to abandon the community or not in the first place, and then later whether to return, is in this context independent of income level. The estimated coefficients from this data set are hence not contaminated by the simultaneity bias that normally follows from the self-selection process involved in the migration decision¹³.

I run a simple OLS regression model to estimate the effect of the community type dummy on average per capita income level, controlling for other production inputs like land, water, infrastructure etc. The income level turns out to be significantly higher in the return community than in resistant communities. This seems like a surprising and counter-intuitive empirical result as it turns out that the war experience gave the most positive (or least negative) effect on the people who were most affected by the violence. However, a war deeply affects the structure of the society. My own field work observations and ethnographic work by other sociologist and anthropologist in this district, e.g. Monje (2000) and Fumerton (2002), indicate that return communities cooperate better and are closer knit together than in the resistant counterparts. The empirical result is consistent with this hypothesis when the dummy variable *Return* is used as a proxy for social capital. The immediate effect of social capital is hence positive, but it leads to a less centralized population and a more traditional society. This may have a negative impact on economic growth in the longer run.

There are several differences between the two types of communities when it comes to cooperation and making use of available resources. The fact that resistant communities were actually multi-communal agglomerations during the conflict raised the level of suspicion and tension between both individuals and the different community members as such. Nobody knew who the guerrilla or army informants were who might turn you in the next time either side took hold of the community. The strong notion of "collective responsibility" in the area implies "collective punishment" and people often had to suffer for what someone else from their community had done. Even to associate across groups was hence dangerous. The result was that most systems

¹²At first nobody took much notice of this refugee problem but they were later defined as Internally Displaced People (IDP) as NGOs and other became interested in their misfortune. Some, but not all, of those who fled further away (district center, department capital Ayacucho or even Lima), also returned to their original community.

¹³Being forced to leave was more dependent on geographical coincidences than the income level of the population. The selection problem is also minimal in the return decision. Nearly all communities have been reconstructed and people of all ages and different production capabilities have returned.

of both community and individual level cooperation deteriorated during the war.

This tension gave rise to the after-war dynamics. The distance to the original farming land of the refugees was not prohibitively long to keep on living where they had settled. Larger units would bring better infrastructure (electricity, roads etc.), public services (schools, medical centers, etc.) and private living conditions, as they would not have to rebuild everything. The war had actually been a golden opportunity to centralize the population to take advantage of the many economies of scale conditions that actually exist. Still, they preferred to go home. The mistrust between the groups and the lack of economically productive cooperation where they lived "pushed" them home. On the other hand, the perceived improvement of cooperation if they split up from the others and returned home to their original communities represents a "pull" effect. The very process of organizing and coordinating the return also tied the members of the given return community together. The equality in the return process also made it more tempting for the people who had fled to more distant places to return and bring with them human capital in form of knowing how to take advantage of the market mechanisms and the modern society. There were no such social capital and human capital building processes in the resistant communities. It was rather the opposite, as the original inhabitants of the *Resistant* communities look upon their fellows who had fled to distant places as cowards. They were hence not considered to be "legitimate" competitors for positions and land in the new established order when they returned after the war.

More financial help from the government and NGOs might have given the return communities an ability to purchase more production inputs (that are not explicitly included in the econometric models) than the resistant communities and more production for a given level of production inputs. On the other hand, the level of financial support was way below the level of physical destruction. It does not seem reasonable that the population was able to use any of these resources to purchase production inputs to increase income, but rather the opposite as people had to spend valuable time to rebuild their houses and infrastructure.

The positive effect of *Return* demonstrates that the segregation between groups might be necessary in order to achieve the level of trust needed for traditional cooperation. The Peruvian government chose to support the return process economically. An alternative policy might have been to make the different original communities live close to each other, far enough to separate them, but close enough to exploit economies of scale (e.g. schools). Then limited resources in the reconstruction period might have been used to productive means, e.g. irrigation systems in

the valleys rather than to reconstruct living areas from scratch. A more concentrated population will probably be more efficient in the (hopefully near) future when income rises and agriculture is mechanized. The negative effects for the return communities will even be worse if they give up their community building projects over time. The lack of productive resources and the small units will probably make economic progress difficult. If they start leaving individually, they will probably move directly to the cities since no ties with the neighboring communities exist any longer. A "golden opportunity" to reconstruct society in an efficient way with groups of communities is hence lost due to social capital.

5.3 Overcoming social capital

The last paper is an empirical analysis of the potato trading pattern of peasants in the similar highland district of Pazos about 10 hours drive north of Tambo. The research institute GRADE conducted household surveys in 1997 and 2001 in the district, recording volumes sold and the prices obtained in the markets where the products are sold¹⁴. Some wait for the intermediaries to come to the field and other brings their products to the markets, whether local, district, region or even as far as the capital itself. There is a large variation in marketing strategies between seemingly similar peasants. I hence conducted a community level questionnaire survey in the 12 communities covering community infrastructure and trust level, which is crucial because it might explain this variation in marketing strategies.

Integrated markets are a rather new phenomena in this district. President Fujimori announced a change from a centrally organized society to a completely free market economy for Peru in a TV broadcasted speech in the evening of August 10th, 1990. All subsidies and production taxes were removed overnight and it took three days before people started to trade since nobody knew what to charge for their products¹⁵. New roads and infrastructure furthermore facilitated the change from self-subsistence agriculture to market based production. The peasants are still inexperienced as to how the markets actually works and their choices are hence often based on coincidental conditions, e.g. they happen to know someone who gave them a good sales contact in distant market¹⁶. I chose to analyze access to phone service and the level of

¹⁴They interviewed 190 households in 1997. Unfortunately, they drew a new and independent sample of 244 households in 2001 since their intention was to extend the content of the survey rather than compare households over time. I was still able to construct a balanced panel of 74 households by comparing names of family members.

¹⁵Neither input prices nor the prices of the competitors were known. Most prices in the end pegged to the gasoline price, but the relative prices between products had changed considerably due to different levels of previous taxes and subsidies.

¹⁶The prices in distant markets are considerably higher than the prices in near markets, but marketing costs

trust between its members as two community level aspects that might affect market integration. Access to telephone facilitates the trading operation and the access to market information, e.g. prices and sales opportunities, while trust facilitate trade through potential aggregation of volume between the peasants, helping each other out in production, information sharing, etc. Trust might on the other hand be a result of less outside opportunities in the communities since the punishment for breaking common norms in the form of social ostracizing feels stronger the less outside opportunities exist. The introduction of the variable *Trust* in a regression model will hence give a reduced form coefficient aggregating opposite effects on the share sold to *distant markets*.

The panel structure of the surveys makes it possible to estimate the effects of a variable in a given year and then further estimate the change in the effect. People are expected to change their behavior as markets mature. More information and experience will over time reduce the importance of "coincidental" conditions, which may have led to an early start, and increase the importance of fundamental production conditions. This "Modernization hypothesis" is confirmed in the data when comparing both cross section estimates for the two years and the change in behavior by households that are included in both surveys.

In the analysis I use the econometric Heckman model that adjusts for the potential self selection bias by people who chose to participate in distant trade due to unobserved variables, included in the residual. The Probit model at the first stage shows that the availability of public telephone service (private do not exist) in the community has a constant significant positive effect on the decision to enter distant markets in both years. However, the effect of *Phone* on *Share distant markets*, i.e. share of total sales that are traded in the distant markets Huancayo and Lima, declines from 1997 to 2001. This suggests that peasants without access to phone service, and who nevertheless find a way around to participate in distant markets, do not suffer any disadvantages anymore. I also find that a higher level of *Trust* between peasants in a community imply they trade significantly less in distant markets compared to people living in less trusting communities. This negative effect is significant for the participation condition in the Probit model, which may reflect that the assumed more traditional communities still have more difficulties in entering distant markets. The estimated coefficient of *Trust* on the share

are not known. I assume there are higher profits in distant markets according to anecdotal evidence suggesting there is a lack of competition between traders and intermediaries in rural areas. The empirical literature on trader collusion is surprisingly thin and no good evidence in either direction is available neither for Peru nor any other similar country.

sold among those who do participate in distant markets however turns from negative to positive and the absolute change is considerable. This indicates that members who overcome the cultural drawback might use some of the traditional features like trust between them to be more active in distant markets than their less trusting counterparts. This effect is also supported by a simple OLS analysis on the subset of 74 households that are included in both surveys. The coefficient for *Trust* is significantly positive in the regression model explaining the change in share sold to distant markets. This implies that communities with more *Trust* have a larger positive shift in the share sold to distant markets than communities with less trust. This effect is interpreted to represent a catch-up effect since communities with more trust were less integrated initially. The "coincidental conditions" hence becomes less important as markets mature.

The importance of total volume sold for the decision to participate in distant markets rises as the coefficient value is more than three times as high in 2001 than in 1997 in the Probit part of the model. The mere existence of fixed entry costs and risk diversification should imply that peasants who sell more in total will spread on different markets. *Volume* is hence important to explain whether a household is active in the regional center or capital or not. Once they are active, then *Volume* should be less important to explain differing shares sold to distant markets. The result that *Volume* has become more important to explain if households sell to distant markets or not indicates that the economic motivation of risk spreading with fixed entry costs becomes more important as markets mature. The OLS regression on changes in shares sold to distant markets among the households included in both surveys give the same result, as the coefficient for $\Delta Volume$ is significantly positive¹⁷.

6 Summing up

I have emphasized the potential negative sides of social capital in the analysis of traditional cooperation among peasants in the Peruvian highland. This does not necessarily mean that traditional cooperation is bad for economic development, rather that policy makers and donors must be aware of the complexity of the social institutions giving rise to such cooperation. The first paper finds that some communities cooperate too much. This illustrates that "building" social capital under any circumstance is not necessarily a good thing, but neither does it mean

¹⁷The inherently volatile nature of agriculture implies volumes and prices might change considerable between years, e.g. total sales volume rose and the price decreased about 50 percent from 1997 to 2001. The apparent change in marketing strategy might hence be due to a temporal change in prices. However, since prices fell considerably in all markets does it seem natural to assume the results reflect lasting structural change in marketing strategy.

we should necessarily attempt to reduce their level of cooperation. Marginal changes are often difficult to obtain and we risk that all cooperation falls apart. In the second paper returning communities are found to have higher income even though this structure of society is assumed to be less development friendly in the long run. This illustrates that it is often necessary to divide people into subgroups where people trust each other for some historical reason in order to make people cooperate. However, it is possible to divide people in different ways. A small twist of policy from the governmental return paradigm to, for example, purchasing land for each original community side by side in the valley bottom, might have given both cooperation and a more concentrated population structure, which seems more development friendly in the longer run. The third paper finds more trusting communities to be less involved in distant trade. However, the difference described illustrates how traditional peasants might be able to learn how the modern market based economy works themselves over time. Anecdotal evidence indicates policy interventions to speed up this process in form of top-down organized attempts at coordinating sales operations can destroy the initial trust level and hence prevent bottom-up organized market sales coordination by the peasants themselves at a later stage.

None of the papers in this dissertation focus on potentially positive long run effects of traditional cooperation and social capital¹⁸ This result is more due to the characteristics of my district of empirical investigation. Other authors, under other circumstances, find positive effects of traditional cooperation for the Peruvian modernization process. One example is Stensrud (2004) who shows how emigrants from the countryside use the same trust based system of work exchange and labor coordination to build infrastructure like roads, electricity, maintain schools and soup kitchens in the new shantytowns of the large cities. My dissertation further illustrates that trust and norms might be task specific and not a description of behavior in general. There might actually be an inverse relationship between trust in traditional tasks and trust in modern market based transactions. Learning to trust in the latter might imply a reduced level of trust in the former. Hopefully, if funding is obtained task dependent trust will be a major component in my future research on the dynamics of development and modernization in underdeveloped countries.

¹⁸The econometrically estimated positive effect of Return is taken to be a short term effect.

References

- Acemoglu, D. and J. A. Robinson (2002). “Economic backwardness in political perspective.” Working Paper 8831, NBER.
- Bowles, S. and H. Gintis (2002). “Social capital and community governance.” *The Economic Journal*, 112, F419–F436.
- Carter, M. R. and R. Salgado (2001). “Land market liberalisation and the agrarian question in Latin America.” In A. de Janvry, G. Gordillo, J.-P. Platteau, and E. Sadoulet (Eds.), “Access to Land, Rural Poverty and Public Action,” Oxford University Press, Oxford.
- Dayton-Johnson, J. (2000). “Determinants of collective action on the local commons: A model with evidence from Mexico.” *Journal of Development Economics*, 62, 181–208.
- de Janvry, A., J.-P. Platteau, G. Gordillo, and E. Sadoulet (2001a). “Access to land and land policy reform.” In A. de Janvry, G. Gordillo, J.-P. Platteau, and E. Sadoulet (Eds.), “Access to Land, Rural Poverty and Public Action,” Oxford University Press, Oxford.
- de Janvry, A., E. Sadoulet, and W. Wolford (2001b). “The changing role of the state in Latin American land reforms.” In “Access to Land, Rural Poverty and Public Action,” 279–303. Oxford University Press, Oxford.
- Deininger, K. (2003). *Land policies for growth and poverty reduction*. The World Bank, Washington D.C.
- Durlauf, S. N. and M. Fafchamps (2004). “Social Capital.” Working Paper 10485, NBER.
- ECLAC (2004). “Social panorama of Latin America.” Briefing paper, United Nations ECLAC.
- Engerman, S. L. and K. L. Sokoloff (2002). “Factor endowments, inequality, and paths of development among new world economies.” Working Paper 9259, NBER.
- Fafchamps, M. (1999). “Rural poverty, risk and development.” Tech. rep., FAO.
- Fumerton, M. (2002). *From victims to heroes: Peasant counter-rebellion and civil war in Ayacucho, Peru, 1980-2000*. Rozenberg, Utrechts.
- Herrera, J. (2001). “Nuevas Estimaciones de la Pobreza en el Perú, 1997-2000 (New estimates of poverty in Peru, 1997-2000).” Tech. rep., INEI.
- La Ferrara, E. (2002). “Inequality and group participation: Theory and evidence from rural Tanzania.” *Journal of Public Economics*, 85(2), 238–273.
- Monje, J. A. (2000). *Impacto de los proyectos sociales en Ayacucho - El caso de la agrupación multicomunal Huayao (Impact of social projects in Ayacucho - The case of the multi-community group Huayao)*. Master thesis, The Catholic University of Peru.
- Reardon, T., C. P. Timmer, C. B. Barrett, and J. Berdegue (2003). “The rise of supermarkets in Africa, Asia, and Latin America.” *American Journal of Agricultural Economics*, 85(5), 1140–1146.
- Robinson, J. A. (2000). “Where does inequality come from? Ideas and implications for Latin America.” OECD Development Centre conference: Poverty and Income Inequality in Developing Countries, November, Paris.
- Ruggeri, C. (1999). “The many dimensions of deprivation in Peru - Theoretical debates and empirical evidence.” Working Paper 29, Queen Elisabeth House, Oxford University.
- Stensrud, A. B. (2004). *Salir Adelante - Fattige kvinners kamp for bedre levekår i Cusco, Peru (Getting ahead - Poor womens fight for better living conditions in Cusco, Peru)*. Master’s thesis, Department of Anthropology, University of Oslo.