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Microfinance, Financial Systems and Economic Growth

- A Theoretical Framework and Findings from Bolivia

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Abstract

The aim of this thesis is to examine what *implications microfinance may have for economic growth* by exploring the linkages of microfinance, the financial system and economic growth. Due to the lack of previous studies explicitly linking microfinance to economic growth, the weight of the thesis falls on developing a theoretical framework where the different channels to economic growth can be discerned. We use a set of hypotheses to study what channels microfinance may have to economic growth. The first hypothesis concerns the macro-level and examines the link between the financial system and economic growth. The second hypothesis turns to the micro-level and examines the role of microfinance and financial market imperfections in less developed countries. The third hypothesis connects the macro- and the micro-level and draws links between microfinance and economic growth. In the theoretical part, we find that there are threshold effects present on both the macro-level and the micro-level. On the micro-level, there is limited impact of microfinance on productive assets and income-generation. There seem to be income plateaus and restrictions in terms of structural factors and individual abilities limiting income-generation. Also, at very low levels of incomes, vulnerability affects the use of credit for productive purposes. Turning to an empirical case, we look at the effects of microfinance in Bolivia. The microfinance institutions in Bolivia have had a remarkable development and managed to successfully adapt their lending technologies and commercialise. Investigating the direct effects, we find some evidence of the microfinance clients engaging in growth-enhancing economic activities. However, growth dynamics seem to be dependent on the changes in the wider economy. Human capital constraints seem to be present, both in terms of formal education and in terms of business training. There has been little change in income and productivity in micro-enterprises and the economic sectors relevant to microfinance clients. We also find that the character of the informal sector seems to be inhibiting for micro-enterprise growth. Evidence from direct effects shows promising results for microfinance in terms of financial deepening.

Key words: Microfinance, Financial systems, Economic Growth, Micro-enterprises, Bolivia

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Acronyms

ASOFIN	Asociación de Entidades Financieras Especializadas en Microfinanzas
ANED	Asociación Nacional Ecumenica de Desarrollo
CIDRE	Centro de Investigación y Desarrollo Regional
CRECER	Crédito con Educación Rural
DIACONIA FRIF	Fondo Rotario de Inversión y Fomento DIACONIA
FADES	Fundación para Alternativas de Desarrollo
FFP	Fondo Financiero Privado
FIE	Fondo para el Fomento a Iniciativas Eco
FINRURAL	Asociación de Instituciones Financieras para el Desarrollo Rural
FONCRESOL	Fondo de Crédito Solidario
FONDECO	El Fondo de Desarrollo Comunal
FUNBODEM	Fundación Boliviana para el Desarrollo de la Mujer
FUBODE	FUBODE
IDEPRO	Instituto para el Desarrollo de la Pequeña Unidad Productiva
IFD	Instituciones Financieras de Desarrollo
IMPRO	Incubadora de Microempresas Productivas
INE	Instituto Nacional de Estadísticas
MDG	Millenium Development Goal
NGO	Non Governmental Organisation
PRODEM	Fundación para Promoción y el Desarrollo de la Microempresa
PROFIN	Programa de Apoyo al Sector Financiero
PRO MUJER	Programas para la Mujer
SARTAWI	Servicio Financiero Rural Sartawi
SBEF	Superintendencia de Bancos y Entidades Financieras de Bolivia
SFN	El Sistema Financiero Nacional
UDAPE	Unidad de Análisis de Políticas Económicas

1 Introduction

"Microcredit is a critical anti-poverty tool and a wise investment in human capital. Now that the nations of the world have committed themselves to reduce by half by the year 2015 the number of people living on less than $1 a day, we must look even more seriously at the pivotal role that sustainable microfinance can play and is playing in reaching this Millennium Development Goal." (United Nations Secretary General Kofi Annan at Global Microcredit Summit 2006)

Microfinance has been used by NGOs, the UN and other agencies intensively in the development debate the last few decades. It builds on that financial services are needed to make investments in physical and human capital, to smooth consumption and to overcome unexpected shocks. Microfinance can be seen as a solution to include on a large-scale previously excluded poorer groups without access to capital into the financial system so that they may "rise out of poverty" by themselves (BancoSol, 2006 p. 7).

Developing countries seem to be characterized by a dual financial system with an informal and a formal financial sector where the lower-income clientele tends to be left out of the latter. The lack of access to the formal financial sector is a result of the lack of the collateral required due to risks involved in lending but also due to high costs involved in small-scale financial services and weak legal enforcement (Ray, 1998). This clientele is instead served by informal financial intermediaries that have an informational advantage over formal financial intermediaries on these clients. However, the informal financial intermediaries have inadequate savings facilities and limited funds. Also, they seem to attach a much higher cost of lending for the client than the formal financial sector. Microfinance uses the informational advantage of the informal financial sector to increase the availability and to improve financial services for the lower-income level.

Previous economic growth literature shows that there is a link between the financial sector and economic growth. Disagreement still seems to remain on the directionality. That is, whether financial markets develop as a consequence of economic growth or whether finance leads growth. However the results show that it is fair to assume that the two are interlinked. At the macro level, the financial system may exhibit differing effects due to policies and different institutional build-up. Furthermore, financial markets seem to be imperfect. Poverty (development) gaps are found where both economic growth and financial markets may remain at an undesirable equilibrium (Berthemeley and Varoudakis, 1996, Bencivenga and Smith, 1998). In poor countries, with negative or stagnated economic growth, financial markets may not develop and due to the underdeveloped or inexistent financial markets, growth is further deteriorated.

With this interlinkage of financial development and economic growth in mind, we look at

microfinance as a way of dealing with the micro-level imperfections in financial markets, imperfections that hold back investment opportunities at lower levels of income, and how/or if microfinance could contribute to large-scale income-generation and financial sector development. Could microfinance affect macro-level growth by targeting micro- and small entrepreneurs?

Turning to an empirical case, we look at the microfinance development in Bolivia. The microfinance institutions in Bolivia have had a remarkable development and influence during the contemporary economic history of the country. Commercialisation of microfinance and successful adaptation of lending technologies lead us to investigate effects of microfinance in the Bolivian economy. Has microfinance contributed to significant macro-level impact?

1.1 Aim of Study/ Hypotheses

The aim of this thesis is to examine what *implications microfinance may have for economic growth* by exploring the linkages of microfinance, the financial system and economic growth. We use a set of hypotheses to study the channels through which microfinance may influence economic growth. Through these channels we aim to capture macro-level impacts of microfinance.

Hypothesis 1: Financial system development leads to economic growth
Hypothesis 2: Microfinance leads to financial system development
Hypothesis 3: Microfinance exerts an impact on economic growth

The first hypothesis concerns the macro-level and is based on previous studies examining the links between the financial system and economic growth. This part also brings up the issues of causality, economic growth and development of financial systems as well as multiple equilibria and poverty traps, and policy environment. The second hypothesis turns to the micro-level and explores the role of microfinance and why financial markets may not develop due to market imperfections. It places microfinance in the context of informal and formal financial markets and discusses how microfinance may expand the financial market and how income-generation may be ignited. The third hypothesis extends the analysis to the micro–macro linkages between microfinance and economic growth and brings the first two hypotheses together.

1.2 Methodology

Literature linking microfinance to economic growth is sparse[1]. Therefore, the weight of the thesis falls on the theoretical framework in order to understand how microfinance can be connected to economic growth. The Bolivian case study provides some further insights into the linkages and, specifically, the environment in which microfinance may have an impact economic growth.

The theoretical framework builds on previous studies and findings, and the case study uses previous investigations of the Bolivian economy to build the analysis around. Two specific restrictions in terms of data were encountered during the study. First of all, we have the inherent difficulties of isolating the impact of credit on income-generation[2]. Secondly, in the case study, the informal sector, where most of the microfinance clients are active, is not represented in the national accounts[3] in Bolivia.

In the first part of the thesis, we present our theoretical framework in the first three chapters. The first chapter explores financial systems and their relations to economic growth. In the following chapter, we introduce the concept of microfinance and its theoretical underpinnings. These two chapters lay the foundation for our theoretical framework of direct and indirect influences of microfinance on economic growth, which is introduced in chapter three. In the second part of the thesis, we turn to the case study of Bolivia, a country chosen for its well established and competitive microfinance programs. Here we look at macro-level tendencies of the direct effects from our theoretical framework and we briefly discuss some important findings on the indirect effects. The insights from the case study lead us to modify our theoretical framework. In part four, we discuss our theoretical framework and our findings to draw conclusions in chapter five.

[1] The author has not found any studies that explicitly link microfinance with economic growth.
[2] See Armendáriz and Morduch, 2005 chapter 8 on measuring impact.
[3] The author has consulted with the national statistics institute INE on the matter.

2 A Theoretical Framework of Microfinance Linkages to Economic Growth

2.1 Financial Markets and Economic Growth

In this chapter, we lay the foundation of the link between financial systems[4] and economic growth at the macro-level. We begin by looking at the directionality and the financial systems' potential effects on economic growth. Secondly, we outline a simple model to understand how financial intermediation may influence growth variables and use a number of studies that have modelled and affirmed these channels to growth. Finally, we show that financial sector development may be hindered by many factors and lead to a situation where economic growth is inhibited.

2.1.1 The Link between Financial Systems and Economic Growth

In this section, we look at the directionality between financial systems and economic growth and financial development as a predictor of future economic growth rates.

The link between the financial system and economic growth has been scrutinized by a large number of studies. Some stress that the importance of the financial system is overstated (see Lucas, 1988, in King and Levine, 1993a p. 717) and some that the financial sector plays a minor role in economic development where instead the development of financial markets is a consequence of economic growth (Robinson, 1952 and Kuznets, 1995, in Luintel and Khan, 1999 p. 382).

In early economic literature, Schumpeter (1911, in King and Levine, 1993a p. 717) and Hicks (1969, in Luintel and Khan, 1999 p. 382) viewed "financial development as a cause of growth"[5]. Traditional development economics categorises two ways of treating the financial sector importance. The first school of thought treats financial markets as "essential" in economic activity where "differences in quantity and quality of services provided by financial institutions could party explain why countries grew at different

[4] We will use financial systems, financial markets, financial intermediation and the financial sector intermittently throughout the text.

[5] Schumpeter (1911) because the services provided by financial intermediaries are essential for technological innovation and economic growth. Hicks (1969) argued that without financial innovation the industrial revolution would not have taken place. (in King and Levine, 1993a p. 717)

rates". The other strand meant that finance was "a handmaiden to industry, responding passively to other factors that produced cross-country differences in growth". (King and Levine, 1993b p. 514)

King and Levine (1993a) show that the predetermined component of financial development is a good predictor of future rates of long-run growth and does not only follow economic development but seems to lead it[6] (p. 719, 730). Various measures, such as the level of financial development and real per capita GDP growth, the rate of physical capital accumulation and improvements in the efficiency of employment of physical capital, show a strong robust relationship. (p. 717) The "level of financial development predicts future economic growth and future productivity advances" (King and Levine, 1993b p. 528).

This division shows a one-way causality between economic growth and financial development. However, a bi-directional relationship is argued by several other studies where financial markets develop due to economic growth and then act as a stimulant to economic growth (see Luintel and Khan, 1999 p. 385, Lewis, 1955, in Luintel and Khan, 1999 p. 383). In a study by Berthemely and Varoudakis (1996 p. 300) growth and financial development occur in a two-way manner where real sector growth expands financial markets which in turn, with the development of the banking sector and its increased net yield on savings, raise capital accumulation and thus growth.

Greenwood and Jovanovic (1990 p. 1099-1100) model how economic growth allows for development of financial structures, and the financial structure in turn increases economic growth as investment can be dealt with more and more efficiently. Meaning that when the economy's financial structure is little developed, exchange and intermediation are inhibited and growth is slow. When levels of income increase, the financial structure expands and economic growth speeds up. A fully developed financial structure occurs when the economy has matured and has a higher growth rate than in its "infancy"[7].

In traditional growth theory, financial intermediation is related only to capital stock per worker or the level of productivity but endogenous growth models let preferences, technology, income distribution and institutional arrangements be related to the growth rate (Pagano 1993 p. 613). This means that financial intermediation can have growth rate effects, not only level effects (see further section 2.1.2).

To give some illustrations of the economic importance of financial development, estimates

[6] When countries are divided into quartiles according to pace of growth they show a stepwise relationship where faster growing quintiles have a corresponding increase in financial deepening as well as physical capital accumulation. Efficiency in allocation also corresponds to more developed financial systems. They further find a positive and significant correlation between high levels of financial development in one decade and high levels of financial development in the next decade. (p. 724-726)

[7] Note also that Greenwood and Jovanovic (1990) include in their study the effect of financial structures and economic growth on inequality and conclude that initially, when economic growth takes off, there will be an increase in inequality but in maturity the distribution of income across people will be stable (p. 1100).

from King and Levine (1993a p. 728) show that if financial deepening had increased from the mean of the slowest growing countries to the mean of the fastest growing countries, a country would have increased its growth rate by close to 1 percent per year. This accounts for a difference between the slowest growing countries and the fastest growing countries of around 5 percent. Improving the financial deepening variable[8] would decrease the difference between the countries growth rates by 20 percent. (p. 728)

In sum, these studies show that the direction of the relationship is not simple to assert. There seems to be evidence that there is a bi-directionality where financial development and economic growth interact and that we can model the financial system to stimulate economic growth no matter whether it leads or follows. We have seen some factors that have been found to be of importance and examine the channels closer.

2.1.2 The Financial System and Economic Growth – A Simple Outline

We show above that financial system development and economic growth are interlinked and that financial systems may affect the rate of investment (capital accumulation) and the efficiency of its use (total factor productivity). In this section, we look closer at the effects of the financial system on economic growth components and we discuss studies that have examined these variables and their effect on economic growth.

To understand the influence on economic growth components, Levine (1997) provides a functional approach on how financial systems[9] affect and are affected by economic growth. The functions outlined are mobilization of savings, allocation of resources, exertion of corporate control, risk management and facilitation of trade of goods, services and contracts. Thus, the key role of financial systems is ”to facilitate the allocation of resources, across time and space, in an uncertain environment“ (Mertin and Bodie, 1995 in Levine, 1997 p. 691).

We use a simple model, as outlined and explained by Pagano (1993, p. 614-619) to separate the different effects on economic growth components.

[8] The financial deepening variable in this case uses only the ratio of liquid liabilities to GDP.
[9] By financial systems, Levine (1997) means the mix of financial instruments, markets and institutions that arise to ameliorate transaction and information frictions that affect growth through saving and allocation decisions (p. 690, 691).

$g = A\phi s - \delta$ where g = growth rate;
A = social marginal productivity of capital (physical and human);
s = private saving rate (S/Y);
ϕ = proportion of savings funnelled to investment
δ = depreciation of capital stock

When funnelling savings to investment a *proportion of savings* is lost (1 - ϕ). This proportion is the costs that financial intermediaries incur in the process as well as profits to the financial intermediaries, transaction costs. However, the size of ϕ may also mirror inefficiency in the financial sector and market power of the financial intermediaries. Other factors affecting ϕ are taxes and regulations which both lead to higher unit margins. Taxes may have a positive effect if invested but negative effect when spent on consumption. The lower the ϕ , the higher is the proportion of savings that is channelled and with increased efficiency in financial intermediation the growth rate is expected to increase.

King and Levine (1993a p. 735) conclude that policies that may alter costs and efficiency of financial intermediation "exert a first-order influence on economic growth" with regard to endogenous technological change. Financial intermediaries play a key role in selecting and financing investments which lead to innovation. The financial system has the role of "evaluating prospective entrepreneurs, mobilize savings to finance the most promising productivity-enhancing activities, diversify the risks associated with these innovative activities, and reveal the expected profits from engaging in innovation rather than the production of existing goods using existing methods." Innovation is not only new technology but also the improvement of existing (e.g. Grossman and Helpman, 1991).

The better the financial systems, the higher is the probability of finding successful innovation and hence accelerated economic growth. Financial sector distortions reduce the probability and thus the rate of economic growth.

Efficiency can also be improved through experience. Berthelemy and Varoudakis (1996 p. 301) incorporate a learning-by-doing effect in the financial intermediation sector and also in the market structure of the financial sector. This effect means that lending decisions improve due to increased knowledge over time of project-specific information. Allocation efficiency is increased.

The growth rate is also affected by increasing the *productivity of capital, A.* This occurs through two channels. The first channel adheres to the collection of information in order to evaluate investment projects. When deciding on which investment to allocate resources to, financial intermediaries choose between safer and lower-yield technology, or riskier and higher-yield technology[10]. By holding a large portfolio financial intermediaries can help to overcome the aggregate productivity shocks and may therefore be able to choose the best

[10] These risks include both aggregate and project-specific shocks.

technology. The result is that savings are allocated more efficiently leading to higher productivity of capital which in turn influences growth.

The second channel is the function of financial intermediation to share risk in investment choices for individuals in terms of protecting against idiosyncratic shocks such as changes in preferences of consumers or uncertainty and delays in asset returns[11]. Without financial intermediation, households need to self-insure by choosing assets that may not be the best choice, in terms of productivity and returns, but are easily liquidated. Also specialization could be facilitated by reducing risks from sectoral demand shocks through portfolio diversification through the stock market.

First of all, financial intermediation helps to deal with uneven flows of liquidity. Greenwood and Jovanovic (1990 p. 1084 -1085) discuss how financial intermediaries may induce people to change their savings from unproductive liquid assets to productive illiquid ones and in this way promote capital accumulation. Bencivenga and Smith (1991) note that the lack of financial intermediaries may result in too much saving held in liquid assets, delays in further investment, or, as profits from investment and production are delayed, liquidation of investment already undertaken. Also, in the absence of insurance, individuals may have to self-insure against random shocks. (p. 196, 197). If financial intermediation can direct funds to more productive investment (high-yield, illiquid technology and reducing investment waste), the growth rate may be positively influenced.

Secondly, we have the role of financial intermediaries in allocation decisions. This role accentuates the role of financial intermediaries in collecting and analyzing information. Financial intermediaries make it possible for small savers to pool funds and allocate them to the highest return investment, and then to provide capital for investing in costly new technology (King and Levine 1993b p. 514, Greenwood and Smith, 1997 p. 147). Thus, the effect of financial intermediation increases the speed of technological innovation and stimulates capital accumulation through mobilisation of resources.

However, Rioja and Valev (2004a (p. 127) find differences in the effects of finance amongst countries where financial intermediation exerts a positive impact on productivity growth in developed countries, “innovation-based growth”, whilst in less developed countries, the effect of finance on output growth occurs mainly through capital accumulation, “investment-based growth”[12]. This division gives financial intermediaries different roles. In the latter case, selectiveness is less important. Instead, long-term business relationships, that allow funds to flow from financial intermediaries to established firms for capital accumulation, matter more. In the former case, technological innovation requires selection and funding of new activities. (*ibid*) Thus, financial intermediaries may have a

[11] The risk-sharing function is performed by insurance and securities markets as well as banks.

[12] Builds on Acemoglu et al. 2002. Rioja and Valev (2004) also separate a middle-income group in which productivity gains seem to be the main effect but not as strong as in the high-income group. At a certain income, the effect seems to shift from capital accumulation to productivity gains. (p. 129)

different role to play depending on the level of economic development in the country.

Financial intermediation may further affect growth through the *savings rate s.* Financial development will affect this savings rate through three channels but all with ambiguous effects on growth.

First of all, financial intermediaries provide a risk-sharing mechanism against endowment shocks (e.g. health hazards) and by diversification of volatile rates-of-return to investment. The effect of risk-sharing on savings depends on the type of risk preferences of the consumers. With a constant relative risk-aversion, the introduction of insurance markets would lessen the need for precautionary savings leading to a lower growth[13]. This is also the case with the rate-of-return that may be diversified through securities markets. Thus risk sharing may induce investment but also reduce the need for precautionary savings.

Secondly, financial markets also transfer household savings to households that dissave in terms of household consumer credit (and mortgages). To determine the effect of these we look at the effect of liquidity constraints. Liquidity constraints occur when demand is higher than supply of credit and household consumption is limited by current resources instead of permanent income. As financial markets develop, there is a tendency of consumer credit to become cheaper and more available, relaxing the liquidity constraints. Liberalization of consumer credit and mortgage markets lower the savings rate and hence growth.

However, households may also use loans for human capital formation and improving skills and, if so, liquidity constraints act to lower the productivity rate, *A*, despite increasing the savings rate, *s*. The effect on growth depends therefore on the level of self-finance of human capital[14]. Liquidity constraints could further affect growth by distorting the allocation of wealth where liquidity-constrained households "may not only dissave less but also buy smaller and cheaper housing which redirects funds away from residential towards non-residential investment and the use of consumer credit"[…]"enhancing productivity through physical capital formation rather than increasing saving". (Pagano, 1993 p. 618, footnote 4)

In terms of savings, interest rates further affect the incentives to save. Financial market imperfections or financial repression may lower growth by holding the saving interest rates below the marginal product of capital net of depreciation, $A-\delta$, thereby reducing the savings rate.

[13] If the constant relative risk-aversion utility is above 1, the effect on savings is negative and if less than 1, the effect on savings is positive.

[14] Human capital formation is often subsidized by grants, public schooling and loans by the government. Other sources that influence human capital formation are on-the-job training and learning-by-doing, which are not included in the savings rate but also affect productivity, A.

Finally, to incorporate further the financial intermediation role in less developed countries, we look at four objectives outlined by DFID (2004) for the financial sector to stimulate "pro-poor growth". That is, growth that is specifically concerned with poverty reduction[15].

First of all, financial systems matter in order to mobilize savings for productive investment and to facilitate inflows of capital and remittances from abroad. This will stimulate investment in physical and human capital, which will lead to increased productivity. Secondly, productivity gains may also be achieved through reduced transaction costs, better technologies and improved use of resources. Income may also be increased through employment as a result of access to accumulated savings or borrowing to invest in income-enhancing assets and start micro-enterprises. Finally, secure savings through bank accounts and insurance provide shock-absorbing mechanisms and may therefore assist in reducing vulnerability and minimizing the risk of damaging long-term income prospects by sale of assets or other coping strategies during shocks. (2004, p. 4, 5)

In this section, we have outlined the channels to economic growth and the effect of the variables. We have seen that financial intermediaries may have different roles to play in different settings and that financial development in some cases has ambiguous effects on economic growth. In the next section, we look at how financial markets develop and the factors that affect financial market development.

2.1.3 Financial Market Development and Economic Growth

Economic growth literature tries to explain why countries grow at different paces and, given the same level of capital and labour, countries do not grow at the same pace. Financial system studies show how economic growth may be affected by the structure of the financial system in a country. In this section, we try to understand the differences between financial systems and what affects them and their development, and why, in some cases, financial markets seem to stagnate or disappear.

According to Levine (1997) “financial literature shows that *differences in how well financial systems reduce information and transaction costs* influence saving rates, investment decisions, technological innovation and long-run growth rates”. Depending on the type and combinations of information and transaction costs, different types of financial products and institutions arise (p. 689, 690). One suggestion on how to explain differences between the national financial systems is the legal origin, which has affected “(a) laws

[15] For a discussion on pro-poor growth, see for example Ravallion (2004). Two definitions on pro-poor growth follow. First of all, “pro-poor growth is growth that is a situation in which any distributional shifts accompanying economic growth favor the poor, meaning that poverty falls more than it would have if all incomes had grown at the same rate”, and secondly, growth is ‘pro-poor’ if and only if poor people benefit in absolute terms, as reflected in an appropriate measure of poverty” (Ravallion, 2004 p. 2)

concerning bank credits, (b) systems for enforcing bank contracts, and (c) standards for corporate information disclosure" (Levine, Loayza, and Beck 1998 and Levine 1998, 1999 in Beck, Levine and Loayza 1999 p. 3).

Another suggestion is that specific *market dimensions* may affect how well the financial system performs (Jurajda and Mitchell, 2001 p. 5). Among these we find 1) market infrastructure, which includes institutions facilitating contract enforcement and owner rights incorporating legal, informational and corruption aspects, 2) policy wedges, in terms of financial repression and distortions by regulations, and 3) participants, such as financial intermediaries and individual investors. The two first can be seen to be affected by the legal origin as well.

From the economic agents' perspective, market formation allows increased specialisation which arises from changing technologies and production (Greenwood and Smith, 1997 p. 146). Agents need markets to trade their specialised goods and services and the structure of the market affects the agents' incentives to accumulate physical and human capital. Thus, the existence of markets affects both perceived returns and the risks involved in investment. (*ibid*)

In terms of *policies* affecting financial development and economic growth, severe financial repression that keeps the real interest rate artificially low (negative) leads to a reduction in savings which in turn impedes economic growth (as we saw in section 2.1.2). Inflationary policies further affect the development of the financial sector[16] (Berthelemy and Varoudakis (1996 p. 316-317)

A debated policy issue is *financial liberalization* and studies show ambiguous findings. On the one hand, financial liberalization can be shown to change the allocation of funds in favour of more efficient firms (King and Levine, 1993b p. 528). A 'liberalised' financial system with capabilities of mobilizing increased volumes of savings and with abilities to allocate credit more efficiently to productive uses leads to both a larger volume as well as improved productivity of physical capital[17] (e.g. McKinnon, 1973, Shaw, 1973, in Luintel and Khan, 1999 p. 382).

On the other hand, De Gregorio and Guidotti (1995) find that Latin American countries experienced a negative link between the financial system and economic growth during the period 1950-1985 which they assign to a fast transition of financial market liberalization. Also, the effect of increased banking competition, by means of financial sector liberalization, in less developed countries, may lead to less efficient outcomes, specifically

[16] The real interest rate has a positive influence on growth whilst inflation has a negative influence.

[17] The McKinnon-Shaw hypothesis states that with artificially low interest rates there are no incentives for financial intermediaries to ration credit which otherwise would be judged according to marginal productivity of capital (Andersen and Tarp, 2003 p. 191)

when there is asymmetric information in the financial sector, the absence of an institutional and regulatory setting[18]. (Andersen and Tarp, 2003)

However, financial liberalisation is one type of policy affecting economic growth. Luintel and Khan (1999 p. 399) note that "although interest rate liberalization exerts a positive effect on financial depth in the long-run, growth stimulating activities are likely to have stronger effect"[19]. Similarly, Juradja and Mitchell (2001 p. 34) find that *general macroeconomic policies* seem to have as important effects on growth performance as financial market imperfections in Latin American countries. Also, the strength or weakness of the financial system seems in its turn affect policies, such as trade and government consumption, where the impact of policy reforms is dependent on the financial system[20]. This implies a link between financial sector policies and long-run economic growth (Berthelemy and Varoudakis, 1996 p. 320, 322, 325, King and Levine, 1993b p. 528).

In line with this is that financial system development and *the initial level of the financial system* can be shown to impact general policy reforms[21]. A high initial level of financial development has led to faster growth in countries that have undergone structural adjustment and secondly, in the countries where the financial system grew faster economic growth has been more rapid[22]. (King and Levine, 1993b p. 537–540)

We have seen that the structure of the financial sector, markets and financial policies and general macroeconomic policies may affect economic growth performance and financial sector development. It also seems as financial markets may stagnate and disappear. We look closer at two studies. Berthelemy and Varoudakis (1996) find that there are *multiple steady state equilibria* "due to a reciprocal externality between the banking sector and the real sector" (p. 300). Two possible steady state equilibria can be discerned. One of them characterizes a positive endogenous growth coupled with normal development of the financial system, and the second steady state is a poverty trap where economic growth stagnates and the financial sector disappears. This "poverty trap will most likely appear if financial markets are imperfect, limiting the possibility for individuals to borrow to finance human capital accumulation" (p. 301).

Berthelemy and Varoudakis (1996) find two poverty traps where one features a high initial educational level but with an inefficient financial system. This poverty trap encompasses most of the Latin American countries. The second poverty trap is characterised by a low

[18] By adding asymmetric information to bank behaviour models, it can be shown that increased banking sector competition and removed deposit rate ceilings lead to a game strategy outcome with increased risk-taking from the banks' sides and where the government is left to pay the bill when projects fail.
[19] The finding show that there is a six times bigger income effect than the real income effect (*ibid)*
[20] King and Levine (1993b p. 528) also find that when non-financial policy changes are coupled with financial reform, there seems to be an even greater positive impact.
[21] King and Levine (1993b p. 539) note however that this does not take into account the effect of growth determinants other than financial development.
[22] Financial liberalisation during the structural adjustment reform (King and Levine, 1993b p. 537)

initial educational level and a little developed financial sector. Here we find mostly African countries. (p. 324). Thus, development of human capital (education) seems to be a 'pre-condition' for growth. Meanwhile, lack of financial sector development may pose a major hindrance to economic growth in countries that fulfil this pre-condition[23]. Also, the educational level does not exert an influence on growth when coupled with inadequate financial intermediation services. Thus, educational development is found to influence growth both directly and indirectly, the latter by enhancing financial development, which in turn affects growth (p. 317).

The financial sector may also 'get trapped' due to the costs involved in financial intermediation. Bencivenga and Smith (1998 p. 364) examine how costs involved in the development of financial intermediation may be inhibitive for poorer economies. As real resources are involved in the utilization of the financial system, the possibility of a development trap arises. Initially rich countries experiencing sufficient income growth are able to bear the associated *costs of financial intermediation* hence benefiting from its advantages. Initially poor economies may not grow enough to be able to shoulder the costs of a developed financial system. The result is a steady-state of permanent poverty and underdeveloped financial system for the poorer country whilst the richer country reaches a higher steady-state with a fully developed financial system.

In this model, the costs of intermediation hinder financial intermediation from operating at lower-income levels and an assumption is that that there will be financial intermediation only if depositors are willing to bear these costs. The low steady-state is due to low real activity that leads to an underdeveloped financial system as the costs cannot be borne. Meanwhile real activity is low due to an underdeveloped financial system. In this kind of economy, the solution could be "a one-time infusion of aid" that would push the "economy onto an equilibrium path with a permanently higher level of real activity. Along such a path the financial system will also grow, and this growth supports the high level of real output." (p. 365, 366)

This means that there might be a threshold effect due to the fixed costs in opening and operating markets, such as financial markets, where a certain income is needed in order to open and support them (Greenwood and Smith, 1997 p. 146, 149). Poorer economies tend to have fewer resources for the trading process and market formation. Rioja and Valev (2004b p. 430) note that a threshold effect may exist where a certain income level is needed for financial development to exert a positive influence on economic growth. They suggest

[23] Berthelemy and Varoudakis (1996) calculate that countries with initial high educational level but weak respectively well-developed financial sector differ by 1.4 % of annual growth rate per capita. They also conclude that the latter countries' hypothetical long-run per capita level is approximately $17 200 whilst the former countries' GDP per capita level is $2 700. Countries with *both* low educational level and low financial sector development have an approximated $500 GDP per capita level. (p. 323, 325). See also King and Levine (1993a p. 727-728) who show that "higher initial secondary school enrolment rates are associated with faster subsequent growth".

that finance seems to have "a different effect on growth in different countries, time periods or stages of development" (*ibid*).

We have seen that the environment in which financial intermediation takes place affects the efficiency of intermediation and the outcomes of economic growth. Furthermore, there seem to be some pre-conditions, or factors, needed for the financial system to develop and to exert its desirable effect.

2.1.4 Chapter Discussion

In this chapter, we have discussed the link between the financial sector and economic growth, both in terms of the directionality and the channels to economic growth. We have further tried to explain the different impacts of financial systems and the development of financial markets.

An important feature is that no consensus exists on whether financial markets lead or follow growth but evidence suggests that it is fair to assume that there seems to be a bi-directionality between the two. Using endogenous growth models, financial intermediation can be shown to have not only growth level effects but also growth rate effects, meaning that financial development can increase the speed of growth.

The ways in which the financial sector may affect economic growth is dependent on the effects of the efficiency of the financial intermediaries, the influence on productivity that the financial system may induce, and whether financial development decreases or increases the savings rate. Specifically, a learning-by-doing effect in the financial sector and structure means that initially financial intermediaries may incur higher costs but will improve efficiency through experience.

We have also seen that there are differences between how well the financial structures function and how well they may impact economic growth and incentives. General policies and financial policies are found to both influence the functioning of the financial system as well as being influenced by the financial system. In terms of financial liberalization, we find ambiguous effects and that the outcome is context dependent.

Furthermore, the financial system may not develop and lead to a situation with a low level of real activity and an underdeveloped or inexistent financial sector. We find a divide between countries with a lower steady-state and countries with a higher steady-state, a situation that can be explained by multiple equilibria due to the costs involved in financial intermediation and/or lack of human capital. We further find that due to costs, there may be a threshold effect that requires a certain income level to open and sustain the growth-enhancing markets.

The bi-directionality implies that real activity effects influence financial development and financial development affects real activity. A low steady-state with an underdeveloped financial sector may experience difficulties moving from the undesired equilibrium. Turning to microfinance, we focus on how an expansion of the financial market could improve real activity and the ability to shoulder the costs of market formation. Increased financial activity would then improve real activity that would in turn improve the financial sector.

However, there are also micro-level imperfections in capital markets, and particularly in less developed countries, financing investment through the market has been shown to be difficult (Hulme and Mosely, 1996 p. 1). Specifically if initial costs are high and before financial intermediaries have gained sufficient experience to be efficient and to allow costs to decrease (the learning-by-doing effect). We move from the macro-level to the micro-level and the economic agents to examine one way of solving the micro-level imperfections to expand the financial system and increase real economic activity. The next chapter examines the micro-level financial system and microfinance.

2.2 Financial Market Imperfections and Microfinance

In this chapter, we explore the micro level and imperfections that hinder financial development at this level and show how microfinance may solve these. Due to the imperfections, a borrower needs to provide some form of security, collateral, to engage in financial intermediation typically lacking at lower income levels. Furthermore, high costs of intermediation seem to hold back formal financial intermediaries and negatively affect the potential size of investment. We show how microfinance can improve financial services for the lower income level, also provided by an informal financial sector. We examine how lowered costs, negotiated by the microfinance institution, affect production and choice of technology, and how vulnerability affects the willingness to take on risky projects. Finally, we discuss savings and some key features of microfinance clients.

2.2.1 Financial Market Imperfections and the Informal Moneylenders

In this section, we look at the micro-level imperfections that prevail in financial markets and how they may be overcome. We also examine the character of the informal financial sector.

There are two main problems in financial markets; adverse selection and moral hazard. The key issue in terms of adverse selection is determining clients' riskiness. The bank would like to charge riskier clients higher interest rates to cover for a higher probability of default[24]. Secondly, the moral hazard problem where the bank wants to ensure that the clients use the banks' money for the right purpose, make the full effort, and do not disappear with the banks' money[25] (Armendáriz and Morduch, 2005, p. 7). Moral hazard and adverse selection may be overcome by 1) information to evaluate and monitor the current and prospective clients, 2) enforcement, to ensure that contracts are complied with, and 3) compensation, collateral to compensate for default and create incentives to pay back loans (*ibid*).

However, costly information and small sums involved in lending at low income levels together with lack of marketable collateral has made formal financial intermediaries

[24] By assumption, the riskier projects have a higher return that enables the borrower to pay this desired higher interest rate whilst still improving income (see section 2.1.2, productivity of capital). In section 2.2.2 and 2.2.3 we will discuss this assumption further.

[25] For a more in-depth explanation of how adverse selection and moral hazard affect the financial market see Armendáriz and Morduch, 2005 chapter 2.

reluctant to operate at lower income levels. Furthermore, in less developed countries, enforcement tends to be undermined by weak judicial systems (Armendáriz and Morduch, 2005 p. 1, 8, Hulme and Mosley, 1996 p. 1, 2). The lack of legal enforcement means that lenders have to rely on other kinds of punitive measures, such as the threat of not advancing loans in the future in case of default and "the less effective these threats, the more they constrain the operation of credit markets". (Ray, 1998 p. 530)

Despite the lack of formal financial services operating at lower levels of income, financial operations are not inexistent. Instead the financial market in developing countries is characterized by a dichotomy of formal and informal finance (Chandavarkar, 1992, p. 135) The informal financial sector consists of actors such as money lenders, neighbours, relatives, friends, credit cooperatives, rotating savings and credit associations, landlords, millers, traders, and other agents who are using financial activities as a side income source (Ray, 1998 p. 538).

In terms of credit, these small informal lenders are in a position to first of all gather the necessary information of the characteristics and day-to-day activities of their clients (monitoring and evaluation). Secondly they can accept collateral in different forms (such as labour), that formal financial institutions cannot. (Ray, 1998 p. 536, 537) In close-knit societies with low mobility, community networks tend to be strong and can be used by an informal moneylender as a way of ensuring compliance with a loan contract. As information can be spread rapidly and to everyone, the threat of being cut off from access to future credit and having a reputation as a bad client, as well as other types of social sanctions and censure, provide the enforcement means for informal financial intermediaries. (Ray, 1998 p. 556, 557) Also, interlinkage is common in rural credit markets. This means that money lending takes place along occupational lines, such as landlords lending to tenants and farm workers, where the arrangement features a close relationship and the necessary monitoring and enforcement means for the lender. (Ray, 1998 p. 541, 546)

Despite the micro information that the informal lenders possess, the informal sector seems to be an imperfect substitute for formal financial lending. Jurajda and Mitchell (2001) suggest that informal markets may have a positive effect on growth as an efficient response to costly information problems but those informal lenders' funds are limited (p. 39).

Furthermore, high interest rates charged by the informal moneylenders may constrain borrowers. Studies show that interest rates in the informal financial sector may vary from 25% to 200% (Ray, 1998 p. 536, 541). Looking closer at informal lenders as informal moneylenders, the debate seems to be whether high interest rates reflect the monopolistic behaviour of moneylenders or the moneyleders' actual costs of lending (transaction costs, default risk, monitoring and acquiring capital)[26] (Armendáriz and Morduch, 2005 p.28-30).

[26] For example, a study in Thailand showed between 25% to 60%, another study in Pakistan showed a

In the next section we will look closer at how to use the advantages of the informal sector to expand funds and to make credit cheaper and financial services more available to the lower-income clientele.

2.2.2 Microfinance

We have seen that the micro-level imperfections in the financial markets hold back formal financial intermediaries and put informal lenders in a better position for "efficient market coverage" (Ray, 1998 p. 572). However, limited funds and high interest rates may be improved upon and we look at two options and describe the concept of microfinance.

The informal and the formal financial sectors often interact as informal lenders frequently borrow from formal intermediaries (Ray 1998, p. 539). Thus, expanding credit to informal lenders could increase competition and result in improved terms of borrowing. However, theoretically, the outcome may be the opposite and *increase* interest rates due to collusion. It could also result in higher monitoring and administration costs as more sources of borrowing increase the probability of default, or that some lenders end up with only bad risks due to differential information and have to leave the market (Ray, 1998 p. 585, 586).

Another approach is microfinance where institutional lending copies and uses some of the traits of the informal lending (Ray, 1998 p. 578, see appendix A1 on A Brief Description of Microfinance Practices). Armendáriz and Morduch (2005, p. 29) argue that microfinance may do better than local moneylenders[27] by improving *efficiency*. That is, increasing the number of projects funded by charging lower interest rates than local moneylenders[28]. With high interest rates, only the most productive projects will be funded whilst other *prospective* investments would be screened out, limiting the potential size of investment projects. If funds are limited to the moneylenders' funds, efficiency can only be increased by financing the most productive clients. Also, if the informal moneylenders' market is characterised by monopolistic competition, segmentation may take place. If so, informal lenders could enjoy local monopolies and possess detailed information only of their own clients[29] and in that way limit the possibilities of information sharing. (p. 29, 30-33)

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variation between 18% to 200% compared with the 12% formal sector interest rate. Also through interlinkage, interest may be explicitly low or no-interest loans but implicit in the price of output sold to the lender or in a wage earners pay. (Ray, 1998 p. 536, 541) We will not further explore this issue but refer to Ray, 1998 chapter 14.3 for a deeper discussion on why interest rates may be high in informal markets.

[27] They also argue that microfinance may improve distribution, which is of particular concern in regard to poverty reduction. Here this aspect has been excluded as we do not choose type of growth, that is whether growth is pro-poor or not.

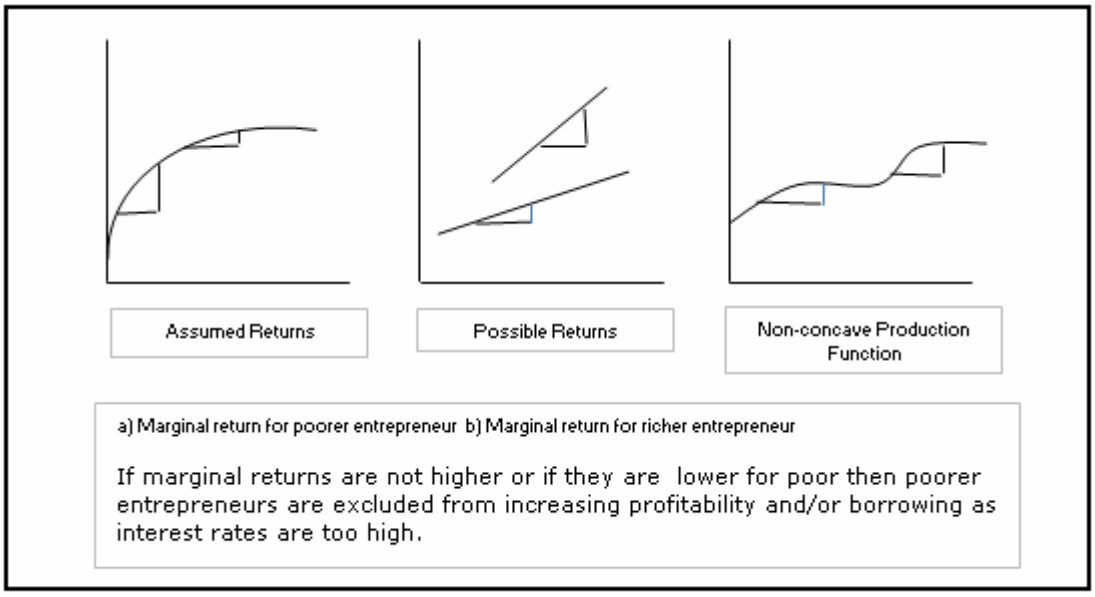
[28] We note that the interest rates may reflect actual costs for informal lenders. However, the promise of microfinance is that it can improve upon the existing situation (Armendáriz and Morduch, 2005 p. 34).

[29] Ray (1998 p. 540) underlines that the informal rural credit market does indeed have a tendency towards segmentation.

A closer look at the assumption on capital returns provides further insights. The principle of diminishing marginal returns to capital states that "enterprises with relatively little capital should be able to earn higher returns on their investments than enterprises with a great deal of capital" (Armendáriz and Morduch, 2005 p. 5). That is, by using one additional unit of capital, a poorer entrepreneur is able to produce more output than the richer entrepreneur. This implies first of all that capital should flow naturally from rich savers to poor entrepreneurs and secondly, that poor entrepreneurs should be able to pay high interest rates and still make a profit on their investments. However, as discussed in section 2.2.1, the financial market is imperfect and risks involved in financial intermediation may hinder financial access to lower-income levels. Secondly, high interest rates may still screen out poorer prospective clients.

To see why, we examine two assumptions of the principle of marginal returns. First of all, it is assumed that all borrowers have the same prerequisites as the richer borrowers, such as education, commercial contacts, access to inputs and markets. Secondly, it implies that the production function is concave (Armendáriz and Morduch, 2005 p. 18). However, if this does not hold, returns to scale may be higher for a large-scale richer entrepreneur relative to the poorer small-scale client. In this case, the poorer entrepreneurs may never be in a position to compete with richer entrepreneurs as they cannot afford to pay for credit with high interest rates. Armendáriz and Morduch (2005 p. 19) term this "a credit-related poverty trap". Figure 1 shows the two scenarios.

Figure 1. Marginal Returns to Entrepreneurs



Source: Armendáriz and Morduch, 2005 p. 5, 18. Author's modifications.

In the left hand part of figure 1, we can see that assumed higher marginal returns for a poorer entrepreneur would mean higher returns to investment and ability to shoulder higher interest rates. However, different prerequisites and non-concavity, in the middle and to the

right in the figure, may mean that marginal returns to investment are actually lower for a poorer entrepreneur who in this case cannot afford high interest rates. The microfinance promise is to improve upon the current situation. We look closer at the concept of microfinance.

Armendáriz and Morduch (2005 p. 1) define microfinance as "a collection of banking practices built around providing small loans (typically without collateral) and accepting tiny savings deposits". This collection may include pure banking services, or may include a broader social mandate, such as catering only for the very poor or women (empowerment). Other services can be part of what the microfinance offer, such as education, health, training, marketing and planning. Microfinance institutions vary in size, geographical location, institutional shape and may use different lending mechanisms[30]. (p. 20)

The microfinance movement started with microcredit, focusing on loans only but the shift to microfinance has emphasised a broader concept that includes savings, provision of insurance and sometimes even distribution and marketing of clients' output. (p. 14) Other financial services such as remittance transfers are also starting to make their way to microfinance (Meyer and Nagarajan, 2006 p.167).

Whilst the microcredit key players were mainly NGOs, the microfinance shift was towards "the establishment of commercially oriented, fully regulated financial entities" and also a shift towards less poor households. (Armendáriz and Morduch, 2005 p. 14, 15) Studies show that few clients are rich or very poor and that most of the clientele tend to be situated around the poverty line, or less poor than urban or national populations in terms of poverty lines or the World Bank's $1 and $2 a day (Meyer and Nagarajan, 2006 p. 171).

The shift towards commercialisation has underlined the role of microfinance in the financial system (Hartaska and Holtmann, 2006 p. 152). A trend can be discerned "where an NGO MFI grows, achieves scale, and transforms into a commercial financial institution, usually with a license to collect deposits. Larger MFIs move toward financial intermediation and, in addition to saving, provide payment facilities and more sophisticated financial products […]". The collection of savings also incurs the costs of regulation for the institutions. (*ibid*) Thus, there has been a dynamic development in the microfinance institutions and in the products offered.

Comparing informal moneylenders, microfinance, and formal financial institutions, informal moneylenders seem to be more flexible in terms of repayment[31] and may also

[30] Microfinance can be used for a wide array of activities that include some kind of small-scale lending and savings and complementary financial services for poor or near poor people. A multitude of formal and informal institutions, organizations as well as informal associations are termed or could fall under the term microfinance, wholly or partly (e. g. Dichter, 2006 p. 2, CGAP, 2004 p. 1-2). Hulme and Mosley (1996) refer to microfinance as "quasi-formal". We will not make a clear distinction in this thesis.

[31] To cut costs and improve transparency, some costs are shifted from the microfinance institution to the

provide faster access than microfinance (Armendáriz and Morduch, 2005 p. 171, von Pischke *et al*, 1983 in Hulme and Mosley, 1996 p. 75). However, the formal financial sector tends to provide the lowest interest rates and larger sum loans (Ray, 1998 p. 541, 542). The introduction of other financial intermediaries to the market may not only result in substitution effects but the range of the financial services offered by the new financial intermediaries may differ from the moneylenders'.

One can separate credit into three types; 1) credit for fixed capital which is for new technology, start-ups, expansions, 2) credit for working capital required for ongoing production, 3) consumption credit to smooth ups and downs due to sudden gaps between income and expenses, such as illness or crop failure. Informal moneylenders tend to provide mainly working capital and consumption loans. (Ray, 1998 p. 531) The unwillingness to lend for capital investment stems from the risk of strategic default[32]. When legal enforcement is lacking, the client can by borrowing a large *one-time* sum ensure that further borrowing will not be needed. The threat of being cut off from future access is not credible any longer. (Ray, 1998 p. 546) Hulme and Mosley (1996 p. 72) find that money lenders in almost all cases lent only short-term and for consumption.

Floro and Ray (in Ray, 1998 p. 575) note that informal lenders do not compete with formal institutions but are complementary, working in a different segment of the market. Hulme and Mosley (1996 p. 38) suggest that improvements in income, following an expansion of credit, could increase demand for credit from informal moneylenders due to income effects. Thus, the introduction of other financial intermediaries may be complementary on the one hand and, on the other hand, they may lower interest rates.

In the next section, we show what happens when a new financial lending institution, such as microfinance, enters the market and the effects on production and technology.

2.2.3 Expansion of Financial Services – Introduction of a Financial Intermediary to the Market

The prospective of microfinance is to broaden access to financial services for lower-income levels and increase the amount of undertaken productive projects. By inclusion into the financial sector, improved income-generation is predicted. However, at the frontier, lending to a poorer clientele without collateral involves high costs (reflected by high interest rates). This section explores how expansion of financial services may take place and how production and choice of technology are influenced by credit and vulnerability. Furthermore, it takes stock of an important issue in developing economies, employment

client, and strict compliance with rules is necessary (Armendáriz and Morduch, 2005 p. 171)

[32] The borrower has the ability to pay back the loan but does not (Ray, 1998 p. 546).

opportunities.

First of all, we look at how income-generation and financial system development may interact to achieve the desired outcome of increased income and financial expansion. Khan (2001 p. 414) develops a model where access to investment loans gives higher returns to production (higher growth). These higher returns act as an incentive for those unable to borrow to take on the necessary costs to access these loans. The financial system expands and the increased growth for producers and the increased numbers of producers with access to finance increase the borrowers' net worth relative to debt. As the net worth increases, the probability of repayment increases and the costs of lending and frequency of verification decrease. In turn, the mean return of investment increases.

In sum, the growth in income leads to financial development, and financial development, by lowering the costs of finance and the level of indebtness, raises the return on investment and further improves income. This model however assumes that borrowers can bear the costs to access the financial system, such as collateral, high interest rates and risk. In microfinance, initial operations tend to be supported by subsidies and microfinance loans are more flexible with collateral, typically using social collateral (Aghion and Murdoch, 2006 p. 16).

We turn to look at how a lending institution may enter the informal financial market and improve access. We show this sequence in figure 2. The model is adopted from Hulme and Mosley (1996 p. 16, 21–23, 33-35).

Any new lending institution wishing to expand credit to the lower-income level has to compete with the informal market. This is possible if the new financial institution charges an interest rate just below the informal rates and, as a consequence, increases its loan size. The lending institution could also compete by offering different products that are not provided by the informal moneylender. To improve access to credit, we will concern ourselves with the lower interest rates. As average loan size increases, administrative costs per loan fall, and as the institution gains more information on clients so does the probability of default rates. The result of a successful mechanism to deal with costs and default is that the short-term cost curve shifts downwards over time resulting in a downward sloping long-term cost curve. (see figure 2, right hand diagram)

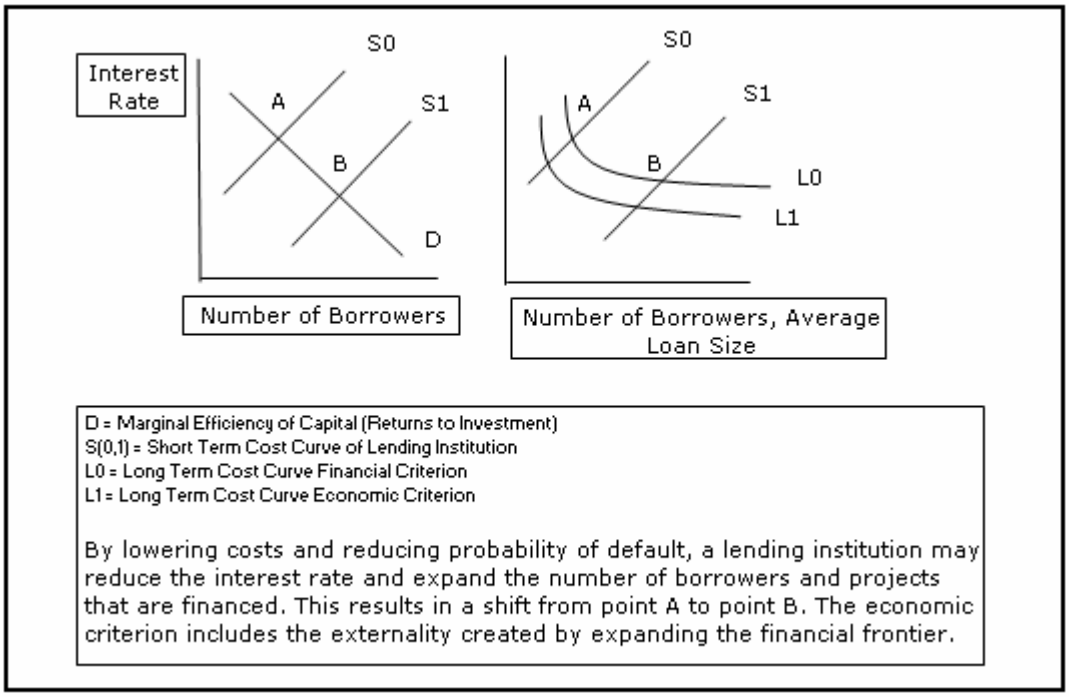
The left hand side of figure 2 shows the effect on undertaken investment when interest rates fall. Ceteris paribus, the investment function (the marginal efficiency of capital) is downward sloping the lower the interest rate (the lower the interest rate, the lower is the required return on investment to make a profit). The elasticity of the slope depends on how many of the borrowers are new to the financial institution and how many clients switch from a different financial source due to better terms and interest rates. The latter clients are already part of the capital market. The investment function may shift due to exogenous influences that affect the return to private investment, such as the level of market demand, the price of

investment goods and government policies.

Furthermore, the new financial institution creates a positive externality as it ventures into a new field collecting information, identifying good and bad borrowers, reducing the variance of lenders' returns and sometimes offers training for clients. Thus, we have two long run cost curves, both with falling costs over time. Due to the externality, there is a difference between the socially optimal number of projects to be financed and the private number of beneficial projects. There is a social equilibrium and a private equilibrium that do not correspond.

This externality is reflected in the different interest rates where the economically optimal interest rate (the social equilibrium) includes this externality whilst the financial optimal interest rate (the private equilibrium) does not. A financial institution that charges a lower interest rate and incorporates this externality may therefore lead to the amount of socially beneficial investment projects being financed. This is shown to the right in figure 2. The externality is included in the demand for investment function.

Figure 2. Expansion of Borrowers



Source: Hulme and Mosley, 1996 p. 22, 33. Author's modifications.

Figure 2 shows that the cut costs and reduced probability of default shift the short-term cost curve for the new institution, resulting in an expansion of undertaken investment and improved access to credit. The net incremental investment depends on the price of credit, the quantity of productive investments and the conditions affecting returns to investment.

We have now seen how expansion of financial services may happen and we turn to income-generation. The key idea of engaging in the financial system from the agents' perspective is up-ward progression on the income ladder through income-generating loans[33] (Hulme and Mosely, 1997 p. 108). Beginning with a small income, a virtuous spiral can be created: "low income, credit, investment, more income, more credit, more investment, more income, more credit, more investment, more income" (Yunus, in Hulme and Mosley, 1996 p. 108).

In section 2.2.2, we saw that there are three types of credit referring to different uses of the borrowed sum, consumption, working capital and fixed capital. To better understand how credit could affect income-generation we therefore turn to examining investment decisions by the lender.

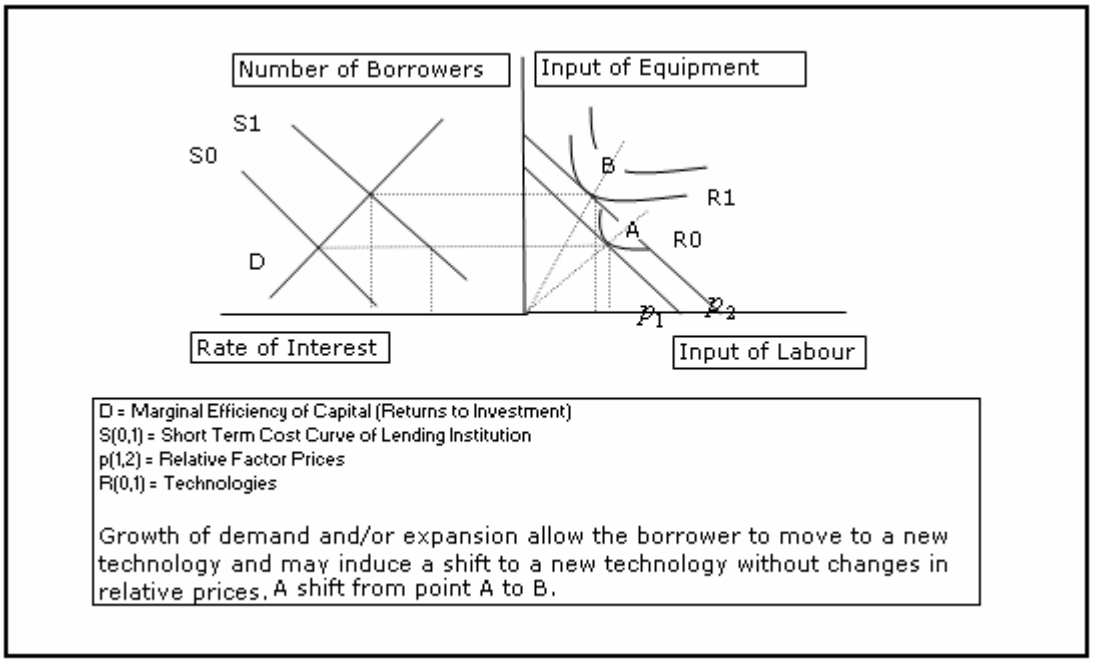
2.2.4 Production Decisions and Choice of Technology

In this section we look closer at investment decisions in terms of production and choice of technology and we build on Hulme and Mosley (1996, chapter 4). One major issue that affects choice of technology and production decisions at low income levels is vulnerability. Vulnerability influences the willingness to engage in higher return technologies as these, by rule, increase risk. We begin by examining how credit affects the income-generation function and choice of technology. The choice of technology includes employment and all other factors of production. Finally, we look at the employment rate which is affected by the labour-capital ratio. Employment is a particular concern in developing countries with both high population growth and unemployment rates (Todaro and Smith, 2003 p. 332)

We use the investment function to the left in figure 2, section 2.2.3, and rotate it anti-clockwise. The choice of technology is represented in the right-hand figure.

[33] For example, progressive lending used in microfinance means that borrowers start-up small and by progressive loan sizes turn businesses into enterprises (Armendáriz and Morduch, 2005 p. 122).

Figure 3. Credit and Choice of Technology



Source: Hulme and Mosley, 1996 p. 87. Author's modifications

Figure 3 shows that the income-generating activities depend on several factors. First of all, income-generation depends on the rate at which it is possible for the borrower to access credit. The rate of access is affected by both supply-side factors and demand-side factors. On the supply-side, the rate of access depends on costs and default rates in the financial market that shift the short-run cost curve (left hand figure). On the demand-side, it is affected by the growth of demand for the produced output. That is, the returns to investment. The rate of access is represented in the right-hand figure by shifts in the budget constraints *p1* and *p2*. Secondly, income-generating activities depend on the available technologies that the borrower can use, represented by isoquants R0 and R1, and the relative prices of capital, labour and inputs (the budget constraints *p*1 and *p*2).

The choice of technology, and by this any generation of new employment, depends on the wage of labour relative to other factor prices. In figure 3, a decrease in the cost of credit leads to an increase in capital-intensity and a decrease in the use of labour. However, the effect is dependent on the slope of the budget constraint and the available technologies. Furthermore, output prices may affect the decision of technology (Hulme and Mosley, 1996, p. 34, 102).

The study by Hulme and Mosley (1996)[34] found that the lending institutions that managed to decrease costs and expand their client base, a shift of the supply-curve to the right in

[34] Their case study encompasses seven countries with different regional belonging (Bolivia, Indonesia, India, Bangladesh, Sri Lanka, Kenya and Malawi).

figure 3 (see also section 2.2.3), had the highest margin of benefit per client. A short-term productive impact for the client had a direct relation to the financial performance of the institution. Access to investment in new technology enabled by credit was also related to growth in income. So was growth of demand in the local economy which affects output prices. The generated income was higher in faster growing countries. Although investment in new technology was related, possibilities for investment opportunities seemed to be limited and varied depending on sector. (p. 91). Furthermore, technology-enhancing investment that increase risk seems to affect the impact credit may have on technology and productivity.

We introduce vulnerability. Figure 3 shows that the introduction of credit moves the budget constraint outwards, allowing borrowers to access new technology. However, due to risk, credit can result in capital widening or capital deepening. In the former case, capital purchases are within an existing technology and allow the buyer to retain constant returns per unit of capital. In the latter case, the purchase of new technology adds to the capital stock and improves productivity.

Hulme and Mosley (1996 p. 92) found that credit for capital deepening increased returns but that the trade-off was a higher risk. A risk which clients close to subsistence levels seldom can afford. The poor can be differentiated into two groups. The first group consisting of "core poor" which are those that have not moved above a minimum economic threshold, and a second group of those above this threshold[35]. (Hulme and Mosley, 1996 p. 132) Below the minimum economic threshold, *protectional* financial services are needed which is credit that decreases vulnerability. Above this threshold, *promotional* financial services can be taken advantage of. Thus, poorer clients (core poor) tend to use credit for capital widening which means unchanged income and unaltered risk[36], the protectional role of credit. Richer clients, that can afford to carry higher risks, may use credit for capital deepening, the promotional role of credit.

The effect of vulnerability and loans for capital deepening or capital widening will influence the production and choice of technology in figure 3. A large amount of protectional credit shifts the budget constraint outwards for the richer clients that can afford the risk. Meanwhile a large amount of promotional credit would rotate the budget constraint in favour of labour-intensive production (Hulme and Mosley, 1996 p. 100, 101).

This is what their study shows. "Richer borrowers, amongst the low-income clientele (author's note), are more likely to borrow for new technology" and "growth of productive assets was higher amongst borrowers than amongst non-borrowers in all schemes; but not

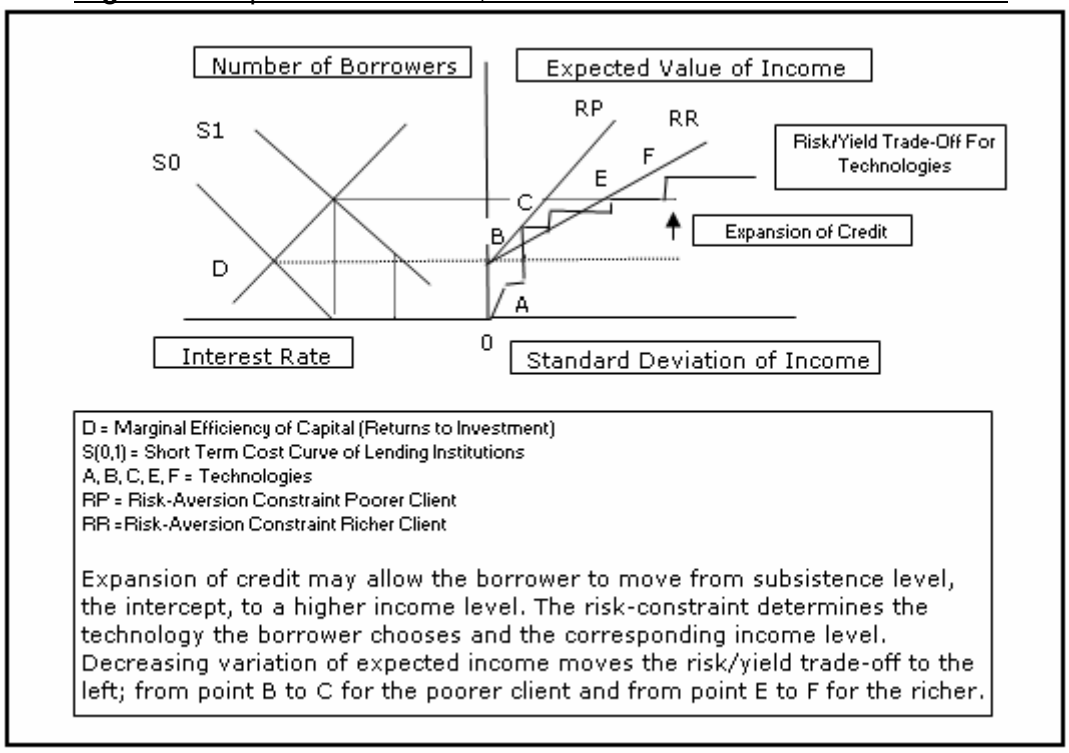
[35] The minimum economic threshold is characterized by a "reliable income, freedom from pressing debt, sufficient health to avoid incapacitating illness, freedom from imminent contingencies and sufficient resources (such as savings, non-essential convertible assets and social entitlements) to cope with problems when they arise (Hulme and Mosley, 1997 p. 132)

[36] Or even the use of credit to reduce capitalization and therefore risk (Hulme and Mosley, 1996 p. 92).

noticeable among schemes lending to richer borrowers". However, the size of growth in productive assets was small; credit for technology improvements was the exception and protectional credit was by far more popular[37]. (p. 93, 95) This is further underlined by other impact studies, that the very poor tend to use credit for consumption smoothing and credit constraint alleviation rather than productive ends (Hartaska and Hartmann 2006 p. 157).

We show this situation in figure 4. The degree of risk-aversion is represented by the risk-aversion constraints RR for the richer client and RP for the poorer client. The degree of risk-aversion will influence the willingness to take on new technology. The technologies are represented by A, B, C, E and F. Credit to a very poor client may help to move from B to C, an increase in income but on the same risk/yield trade off. The step for a richer client with a smaller degree of risk-aversion may lead to a higher level of income-generation and a different technology.

Figure 4. Expansion of Credit, Income-Generation and Risk-Aversion



Source: Hulme and Mosley, 1996 p. 93 Author's modifications.

The above figure shows the differences in incomes and technology that may occur due to vulnerability. However, income-generation may influence the attitude to risk and thus the willingness to invest in new riskier investment. "A series of loan operations" that successfully improves income, such as capital widening or consumption loans, can rotate the risk-aversion constraint south-eastwardly. (Hulme and Mosley, 1996 p. 95). Also, the

[37] Except for one of the studied cases, the proportion of borrowers that used credit for capital deepening was a third or less (Hulme and Mosley, 1996 p. 95)

risk/yield trade-off can move through the introduction of insurance or improvements in infrastructure. The result is a decrease in the variation of income, a move to the left of the risk/yield line to the right in figure 4.

Figure 4 also shows what Hulme and Mosley (1996 p. 104) conclude. In the medium term, income-generating credit seems to be subject to plateaus, where income increases through technology, production, and employment[38] up to a certain plateau where it stops in a steady-state. This situation corresponds to the non-concave function in figure 1 in section 2.2.2. Hulme and Mosley (1996 p. 108, 114) argue that the client may move up a step on the income ladder but to keep moving up the ladder complementary skills and possibilities are needed. Other variables, such as borrowers' abilities (e.g. entrepreneurial skills), initial economic and social position as well as the economic environment influence the clients' situation[39].

Furthermore, structural factors seem to be constraining income-generation. The structural factors are dependent on changes in the wider economy and hold back demand for output thereby affecting returns to investment. The result of lack of demand and expansion of credit may result in a supply of output where the rate of return is lower than the cost of credit in some sectors. Also, some of the income-generation might be a redistribution of income from existing producers to new producers. (Quasem 1991, in Hulme and Mosley, 1996 p. 119). Osmani (1989, in Hulme and Mosley, 1996 p. 118, 119) notes that in rural economies with goods and services not traded internationally and only marginally traded into urban areas, the quantity of production and the returns are likely to be constrained by demand. Investment opportunities are limited and seem "likely to remain so unless the formal economy experiences substantial growth". (Hulme and Mosley, 1996 p. 133)

Hence, the microfinance clients' income-generation is not only restricted by supply-side factors but they also face a different risk-constraint and individual constraints. The market that the clients face imposes further restrictions on the income-generating possibilities.

In this section, we looked at expanding credit and the impact of credit on income-generation. Financial services however include other products and we turn to look at the role of savings. We also examine some specific traits of microfinance clients.

[38] Impact on employment for high/low impact schemes was 5.6%/1.9% (Hulme and Mosley, 1996 p. 118)
[39] See also Coleman (1999, in Meyer and Nagarajan, 2006 p. 173) suggesting that the small impact could be due to that small loans provided by village banks add little to the households' productive assets and that borrowers seldom had an investment plan to pursue.

2.2.5 Savings and the Microfinance Agents

In the above section, we examined how credit may be expanded by a lending institution, and the effects on production and choice of technology. In this section we add savings to the financial products offered and look at some further characteristics of microfinance clients.

Savings have recently been recognised as important for low-income earners. One reason for being neglected is the assumption of "too poor to save", meaning that at subsistence level there is little room left to save. Another reason is that informal sources for savings are adequate and plentiful, such as in business or livestock. However, evidence from practitioners show that there is demand for savings facilities[40] and that saving takes place at lower-income levels (Armendáriz and Morduch, 2005 p. 148, 159, 160, 161). We will now examine the role of savings.

Savings held in risky businesses or livestock may prove inconvenient when hardship hits as this type of saving may be difficult to liquidate, specifically if a whole locality is hit by disaster as the market may become oversupplied by assets used as savings instruments[41]. (Armendáriz and Morduch, 2005 p. 160). Furthermore, provision of savings may act in the same way as credit; to build up collateral, smooth consumption, finance large investments, and self-insure against shocks (p. 150).

Savings may also matter in terms of rotating the risk-aversion constraint (see section 2.2.2). An improvement in income may leave space for saving and saving could buffer the increased risk-taking that higher return projects represent, allowing the borrower to engage in new technology.

The role of savings also brings up the issue of microdebt (debt trap). With loans come obligations and many low income earners are highly vulnerable. If disaster hits, microloans would actually increase vulnerability if repayment is impossible, leaving the client more destitute. It may also turn into a spiral of debt where borrowers need to turn to other lenders to pay off the first one until the debt gets out of hand. (Armendáriz and Morduch, 2005 p. 170, 171) Thus, savings facilities may have an equally important role for the microfinance client.

We look closer at the micro-entrepreneur. The households studied by Hulme and Mosely (1997 p. 108) are not only micro-enterprises, self-employed or labouring but they have diversified their income sources and rely on many activities. They seem to be "closer to the

[40] For example, the organisation *Safe*Save in Dhaka and Bank Rakyat Indonesia have successfully experimented with saving techniques. Also, costly informal deposit-takers are still demanded despite negative interest rates (Armendáriz and Morduch, 2005 p. 147, 161)

[41] See also section 2.1.2 on investment and illiquidity

manager of a complex portfolio than the manager of a single-product firm". Their findings also show different utilities for different groups. That is, income-generating credit is not scale-neutral and upper and middle-income poor benefit more whilst core poor benefit little[42] (p. 113).

Differences are further found in terms of group lending and individual lending, both techniques used in microfinance[43] (Armendáriz and Morduch, 2005 p. 120). Lenders serving individuals tend to be smaller and have a "better-off" clientele. These lenders serve a smaller proportion of women and charge a lower interest rate due to lower costs relative to loan size. Frequent repayment instalments, a common mechanism to ensure repayment of loan contracts, tend to be less frequent for richer clients. The basis for this is that opportunity cost of time is higher for richer clients and revenues less frequent. The frequent repayment mechanism is a departure from traditional banking where repayment of investment loans normally begins when returns are starting to realise (p. 129).

Savings bring up some additional aspects of income-generating possibilities. The differences between microfinance clients, particularly with reference to risk, imply that credit may not serve all low-income borrowers equally.

We will end our exploration of the micro-level by discussing some limitations of microfinance clients as prospective entrepreneurs and the effect of successful entrance of microfinance institutions into the financial market.

2.2.6 Some Limitations and the Effect of Competition in the Financial Sector

We have now seen how a lending institution may enter the informal market and the effect on income and technology. Another aspect is the effect of increased competition on financial sector development that may have a negative effect on the mechanisms of microfinance. We will also include some criticism against the assumption of the microfinance client as a prospective entrepreneur.

Competition increases both with informal moneylenders and, as a result of commercialisation, between other financial intermediaries in the formal sector (see section 2.2.2 and 2.2.3). Rhyne and Peck (1999 p. 11, 12) note that microfinance has succeeded in showing that there were profits to be made at the lower income-level. This has induced new entrants to enter this market, such as consumer lenders, state-owned banks and commercial

[42] Instead, other assistance strategies should be pursued for core poor and other types of financial services (Hulme and Mosley, 1997 p. 113).
[43] Building on comparative data from the *Microbanking Bulletin* of 147 programs.

banks starting microfinance branches.

Competition however may have negative effects in this market, such as when it undermines the lenders' mechanisms to reduce costs and probability of default. Armendáriz and Morduch (2005 p. 124) point out that increasing competition without coordination increases the number of sources available for the borrower, thereby increasing the risk of default. Competition makes it easier for clients to switch bank which induces the bank to expect a shorter relationship with the client (Andersen and Tarp, 2003 p. 196). Relationship banking (repeated contracting) allows the bank to be flexible and offer client-specific contracts. The expectation of a shorter relationship induces the bank to decrease its investments in specific client information and the range of possible contracts decreases[44]. (*ibid*) Thus, the effect of increased competition in the financial sector underlines the importance of coordination and possible adjustments in the lending technologies of microfinance institutions.

Finally, Dichter (2006 p. 4) raises a critical voice against the potential of microfinance. The main issue is the difference between credit for enterprise growth, productivity and employment, and credit for consumption smoothing and whether the latter can improve income levels sufficiently. Furthermore, it is suggested that those who have the ability to use credit for productive purposes need higher amounts and longer repayment terms.

Historically, Dichter (2006, p. 2, 3) notes that "the development of the advanced industrial countries did not depend on the average middle class or poor person having access to credit. The rise of the middle class […] depended upon economic growth – the expansion of the economy – which created jobs which led to buying power. And second, the large majority of people in the North are not entrepreneurs and never will be. […] If the large majority of us in the advanced economies are not entrepreneurs, and have had in our past little sophisticated contact with financial services, and if most of us use credit, when we do, for consumption, why do we make the assumption that in the developing countries, the poor are budding entrepreneurs who will use credit wisely for investment in income production?" (*ibid*).

This suggests that not all borrowers can convert financial capital directly to productive uses and the effect of finance for low-income levels is modest in terms of macro-level income-generation. Furthermore, we have seen that increased competition in the microfinance market may have adverse effects in the absence of regulation and coordination.

[44] Furthermore, they note that competition "diminishes the ability of borrowers and lenders to share surpluses intertemporally" and "it becomes more difficult for banks to subsidize new borrowers in earlier periods in return for a share of the rents in future periods" (Andersen and Tarp, 2003 p. 196)

2.2.7 Chapter Discussion

In this chapter, we have examined micro-level financial market imperfections and how to solve these to ignite income-generation and financial development.

The economic agent may increase income faster through investment by engaging in the financial system. According to the principle of marginal returns to capital, returns to entrepreneurs with little capital are higher. However, expansion of formal credit to these prospective low income clients has proven difficult both due to imperfections inherent in financial markets and the lack of collateral to solve these. Weak legal enforcement acts to further aggravate this situation.

Microfinance, the provision of financial services for a poorer clientele, has managed to solve these imperfections by utilising mechanisms used in the informal sector, and has the prospect of providing financial services more efficiently. The increased efficiency expands the amount of projects funded, that due to risk and externalities fall short of the private equilibrium. We show that a successful entrance of a lending institution may lower costs, increase production and remove barriers to reach new technology.

However, the impact of credit on income seems to be subject to plateaus where it remains and growth of productive assets is small. When vulnerability is added to the picture, we see that risk-aversion may affect the decision to take on new, riskier, technology in the lower-income clientele.

Within this income level, two groups can be discerned. The very poor that need to cross a certain economic threshold to afford the increase in risk and the less poor that are in a better position to manage risk. Hence, protectional credit, to keep capital returns constant and to smooth consumption tends to be important for the very poor. Promotional credit, used to increase capitalisation and productivity, benefits the less poor. Thus, the marginal returns function may then be non-concave where less poor have higher marginal returns than very poor. These two groups seem also to be subject to different terms of borrowing, individual and group lending, as well as different size of loans and frequency of repayment.

Furthermore, the chapter brings up lack of demand for output which constrains income-generation as returns to investment are affected. Complementary skills, structural factors and growth in the wider economy may further affect demand constraints, specifically in certain sectors.

Also, the role of role of savings may be as important as credit as it for one decreases vulnerability and risks of a credit-related trap and secondly, fills the functions that credit does. However, this depends both on the assumption of being too poor to initially save, and the time-frame of accumulating resources.

Finally, the criticism of the potential of microfinance to make a significant impact on the macro-level relates to the abilities of the client to productively use credit which we have seen is influenced by how poor the client is. We now link the micro-level features to the macro-level findings in the previous chapter. The next chapter introduces a picture of microfinance channels to economic growth as revealed by the findings in this and the previous chapter.

2.3 Microfinance, the Financial System and Economic Growth

In this chapter, we start by discussing some features from the above chapters and then we present a picture framing the microfinance channels to economic growth and the financial system. The picture shows two main channels to economic growth. An indirect channel of expansion of the financial system, which affects the growth variables discussed in section 2.1.2. A direct channel of expansion of real activity of the micro-enterprises and the sectors of relevance to microfinance. We also discuss some additional aspects that have implications for microfinance to affect growth.

2.3.1 Features from the Theoretical Background

In this section, we aim to connect the macro-and the micro-levels to see if, and what the connections may be. We do this by using features from the two levels and discussing how they could be interlinked.

Economic growth literature shows that there is an interaction between financial system development and economic growth where real activity and financial intermediation are interlinked (section 2.1.1). No consensus seems to exist on the directionality of the relationship but based on the findings we assume that there is a bi-directionality. Also, both the financial system and economic growth may stagnate and "get stuck" in an undesirable equilibrium by the existence of multiple equilibria. A poverty trap arises due to imperfections in the financial market and lack of borrowing for human capital. Similarly, a development trap, due to costs in financial intermediation that cannot be afforded by initially poor and slow growing countries, is found. Using microfinance, we turn to igniting real activity by starting with financial intermediation at the lower-income level, previously left to the informal moneylenders.

The unwillingness of formal financial intermediaries to enter this market is explained by the prevailing risks in financial markets, the lack of collateral and legal enforcement. These factors lead to a shortfall in the desirable social equilibrium of financed projects. The result of successful microfinance lending is found to affect income-generation and to increase income and growth of productive assets. However, there seems to be an economic threshold that needs to be passed for credit to have an effect on capital deepening and the very poor seem to benefit little from credit. This is in line with our findings in section 2.1.3, where a certain threshold needs to be crossed in a country for finance to exert its desirable impact.

Also, the impact of credit expansion on income, production, and the willingness to take on riskier projects is limited. Lack of demand for output due to structural factors and the abilities of the borrower to successfully use credit for income-enhancement follow the educational prerequisites as well as the influence of infrastructure and policy wedges in section 2.1.3. Market formation for trading output and for specialisation, specifically with enhanced technology, are also factors likely to affect the willingness to take on riskier projects. Specialisation would mean moving away from the diversified livelihood of the microfinance agents. With lack of functioning markets and in a highly risky environment, the client may opt for a plateau where risk-taking is not increased and a technology that is less risky.

These factors, that negatively affect expected returns, may at a certain economic income decrease incentives to engage in the financial system or, for those that do engage in the financial system, only up to a certain point. The emphasis on effects of risks in the credit market points to consumption loans and savings. Consumption loans may be interpreted as having little impact on income but could assist when income is fluctuating. To decrease the risk of liquidating already undertaken illiquid investment or to increase investment in illiquid assets, as found in section 2.1.2. Savings could fill the same function and also serve as collateral.

Savings may also change the willingness to take on riskier projects. The presence of risk on savings rates would be positive in the macro-level growth model in section 2.1.2. The need for precautionary savings increases with risk and leads to positive influences on economic growth. However, the effect would have to be weighed against the riskiness that affects the expected rate of return to investment and the technology that the client would like to engage in. It further needs to address how savings are held if there is no adequate provision of savings facilities.

In the sections above, we have not defined microfinance as formal or informal institutions. The aspect described above is that by lowering costs (and interest rates), more projects can be undertaken and an income-generating circle created. Thus, expansion of the financial system can be seen through increased activity in the microfinance sector. Or, assuming that the formal financial sector is more attractive with lower interest rates and larger loans, once a certain level of income is reached, the client moves from microfinance to the formal sector, enlarging the formal financial sector.

This is also the case when comparing the size and type of loans in the formal sector, inducing us to assume that there is a desired step-wise movement in terms of income-generation. From informal finance to microfinance and from microfinance to formal finance. However, this step does not exclude that the client may borrow from all sources at the same or at different times, but that the client, once it has the possibility may choose from the different sources according to preference. (see Rhyne and Peck, 1999 p. 19)

We have further seen that liberalisation may stimulate the allocation of resources more efficiently (section 2.1.3). However, lack of an appropriate institutional and regulatory setting may have negative consequences for competition. This is specifically so in microfinance, where some of the mechanisms to solve market imperfections rely on close relationships with the client and the threat of cutting off future lending, a threat which is effective only if the client cannot borrow from other sources (section 2.2.3). This situation could be solved by coordination and sharing information collected on clients.

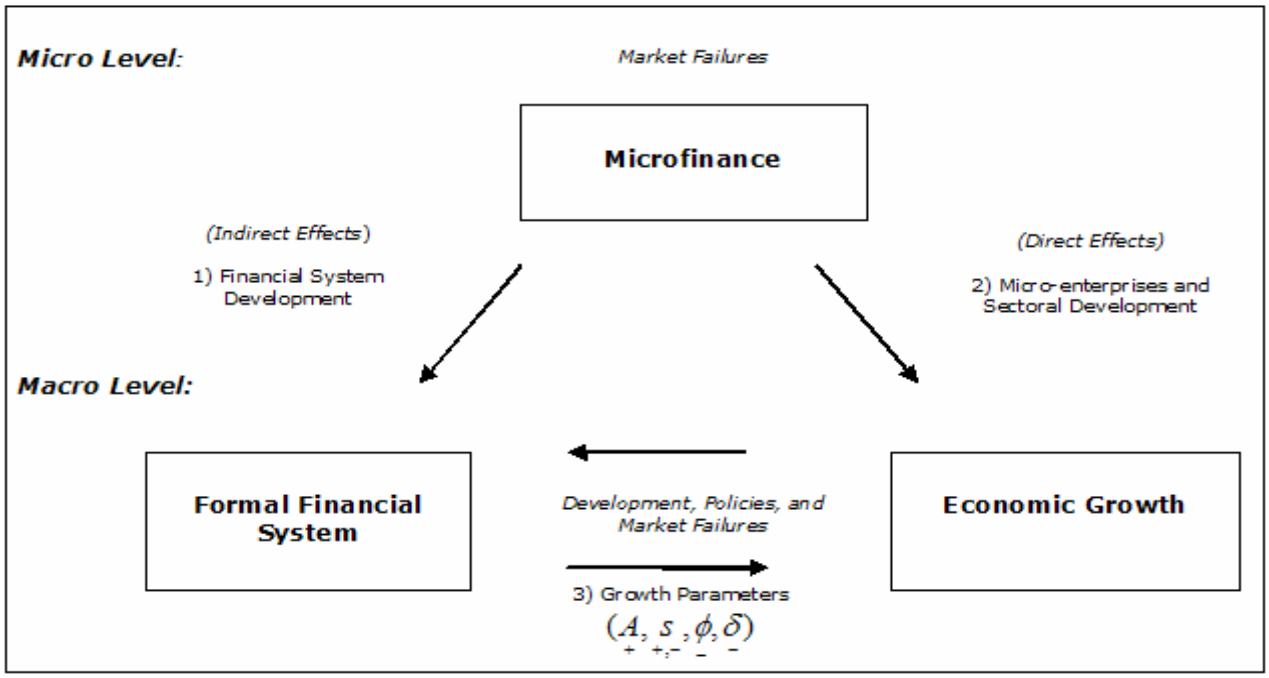
The features of the macro-level financial system and the micro-level characteristics show a complex picture and a number of obstacles and possibilities to significantly impact on economic growth. We now put together our findings and show through what channels microfinance may influence economic growth.

2.3.2 A Theoretical Framework of Microfinance Channels to Economic Growth

In this section we present our theoretical framework. The outline is based both on the findings in chapter one and two and on some features briefly touched upon.

Microfinance may influence economic growth *indirectly*, by expanding the financial sector and affecting the variables A, s,ϕ, δ (section 2.1.2), or *directly* by the expansion of the micro-enterprises and the sectors relevant to these micro-entrepreneurs as shown in figure 5.

Figure 5. Microfinance and Channels to Economic Growth



The above picture incorporates the findings in the above sections. We have examined how microfinance may expand the financial system (link 1) and we have discussed the likely impact by financial intermediation on the growth variables (link 3). We have shown how market failures are solved at the micro-level and the policies and market failures at the macro-level. We have briefly looked at the micro-entrepreneur and touched upon the importance of economic sectors, link 2.

In the next chapter, we will look closer at Bolivia, a country with well-established and competitive microfinance programs. We divide the picture into direct effects, where we look at the micro-enterprises, their markets and sectors of relevance, and indirect effects, where we briefly summarise some key findings on financial development and microfinance.

An important feature of the microfinance clientele in Bolivia is that much of their economic activity takes place in the informal sector. (Marconi and Mosley, 2006, p. 252) The informal sector is often seen as a residual and temporal during the process of formalisation of an economy. However, in developing countries, the informal sector has grown considerably in the last two decades and contributed significantly to the economic production and to employment (UDAPE, 2007). We now examine the links of direct and indirect effects and their implications for economic growth in Bolivia.

3 Findings from Bolivia

3.1 Direct Effects - Micro-Enterprises and Sectoral Development

This chapter examines the link of sectoral development and micro-enterprises to economic growth. As discussed in section 2.3.1, the specific market and sector concerned have importance for income-generation possibilities. We begin by studying the rise of informality and financial liberalisation which gave way for microfinance. We examine the microfinance development which was interlinked with the macro-economic situation in the country and look at the sectoral distribution of economic growth. Finally, we look at flows between informality and formality, and the implications of informality for enterprise growth.

3.1.1 The Economic Crises and the Rise of the Informal Sector Activities

Rhyne (2001 p. 216) notes that "microfinance in Bolivia presents an image of the poor and the informal sector as economic agents." There are a number of factors that contributed to the high level of informal sector activity in Bolivia and the contemporary situation can be traced to the structural adjustment that followed the crisis of 1985.

The informal sector can be defined according to three criteria; 1) the compliance with laws and regulations, 2) illegal activities, 3) representation in the national accounts (Díaz, 2004 p. 15, 16). To this, economic sub-criteria can be added. These include avoidance of labour and market regulations (minimum wage, social benefits), evasion of reporting monetary income to the exchequer and not registering businesses. Other sub-criteria are size of businesses (small-scale firms), and professional title (self-employed, domestic and household workers) (*ibid*). The latter are specifically useful for statistical purposes and we will use both the economic criteria and the informal sector as made up by micro-enterprises, such as occupation, type of business and evasion of registration and taxes.

During the 70s the Bolivian economy experienced a boom fuelled by the favourable terms in the external sector. The economy induced high amounts of foreign borrowing and the political stance welcomed foreign direct investment. However, beginning in the 1980s, the situation changed and the country faced both internal political instability and unfavourable changes in the international economic environment. The latter included rising interest rates,

falling commodity prices, and a decreasing supply of credit. The result was high indebtedness and an economic crisis[45]. (Sachs, 1987 p. 279, Rojas, 2004 p. 80, 81).

The structural reforms introduced in 1985 led to the end of a, by then, 60,000% inflation rate and reforms in both the economy and in politics. Bolivia, a heavily state-industrialised economy with state-owned banks, interest-rate repression, and military dictatorship[46], underwent profound reforms of macroeconomic stabilisation and market liberalisation[47] (Toranza and Wiggins, 2007 p. 3). The reforms also led to closure of the public mines[48] and cuts in other state employment. The lack of an industrialisation process able to absorb the displaced public sector employees led to a rapidly increasing urban informal sector and self-employment[49]. (Rojas, 2004 p. 81, Marconi and Mosely, 2006 p. 238) The changes further led to a redistribution of economic sectoral activities with a recessing secondary sector, in terms of manufacturing and artisan activities, and an expansion of tertiary sector activities, such as services, commerce, transportation and financial activities (Rojas, 2004 p. 82, 83, Marconi and Mosely, 2006 p. 238).

The second economic crisis was led by external forces driven by a general economic crisis in South America. It originated with devaluation and contraction in the Brazilian economy and spread to Argentina and on to bordering countries, such as Bolivia. The reduced demand and worsening terms of trade for Bolivia led to a national economic crisis during the period 1998-2002. (Rhyne, 2001 p. 182, Marconi and Mosley, 2006). This period brought with it reduced demand also for the economic agents in the informal sector. The reduced demand was a result of decreased internal consumption due to the deteriorated situation in neighbouring countries, eradication of coca plantations and a new Customs Law (Arriola, 2003 p. 4)

The size of the informal sector relative to GDP has been estimated to be around 65.6 % by Loyaza (1997) and 67.1 % by Schneider and Klinglmair (2003) (both in Díaz, 2004 p. 23, 24). Informality as defined by the size and character of economic units that constitute the informal sector, often referred to micro-enterprises, makes up a large share of the enterprise

[45] The inflation rate reached 300% annually (1981-82), real GNP was declining and there was no further access to borrowing either in private international markets or from the World Bank and IMF. By the mid-80s, inflation reached its peak and the Government ceased in principle all debt servicing repayments. (Sachs, 1987 p. 280, 281)

[46] Democracy was reinstalled in 1982 at the onset of the economic crisis (Toranzo and Wiggins, 2007 p. 3)

[47] The New Economic Policy included fiscal reform, trade liberalization, internal price decontrol, decentralization or privatization of public enterprises, devaluation and subsequent managed exchange rate float and commitment to full currency convertibility on current and capital accounts, reduction in the fiscal deficit, a tax overhaul and rescheduling of government debt to foreign official creditors. (Sachs, 1987 p. 281)

[48] The revolution of 1952 had led to an economic model where the State played a highly interventionist role and had also led to the nationalisation of the mines. (Rojas, 2007 p. 80) The closure of the mines due to a collapse in tin prices led to 21,000 mine workers losing their jobs (Toranza and Wiggins, 2007 p. 3)

[49] Informality in Bolivia had begun increasing already with the changes of the Revolution of 1952 which had induced migration towards the economic centers (La Paz, Santa Cruz and Cochabamba). In the 70s, the growth in informality had continued, in particular illegal activities. (Rojas, 2004 p. 80)

structure. The informal micro-enterprises are heterogeneous economic units formed by the workforce left out of the modern economic sector. They are characterised by inexistent division between the owner of capital and the workers and a small number of employees. They use simple work techniques and processes and tend to have little access to productive resources[50]. (Berthoud and Milligan, 1995 p. 12) As we can see from table 1, the Bolivian economy has a high proportion of micro-enterprises employing a large segment of the population but they make up a small share of GDP.

Table 1. The Enterprise Structure in Bolivia

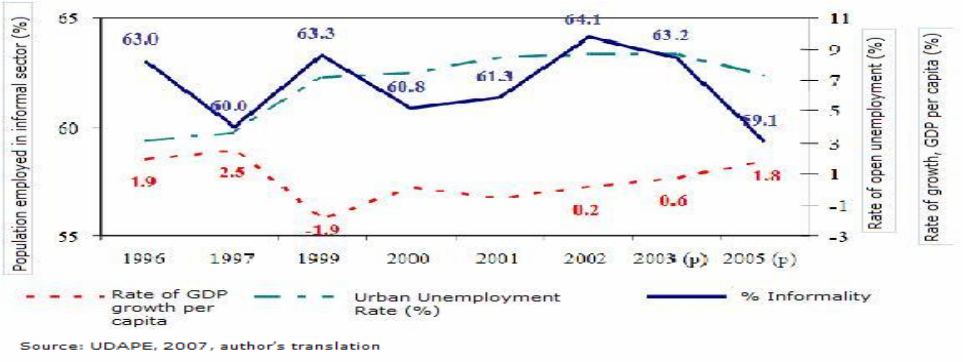
Total Number of Enterprises: 501 567	**Number of Enterprises (%)**	**Structure of Employment (%)**	**GDP Participation (%)**
Large Enterprises	0.05	7	65
Small and Medium Enterprises	0.35	10	10
Micro-enterprises	9.6*	83**	25

*66 self-employed; **33 sub-employed, a group that is associated with short working days, and/or the perception of low income. Sources: FUNDES, Revisión de la EBRP 2004-2007 and Secretaria Mexicana de Economía, 2003. In Jiménez, 2005

The above table shows both the low output per worker in the micro-enterprises, which we will look at closer in section 3.1.3, and the importance of micro-enterprises for the economy. This small business sector is principally served by microfinance institutions (Marconi and Mosley, 2006 p. 238).

One hypothesis of the informal sector is that it tends to rise when economic growth is slow and fall when economic growth is faster. However, Verderda (ILO, in UDAPE, 2007) suggests that the informal sector is in a stationary state. In terms of economic units constituting the informal sector, the trend in figure 6 shows that during the last ten years in Bolivia the informal sector seems to have expanded when GDP has fallen and contracted when GDP has increased (UDAPE, 2007). We will look closer at the informal sector flows in section 3.1.4.

Figure 6. Informality and GDP growth



Source: UDAPE, 2007, author's translation

[50] Micro-enterprises consist of up to 10 employees and with an annual retail of no more than US$15.000 (Departamento de Asesoría Financiera, 2001 p. 6). In national accounts, semi-enterprises consist of up to five people, UDAPE, 2007. However, often the definition of micro-enterprises is blurred and studies divide the measurement differently. As we are concerned mainly with the concept as agents of microfinance, we use micro- and small-enterprises intermittently according to the literature and do not go any further into the definition.

Despite a very small decrease the last few years, the informal sector seems to have been fairly stable as can be seen in the above figure.

Informality has been influenced by increasing interdependence during the last 20 years, featured during the second economic crisis. External forces affected the sector through decreased money flow to the country, re-migration of Bolivian workers from Argentina, and reduced demand for the goods and services produced by the economic agents. (Rojas, 2005 p. 82) Another feature of Bolivian informality is the correlation between the development of microcredit and a demographic explosion of informal employment (Díaz, 2004 p. 25).

The structural adjustment led to a large, urban informal sector with excess demand for financial services that the traditional banks did not respond to (Gonzalez, 2004). A study by Vogelsang (2001, in Rojas, 2004 p. 25) following an investigation by Caja Los Andes[51] shows that between January 1999 and June 2000, 98 % of microfinance clients owned their own businesses and that 0.74% of these where formally registered. We now turn to the microfinance development.

3.1.2 The Microfinance Development in Bolivia

Microfinance was preceded by the changes in the Bolivian economy which followed the structural adjustment. The development of microfinance is closely linked to the macroeconomic situation in the country (Gonzalez, 2004). In appendix A.2, we present the Financial Sector Entities and Microfinance Institutions in Bolivia. Four stages in the microfinance development can be discerned.

The *first* stage of microfinance began with the crisis in 1985. The initialisation was a consequence of the structural adjustment programs, that had left many previously state employed out of work, and financial liberalisation (see section 3.1.1). Other conditions that opened up for private initiatives were the failure of state-owned banks to improve access to financial services. Furthermore, absence of prudential regulations and supervision had led to distrust in the formal financial sector (Gonzalez, 2004).

The expansion of the informal sector had increased demand for financial services which were not being met by formal financial intermediaries whilst the informal money lending sources offered loans at high interest rates. NGOs saw the potentials of micro- and small-enterprises and developed appropriate lending technologies for these economic agents to be incorporated into the financial sector. (PROFIN, 2007).

[51] One of the largest microfinance institutions, now converted to a microfinance bank (see appendix A.2, Table 11).

The *second* period, 1992-1998, featured formalisation and market expansion for the NGOs working with micro-credit. The process of formalization begun in 1992 with PRODEM converting itself into BancoSol, a commercial microfinance bank. In 1995, Ley 24000 was introduced, which allowed NGOs to be converted into Fondos Financieros Privados (FFPs). FFPs were allowed to collect savings and became regulated and supervised under the Superintendency of Banks (SBEF). These years experienced a relatively stable economic and political environment that led to increased demand for financial services from the micro-enterprises. (PROFIN, 2007) Between 1992 and 1997, the number of micro-credit clients increased fifteen times (from 20,000 to 331,000) and the total portfolio reached US$342 million in 1997[52].

Profits and rapid growth in the microfinance sector induced new entrants into the market and during these years a number of consumer-credit FFPs came into existence (Marconi and Mosley, 2006 p. 239). These institutions offered larger sums as loans and mainly loans for consumer durables instead of business assets. They also used less thorough appraisal techniques. The increased competition from these consumer-credit FFPs induced more established microfinance institutions to follow. The result was deteriorating portfolios, increases in borrowers' overall debt-service ratios on a market which was, by now, "over-exposed". There was also a bias towards credit and less interest in the mobilisation of savings. This was the situation when the recession hit Bolivia. (*ibid*)

In 1998 – 1999, the microfinance institutions went through their *third* stage initialised by the second Bolivian economic crisis. The combination of reduced demand that followed for small-scale lenders, where incomes did not rise further nor remain stable, and the "over-indebtedness" resulted in difficulties in repaying loans (Arriola, 2003 p. 4). The political stance by the Government to condone loans had further consequences on repayment moral (Marconi and Mosley, 2006 p. 237). Two of the consumer-credit FFPs expired[53] and arrear rates increased for both regulated and unregulated microfinance institutions from 4.5% to 11.8% whilst the number of clients decreased by 7.8% between 1997 and 1999 (PROFIN, 2007). However, the performance in the microfinance sector was better than in the banking sector and other financial entities. Also, not all microfinance institutions showed the same deterioration, which was found to be due to different technologies and institutional design. (Gonzalez, 2004, Marconi and Mosley, 2006 p. 241, 242)

The *fourth* stage, begun in 2000, was a response to the crisis and induced changes in the traditional way of making business. The result was market expansion to include new segments, such as rural areas, wage earners, and small- and medium enterprises. New products, such as different types of credit and savings products, remittances, national and international transfers, were added. Improved prudence in lending, better auditing and risk coping methods improved the situation for the microfinance institutions.

[52] Default rates were maintained at 2.5 to 3% and the number of offices grew from 30 to 268 (PROFIN, 2007)
[53] ACCESO and FASSIL.

The changes contributed to that the microfinance institutions better coped with the crisis compared to the other financial entities. (PROFIN, 2007) Between 1999 and 2006, the total portfolio of microfinance institutions increased by 172% whilst in the banking system it decreased by 72%. The regulated microfinance institutions showed arrear rates of 2.5%, the unregulated 7.4% and the banking sector 11.51%. Furthermore, mid-2006 showed that, together, the microfinance institutions had 580,000 borrowers which represented 71% of all clients involved in the national financial system[54]. (PROFIN, 2007)

Although accounting for most of the clients, the microfinance institutions hold a smaller share of the total portfolio in the financial system. In 1997, banks accounted for 83% whilst the regulated microfinance institutions held 3% (excluding the consumer credit FFPs). This figure in 2006 was 59% for banks and 19% for the regulated microfinance institutions. Including non-regulated microfinance institutions, the microfinance institutions held together 4% in 1997 and 22% in 2006. (González and Villafani, 2006 p. 53) Thus, there has been a rapid growth in the microfinance sector during the last ten years. Meanwhile, the banking sector has experienced difficulties.

Gonzalez (2004) underlines the importance of the macroeconomy for microfinance performance as it affects 1) confidence which influence the growth of savings, 2) business opportunities that influence the demand and supply of credit, and 3) systematic risk which has consequences for default rates. Table 2 shows the annual rate of economic growth during five-year periods in Bolivia. The economic growth figures show the ups and downs which affected both microfinance clients and the performance of microfinance institutions.

Table 2. Annual Rates of GDP Growth (%)
(in 1991 Bs)

1980-1985	1985-1990	1990-1995	1995-2000	2000-2005	Total period (1980-2005)
-3.9	0.1	1.5	0.5	0.2	-0.3

Source: Morales, 2007 p. 14

The rapid expansion of microfinance during the second stage was aided by a stable macroeconomic situation and economic growth (González, 2004). The economic recession occurred when the financial market experienced rapid growth which led to a slowdown in their growth and in the end contraction. Meanwhile, the changes in the regulatory setting which affected the microfinance clients' activities, such as the Customs Law[55], coca eradication and tax on financial transfers, aggravated the situation for the microfinance institutions (González and Villafani, 2006 p. 47).

Furthermore, the recession hit the country's economic sectors unevenly disfavoring micro-

[54] Additionally, the number of offices in the country grew to 469, with 50% of these in rural areas. However, it is the unregulated microfinance institutions that have the highest presence in the rural area.
[55] The Customs Law of 2000 radically reduced customs duties on a whole range of consumer goods, particularly goods of low-income consumption, such as second-hand clothes. This destroyed the market for manufacturers of these goods.

enterprises[56] (Marconi and Mosley, 2006 p. 250). In the next section, we will look at sectoral distribution of growth and the representation of micro-enterprises in the economic sectors.

3.1.3 The Micro-Enterprise, Sectoral Distribution of Economic Activities and Productivity

In this section, we look at the distribution of micro-enterprises in the sub-sectors of production. As Rhyne (2001) has noted and according to CEDLA, the change in sectoral composition further influences the micro-enterpreneur. We examine the micro-enterprise as characterised by labour-intensity, and productivity and incomes in labour-intensive sectors.

Toranzo and Wiggins (2007 p. vi) note that despite economic growth the last 15 years, little change has occurred in changing incomes at the lower levels. This is a consequence of the distribution of growth where the most dynamic sectors have been oil and gas production and commercial farming. These sectors have a narrow base and are little connected to the rest of the economy. Therefore, they conclude, economic growth seems not to have, and has not, managed to create new employment opportunities nor raise productivity in the informal sector where most of the poor are active. Growth in these narrow sectors is increasingly capital-intensive and due to their high productivity incomes have risen accordingly. Meanwhile growth has been slower and productivity low in the labour-intensive sectors.

First of all, we look at the distribution of employment across economic sectors in the last decade. Rojas (2005 p. 82) suggests that there is a tendency of the economy to move backwards for providers of raw material, as in the 60s and 70s. A tendency that has been influenced also by the prices of these raw materials. That is, a move towards the primary sector and extraction of raw materials with capital-intensive technologies. This process further compresses the secondary sector and increases the tertiary sector. (Rojas, 2005 p. 82) Table 3 shows that in the Bolivian economy, a large share of employment is active in primary activities and tertiary activities. Meanwhile, secondary activities comprises less than a fifth of employment. Most of the employment is in the agriculture, forestry and fishery sector, followed by commerce.

[56] The recession first hit agriculture in 1998, then commerce in 1999, the latter connected to the over-expansion of microfinance. In 2001, the recession had a second wave where it affected all sectors important to microfinance clients (commerce, manufacturing, services and agriculture). (Marconi and Mosley, 2006 p. 250, 251)

Table 3. Employment in Economic Sectors (%)

Sector	Type of Activity	1996	2000	2001	2002	2003	2005(p)
Primary	Agriculture, forestry and fishery	44.5	38.9	41	42.4	40	38.6
	Mining and Hydrocarbons	1.5	1.4	1.1	1	1.2	1.7
	Total	*46*	*40.3*	*42.1*	*43.4*	*41.2*	*40.3*
Secondary	Industry, Manufacturing	11	10.1	10.3	11.2	10.6	10.9
	Electricity, gas and water	0.3	0.5	0.4	0.2	0.4	0.3
	Construction	4.7	6.6	4.8	5.4	6.6	6.5
	Total	*16*	*17.2*	*15.5*	*16.8*	*17.6*	*17.7*
Tertiary	Commerce	19	19.8	20.3	18.8	20.3	18.8
	Transport, storage and communication	4	4.3	4.7	4.6	4.5	6
	Financial services	1.9	3.2	2.6	2.5	2.2	2.8
	Business services	13.2	15	14.7	14	14.2	14.4
	Total	*54.1*	*59.5*	*57.8*	*56.7*	*58.8*	*59.7*

Source: SaxGrInc. 2007 p. 11

Table 4 shows the distribution of employment in informal activities, where informality is defined in terms of size of economic unit. The proportion of informal employment is active in the tertiary sector, a figure that has risen the last decade. Informal employment in manufacturing has fallen whilst the service sector has expanded.

Table 4. Employed Population in Informal Sector (%)

Sector	Type of Activity	1996	2000	2001	2002	2003/2004(p)	2005(p)
Primary	Agriculture, forestry and fishery	8.3	6.6	8.4	8.1	8.4	8.6
	Mining and Hydrocarbons	0.7	0.5	0.3	0.3	0.4	0.4
	Total	*9*	*7.1*	*8.7*	*8.4*	*8.8*	*9*
Secondary	Industry, Manufacturing	19.3	15.2	16.5	19.6	14.5	16
	Electricity, gas and water	0.1	0	0.1	0	0.1	0
	Construction	8.2	11.6	7.7	8	10.2	8
	Total	*27.6*	*26.8*	*24.3*	*27.6*	*24.8*	*24*
Tertiary	Commerce	45.5	44.2	46.7	42.3	44.9	42.9
	Transport, storage and communication	8.3	8.1	8.5	8.2	8.9	11.7
	Financial services	3	3.8	3.8	3.2	3.3	4.6
	Business services	6.7	10	8.2	10.4	9.3	7.8
	Total	*63.5*	*66.1*	*67.2*	*64.1*	*66.4*	*67*

Source: UDAPE, 2007, based on INE's National Household Surveys

Carmen and Jemio (2006 p. 32) note that the preference of informal workers to engage in commerce and services depends on the low start-up levels and skills that are required for informal commercial and service activities[57]. Table 5 shows the destination of credit from microfinance institutions to the different economic sectors. We can see the tendency of a movement towards commerce and services and a fall in the concentration of manufacturing.

[57] According to the survey by the Labour, Cooperatives and Micro-enterprises, 56.4%of larger sized firms prefer other sectors than services and commerce.

Table 5. Destination of Microfinance Portfolio (%), 1996 and 2002

Sector		1996			2002		
		Regulated MFI (3)	Unregulated MFI	Total	Regulated MFI (3)	Unregulated MFI	Total
Primary	Agriculture, Forestry and Fishery	-	54.2	41.1	4.7	37.8	13.1
Secondary	Manufacturing and Production (1)	69.5	15.5	28.7	16.8	12.6	15.7
	Construction (2)	0	0.1	0.1	2.1	4.9	2.8
Tertiary	Commerce	0	23.8	24.0	41.4	29.0	38.1
	Services	24.6	5.1	3.9	30.0	11.8	25.5
Consumption and Other	Consumption	0.0	0.3	0.2	-	0.2	0.1
	Other	5.9	0.9	2.1	5.2	3.7	4.8
Size of Portfolio (in $US)		7,694,326	24,027,855	31,722,181	230,546,661	78,086,782	308,633,443

Source: FINRURAL, Microfinance Dossier, in this data material categorisation of credit destination, this measurement includes (1) mining and hydrocarbons (2) Includes Propriedad de vivienda (3) Here we have excluded the consumer oriented FFPs, FASSIL, ACCESSO and Fortaleza (4) Data is missing on IMPRO and FUNCRESOL these years (see Table 11. The Microfinance Institutions in Bolivia in appendix A.2).

The table above further shows the growth of microfinance portfolios, from around $US 36 million to $US 315 million in total and where the largest increase has been in the regulated microfinance institutions.

We have seen that micro- and small-scale enterprises account for most of the employment in the economy (see table 1). Carmen and Jemio (2006) analyse productivity, incomes and employment by disaggregating labour-intensive sectors and capital-intensive sectors on registered national data 1996 to 2003. They note that the pattern of growth, following reform programs after 1985 and further reforms in the 90s[58], has been driven by economic activities which are non-labour intensive and that account for only 10% of total employment (p. 2).

Among the reforms that were implemented was the capitalisation program which meant privatisation of public enterprises, such as energy, telecommunications, railroads, air transportation, mining, basic services (electricity, water and gas) and financial services. The reforms led to inflows of foreign direct investment to these sectors which led to markedly high productivity increases. For example, natural gas reserves increased tenfold and GDP in the hydrocarbon sector nearly doubled. (*ibid*)

However, the reform program had an uneven distribution and the labour-intensive sector, which held 90% of total employment, benefited little. The flow of foreign direct investment was small, with the exception of construction and manufacturing. This resulted in gaps between labour-intensive sectors and capital-intensive sectors in terms of productivity, incomes, and GDP growth. (Carmen and Jemio, 2006 p. 3, 4)

These differences between the sectors can be seen in the left part of table 6. Carmen and Jemio (2006 p. 3) show that average monthly income in the labour-intensive sector was around a third of the average monthly income in non-labour intensive sectors. Labour productivity in the labour-intensive sector was only 12% of that in non-labour intensive

[58] The reform program in the 90s included pension reform, privatization of main state enterprises, education reform, decentralization of public administration. The goal was to improve the functioning of the economy and its institutions (Carmen and Jemio, 2006 p. 1).

sectors. Furthermore, the agricultural, forestry and fishery sector had the lowest incomes and lowest level of labour productivity whilst manufacturing showed the highest productivity for the labour-intensive sector.

Carmen and Jemio (2006 p. 3) conclude that the reason for the disparity in labour productivity between the sectors is the result of a simultaneous faster GDP growth rate and a slower employment growth in the non-labour intensive sectors. The differences in productivity growth led to differences in real incomes in the sectors. (*ibid*) We can see this relation in the right hand side of table 6

Table 6. Productivity, Employment and Real Incomes

	(1996-2001)						(Average growth rates 1996-2003)			
Sectors	**Labour Intensity (1)**	**Share in Total Employment 2003 (%)**	**Share in Total GDP 2003 (%)**	**Labour Productivity (2)**	**Average Monthly Income (Bs. 1991)**	**Average FDI Flows 1996-2003 (million US$)**	**Employment**	**GDP**	**Productivity**	**Real Incomes**
Labour-intensive sectors	**306.3**	**90.2**	**53.1**	**3.3**	**281**	**202.4**	**1.58**	**2.28**	**0.69**	**-6.51**
Construction	452.2	7.3	2.9	2.2	513	110	8.06	-0.74	-8.15	-3.25
Agriculture, Forestry and Fishery	448.6	39.3	15.8	2.2	144	0.5	-0.28	2.54	2.83	-3.84
Community, social and personal services	420.3	11.3	4.8	2.4	480	0.0	2.30	3.51	1.18	4.62
Commerce	330.6	16.2	8.8	3.0	420	18.5	2.32	2.24	-0.08	-7.72
Restaurant and Hotel	298.3	5.4	3.3	3.4	391	4.2	7.25	2.20	-4,70	-9.67
Manufacturing Industry	111.6	10.8	17.5	9.0	394	69.2	1.31	2.31	0.99	-1.74
Non-labour intensive sectors	**45.0**	**9.8**	**46.9**	**26.5**	**867**	**621.7**	**1.05**	**3.59**	**2.51**	**-0.93**
Transport, Storage and Communication	69.7	4.6	11.8	14.3	706	150.6	3.36	4.13	0.75	-4.85
Business Services	39.4	2.1	9.5	5.4	982	5.4	7.23	4.46	-2.58	-2.77
Public Administration	35.2	1.9	9.8	28.4	950	0	-2.30	3.06	5.48	4.83
Electricity, Gas and Water	32.7	0.4	2.2	30.6	1107	57.7	7.09	2.80	-4.01	-1.75
Financial Services	16.5	0.3	3.7	60.5	1677	39.7	-3.71	4.42	8.43	1.20
Mining and Hydrocarbons	10.1	0.6	10.0	98.8	828	368.3	-11.47	2.61	15.90	4.68
Total	**180.4**	**100**	**100**	**5.5**	**381**	**824.2**	**1.52**	**2.88**	**1.33**	**-4.47**

Source: Carmen and Jemio, 2006 p. 3, 4 (1) Workers per unit of output (2) Output per worker

The above table shows that little improvement has been made in terms of economic growth in the sectors relevant to microfinance. All main sectors where microfinance clients are active, manufacturing, commerce, services and construction, and agriculture, show that incomes have decreased. Only the manufacturing industry shows a higher level of productivity growth. Agriculture, Forestry and Fishery show productivity improvements but this is due to the influence of agro-industrial activities. Carmen and Jemio (2006 p. 22) find that whilst commercial agricultural activities have grown, traditional agricultural activities have remained stagnated. We note that despite the fact that the data does not include unregistered activity of informal microfinance clients, it shows the dynamics of economic growth in the economy.

Microfinance began and has been concentrated mainly in the urban areas. A survey on urban centres in Bolivia by the Ministry of Labour, Cooperatives and Micro-enterprises shows that in 2001, 10.6% of urban micro- and small-scale firms[59] were engaged in manufacturing, 23.8% in services and 61.9% in commerce, all labour-intensive sectors (in Carmen and Jemio, 2006 p. 32). Larger enterprises were more concentrated in other activities, such as mining, hydrocarbons and transport, all non-labour intensive activities.

A closer look at the micro- and small-scale enterprises exhibits differences in educational attainment (Carmen and Jemio, 2006 p. 37). In 2002, the national household survey demonstrated that 45% of agents involved in micro- and small-scale enterprise attained only primary level education, 33% secondary level and 16.2% tertiary education. The figures for medium and large-scale enterprises were 20.2%, 28.8% and 49.8% respectively. 5.1% in micro-and small-scale enterprises did not attain any basic education whilst in medium and large-scale enterprises this figure was 1.2%.

Carmen and Jemio (2006 p. 37) conclude that the main reason for the low productivity is the constraints of education and appropriate training in the micro- and small-enterprises. They underline that complementary educational training, such as technical training and education programmes for adults has not been properly developed. (*ibid*) They further find that reduced investment levels in micro- and small-scale enterprises, which result in low endowments of capital per worker, are further inhibiting labour productivity (p. 39).

In this section, we have looked at the sectoral distribution of growth and the microfinance clients' economic activities in terms of labour-intensive units and micro- and small-scale units. We find that the sectors that the microfinance clients are active in exhibit low productivity and low income. The micro- and small-scale enterprises seem to feature human capital constraints on productivity.

Low productivity may also have other sources. The World Bank (2005, in Carmen and Jemio, 2006 p. 31) notes that informal enterprises are "less productive because they have less fixed assets, older technology and as they operate outside the law, they cannot obtain favourable credit terms nor take advantage of institutions that facilitate enterprise growth and allow firms to achieve economies of scale". The possibilities of micro- and small-scale enterprises to take advantage of microfinance, which is a means to improve capital assets, productivity, technology and human capital if spent on education, may be inhibited by the character of the informal sector. The next section examines the implications of informality and the transition between the informal and the formal sector.

[59] In this survey micro- and small-enterprises consist of up to 19 workers.

3.1.4 Microfinance Clients, Informality and Economic Growth

In this section, we examine the implication of informality for income-generation in the wider economy. The influence that micro-enterprises may have on economic growth depends on whether the informal sector acts mainly as a shock-absorber or as a "seed bed", a space for enterprise growth to graduate into larger enterprises.

First of all, we note that the economic units constituting the informal sector can be divided into two types; semi-entrepreneurial and family businesses[60]. The difference is that the latter is based on the personal work of the owner and that no permanent paid employees are hired. (Berthoud and Milligan, 1995 p. 12, 13). In family businesses, working family members are often unpaid.

To measure whether microfinance may have an impact on the development of micro-enterprises to contribute to macro-level growth is difficult. Rhyne (2007 p. 48) notes the problems of tracking incomes reliably and the inexistence of "a good map over time". Instead, Rhyne (2001) uses the framework developed by CEDLA (1990, in Rhyne, 2001 p. 46, 47) to assess the possibilities of the informal sector to act as a "seed bed" for enterprises, where they may grow and become small or medium enterprises. In this framework, it is the semi-enterprise segment that provides the growth dynamic as these have the highest probability of graduating into larger formal businesses. This way we may distinguish flows where the informal sector acts to promote growth and flows that feature the shock-absorbing role.

The positive economic dynamism consists of flows from family enterprises to semi-enterprises, increases in secondary sector activity[61], semi-enterprises becoming formal businesses, and informal sector participants moving on to formal jobs (wage employment). The negative economic flows are semi-enterprises moving back to family sector activities, increases in tertiary sector activity, formal businesses moving back to the informal sector, and unemployed in the formal sector transferring to the informal sector (from wage employment). Neutral forces are also influencing the sectors, such as population growth and urban migration which tends to rise during difficult times. (Rhyne, 2007 p. 46, 47) Once demographics are taken into account, the positive force would make incomes increase whilst we would expect incomes to decrease when the informal sector acts as a safety net.

By examining net effects of flows in the manufacturing and commerce/service sectors, and the semi-enterprise and family sector in 1985 and 1989, CEDLA (in Rhyne, 2001 p. 48-50)

[60] *Semi-empresarial* and *familiar* in national accounts. Domestic (*domestico*) labour holds a specific role in the informal sector and is not part of the analysis of productive units.

[61] Note that in this framework, commerce and services are considered to be less productive and contribute little to GDP growth (Rhyne, 2001 p. 46). This notion seems to run throughout the analyses on Bolivian economy and GDP growth (author's remark). The sectoral analysis in section 3.1.3 shows low productivity and contribution to GDP growth of commerce and services.

concluded that the informal sector was performing its coping strategy role after the structural adjustment in 1985. The sector experienced a large growth of female family-sector commerce and services as men could not on their own support their families after the crisis. Further flows to the informal sector came from previously state-employed that transferred to the informal sector, from manufacturing and larger businesses, and from rural areas. Furthermore, incomes in the informal sector decreased and the flow towards unpaid family labour increased. (*ibid*)

Rhyne (2001 p. 183–185) notes that the pattern of growth changed between 1989 and 1995 with a doubling of semi-enterprises, and only a 20% increase in family enterprises. Furthermore, semi-enterprises in manufacturing increased from 7,300 to 28,000 and in employment figures, the semi-enterprise sector changed from 14% to 22%. In the manufacturing sector, micro-enterprises "contributed to the dominant paradigm of export-led economic growth". Rhyne (2001 p. 184, 185) concludes that "although the causal link is impossible to prove, there is a clear correlation with the strong performance of the informal sector and growing access to credit through microfinance institutions".

However, the second economic crisis that hit Bolivia in 1999 caused difficulties for microfinance lenders, the microfinance institutions and affected the possibilities of informal participants to perform their growth function. We do not have the continuous data to follow up on CEDLA's work but we look at the changes in the economy between 1999 – 2005 in the informal and formal sector, disaggregating economic units, and the change in income[62]. Also, we take into account population growth but we note that the actual effects of changes in the sectors are difficult to isolate.

Table 7 shows the trend growth of employment and wages in the informal and formal sectors. First of all, changes in the economically active population show that there was a steady increase in both urban and rural populations during the period 1999-2005, a 3.4% yearly trend growth. The change was higher in urban areas than in rural. However, the growth of the economically active was not fully incorporated into the formal or informal sector, which is shown by the change in the total number of employed.

In the total economy, rural and urban, the largest increases seem to have taken place in the enterprise sector, disregarding the domestic sector, and secondly in the semi-enterprise sector. An increase outnumbering the growth of population indicates flows towards enterprise growth, both formal and informal. In general, the formal sector grew more than the informal sector in the last six years, but this change was influenced as well by the increase in public sector employment, particularly in the rural areas.

[62] Rhyne (2001 p. 198, footnote 6) notes that after 1995 INE dropped some categories in their data collection. This has made within-sector data impossible. Furthermore, between 1989 and 1995, national surveys covered only the major cities in Bolivia. From 1996 onward, national surveys encompass both urban and rural areas. (author's remark, in consultation with INE) Comparable series of statistics from INE has been attained for 1999-2005.

Table 7 shows further that real income increased during the time period examined, with the largest increase taking place in the semi-entrepreneurial sector, followed by the public sector. The growth in public sector income accounts for most of the increase in the formal sector. The growth of income in the semi-entreprenurial sector, in conjunction with the high employment increase, indicates that there was growth dynamic taking place in this sector. The enterprise sector real incomes increased at a lower rate which could be the combination of having the highest growth in employment whilst growing less.

Table 7. Yearly Growth Trends of Employment and Incomes, Informal and Formal Sector 1999- 2005

RURAL AND URBAN	Domestic	Family	Semi-enterprises	Total (1) informal	Enterprises	Public	Total Formal
Yearly Trend Growth of Employment Sectors							
Yearly Change in Real Income	-1.4	0.1	3.2	2.4	0.3	4.3	2.2
Total Change in Number of Employed	3.1						
Yearly Growth of Average Income	2.9						
Yearly Trend Growth of Population Economically Active	3.4						
URBAN	**Domestic**	**Family**	**Semi-enterprises**	**Total (1) informal**	**Enterprises**	**Public**	**Total Formal**
Yearly Trend Growth of Employment in Sectors	8.5	1.3	5.6	2.4	6.8	2.7	5.7
Yearly Change in Real Income	-1.8	0.5	3.6	2.4	0.3	4.8	2.6
Yearly Growth of Average Income	2.3						
Total Change in Number of Employed	3.8						
Yearly Trend Growth of Population Economically Active	4.0						
RURAL	**Domestic**	**Family**	**Semi-enterprises**	**Total (1) informal**	**Enterprises**	**Public**	**Total Formal**
Yearly Trend Growth of Employment in Sectors	7.3	1.2	8.5	1.6	8.4	12.4	10.1
Yearly Change in Real Income	2.3	-1.6	2.2	15.4	0.3	5.1	2.9
Yearly Growth of Average Income	3.5						
Total Change in Number of Employed	2.3						
Yearly Trend Growth of Population Economically Active	2.6						

Source: 1999 - 2005 INE, author's calculations; (1) Domestic not included. In appendix A.3, yearly changes are shown in Table 13, 14, 15.

The above table shows positive flows but does not account for sectoral changes. We note that table 3 and table 4 in section 3.1.3 show that there does not seem to have been an increase in the manufacturing sector, neither in the informal sector nor in the formal. Furthermore, tertiary activities seem to have increased, both in the formal sector as well as in the informal sector. Therefore the likely changes seem to have taken place in tertiary activities, sectors with low productivity and capital assets. We further note that Carmen and Jemio (2006, see section 3.1.3) found decreases in real incomes during 1996-2003.

Finally, we look at transition between the formal and the informal sector between 1995 and 2005. Table 8 shows that despite little mobility between the two sectors, there has been a slight tendency in the last decade to move from the formal sector towards the informal sector.

Table 8. Transition Between Formal and Informal Sector (%)

Period *t-4* (1995-2000)	Period *t* (2005) Formal	Informal	Households	Total
Formal	87.1	12.06	0.84	**100**
Informal	5.89	93.85	0.26	**100**
Households	9.19	5.10	85.71	**100**
Not working	37.97	52.78	9.25	**100**
	37.05	**59.13**	**3.82**	**100**

Source: UDAPE, 2007, based on INE's National Household Surveys

The inconsistency of consequent data analysis as well as the short time span of the data make inference difficult. However, income and transition of informal and formal sector activities seem to be correlated to the general economic growth situation in the country and, on a macro-level, there does not seem to be a major transition taking place between informal and formal sector. Also, labour-productivity on the macro-level is still small in economic activities closely related to microfinance, except for manufacturing which has however shown a decreasing share of GDP growth. We now look closer at the character of informality and obstacles to transition and micro-and small-enterprise growth.

3.1.5 The Costs of Informality and Formality in Bolivia

In this section, we look at reasons why economic agents would choose to stay in the informal sector, the costs of staying informal and the consequences for enterprise growth.

Díaz (2004 p. 17-21) examines informality in Bolivia through a cost-benefit analysis where the economic agents make decisions on whether to remain, wholly or partially, in the informal sector depending on costs, benefits, legal status, and access and restrictions to productive resources[63].

First of all, we have the costs of *accessing the formal sector*. These are sunken costs, that have to borne to initialize formal sector activity. These costs include 'paperwork' costs to register a business, and the time and financial costs of the paperwork process. These are costs that are independent of the size of the business. In highly bureaucratic countries, there may also be additional costs to public administrators (bribery) to ensure that the paperwork process speeds up, or is not delayed. Tockman (2002, in Rojas, 2004 p. 18) concludes that the combination of inappropriate regulation and an inefficient bureaucratic structure make the costs of formality inhibiting for emerging enterprises and for small-scale enterprises.

Secondly, we have the *costs of staying formal*, such as taxes, legal regulations, and bureaucratic requirements. Legal regulations refer to costs such as social benefits for labourers, consumer protection, minimum wages, and labour rights. Taxation on businesses tends to be higher in developing countries and the costs of legal regulations in relation to

[63] The analytical framework and discussion are based on works by De Soto (1989) (in Díaz, 2004).

fixed costs are high. Postes et al (1989, in Díaz, 2004 p. 19) argue that going informal reduces both the direct costs in terms of wages, and indirect costs in terms of social securities. For a micro- or small-scale enterprise in Bolivia, it is the indirect costs of labour regulations that determine whether the business stays formal or not.

Díaz (2004 p. 19) suggests that small-scale businesses, assuming they evade labour regulations, often have restricted access to financial capital and the financial capital accessed is short term and insufficient. This results in small-scale businesses being labour-intensive whilst formal businesses, to avoid the high costs of labour regulations, are "abnormally" capital-intensive. Lastly, independent of the size of the enterprise, the bureaucratic requirements to remain formal require the owner of a business to have an accountant and legal advice. (*ibid*)

The third type of costs is the costs to *remain in the informal sector* and they include two types of costs. The first type is the penalisation of illegal activity once the business has been detected. Detected entrepreneurs often pay part of their production or capital stock as bribery. The risk of being discovered has specific implications for the scale of production. To avoid detection, firms may reduce their operations and cannot reach economies of scale or an optimal capital-labour ratio as it is easier to detect larger scale firms with capital-intensive production methods. (p. 20)

The second type of cost is the restriction of access to certain goods and services due to lack of legal protection of property rights and contracts that cannot be accessed in the informal sector. Lack of legal enforcement of contracts results in lower value and usefulness of contracts, and dependency on confidence between the two business parties. Higher transaction and monitoring costs within and between informal businesses reduce investment that could be undertaken from generated financial resources. Furthermore, lack of legal enforcement affects possibilities to access financial capital, in terms of shareholders and, assuming that formal finance is preferable, lower costs of credit. The consequence of lack of access to formal finance leads to a low relative value of physical capital.

In sum, the risk of detection, high costs of capital, and the low costs of labour, assuming that the micro-enterprise avoids labour regulations, induces labour-intensive production in the informal sector. (*ibid*) Formalisation means improvements in productivity and access to public goods and services, assuming that the informal sector is less efficient and that informal goods and services are imperfect substitutes for public ones, such as contract enforceability versus credibility. Formalisation further allows enterprises to access more efficient markets, such as the credit market[64] (Díaz 2004 p. 31, 32). Formalisation also expands the base of income for the government.

[64] To access formal credit, accountancy registers and other forms of payment receipts as well as collateral are needed (Díaz, 2004 p. 33, Berthoud and Milligan, 1995 p. 53)

Table 9 gives insights on the magnitude of the costs of formality and informality in Bolivia and Latin America.

Table 9. Costs of Formality and Informality in Bolivia

Costs of Accessing the Formal Sector	In 2003, the cost of opening up a formal business cost US$2.696, thirty times the Bolivian minimum wage, and represents a delay of an average between 80 to 156 days (1). The average time of register a small enterprise in Bolivia is 10 months. (2)
	Bolivia is 86th of 100 countries with a high level of bureaucratic procedures, and an entrepreneur loses between 11 to 22 % of his/her time of work on registration activities, go through 35 procedures and seven institutions before successfully establishing a business (3). This is compared to four hours in New York, US. (4)
Costs of Staying in the Formal Sector	Taxation on formal enterprises constitutes the largest public revenue. Compare to developed countries where taxation is around 8% for enterprises and 30% on personal income. In countries such as Bolivia, these figures are 20% and 10%. Marginal taxation of formal enterprises and businesses are much higher in developing countries as they tend to have a narrow base of formal enterprises. (5)
	The regulated social benefits and the protection of workers tend to be higher in developing countries and in Bolivia they amount to around 29% of fixed costs compared to developed countries, 12-15 %. (6)
Costs of Informality	In Latin America, small-scale entrepreneurs pay around 10 to 15% of their gross income in bribes while enterprises in the formal sector pay on average 1%. (7) In Bolivia, informal urban enterprises pay around 25% in nominal interest rate whilst formal enterprises access financial capital for 12-15%. (8)

Sources: (1) Nueva Economía "Trámites que no terminan" No. 542 Aug 2004, (2) Tockman, 2002, (3) Reporte Global de Competividad, (4) Chikering and Saladine, 2001, (5) Burgess and Stern, 1999, (6) Burgess and Stern, 1999 (7) De Soto, 1989, (8) Díaz, 2004. All references from Díaz, 2004 p. 17-20

The table above shows that the costs of entering the formal sector in Bolivia are high and so are the costs of staying formal, particularly for micro- and small-scale entrepreneurs as some costs, that are independent of size, are higher to bear relative to scale.

Díaz (2004 p. 55) concludes that the informal sector in Bolivia in the last 20 years has been a shock absorber for employment, developing its own economic activities. Even if these activities may not be efficient, they have been sufficiently efficient in reducing unemployment and other consequences following unemployment, such as crime or migration. However, following the recession in 1998-2002, the informal sector has shown some of these bad traits and also the diseconomy of scale has made its possibilities for reproduction of capital and income-generation unsustainable. (*ibid*)

Also, Grebe (in Rhyne, 2001 p. 186) notes that the informal sector will not develop only by access to finance, a consequence of qualitative differences between formal and informal enterprises. For example, in formal businesses management and production are separated whilst in informal businesses they are not. The step towards the owner being the business manager and not involved in production is not likely for all informal agents. (*ibid*) For this to happen, appropriate training and education may be needed. This is in line with the findings of low educational levels and lack of training in micro- and small-scale enterprises in section 3.1.3.

However, Rhyne (2001 p. 45) notes that even though a particular micro-enterprise does not grow and transfer to the formal sector, the business may provide sufficient income for a family to keep its children in school and to attain a higher education. In this way, human capital formation is influenced with better prospects for the next generation. The effect or

microfinance impact on physical and human capital formation is likely to have different time frames where investment in human capital will take a longer time. We now briefly look at the indirect link of microfinance to economic growth in Bolivia.

3.2 Indirect Effects – Microfinance and Financial Sector Development in Bolivia

Many studies have been undertaken on different aspects of microfinance in Bolivia. Here we choose to briefly summarize some important findings in terms of microfinance and financial system development

3.2.1 Microfinance and Financial Sector Deepening

First of all, Morales (2007) examines financial deepening and economic growth in Bolivia during 1980-2005. He finds that the financial sector in Bolivia is too small, despite a high deposit to GDP ratio, to have an impact on economic growth. Morales suggests that this could be due to a threshold effect where the financial sector needs to expand before being a positive influence on growth. (p. 26)

Morales (2007 p. 26, 27) notes that other factors that affect productivity may be of more importance to cause economic growth. Furthermore, a broader base of both depositors and borrowers is needed to better achieve financial deepening. A narrow base of clients "impinges upon the resilience of the sector to banking crisis" and "reduces the rate of growth of the economy as worthy investment and production projects may not be undertaken by lack of financing." The successful expansion of microfinance may therefore both broaden the base of customers as well as increase effectiveness of the financial sector and its contribution to growth. (*ibid*) This study shows the role that microfinance may play in expanding the financial frontier as well as decreasing the vulnerability that a narrow base of customers, engaged in higher-return, riskier projects may cause in an economy with a volatile macro-environment.

We look closer at the aspect of microfinance in the development of the financial system. González and Villafani (2006) explore how microfinance, in particular regulated microfinance institutions, contributes to the development of the financial system in Bolivia. Their study outlines the influence of microfinance in modernising the financial system in a country with low incomes and institutional deficiencies to include previously excluded segments into the formal financial system. When the microfinance institutions are subject to appropriate regulation and prudential supervision, these influences towards financial deepening increase. (p. 6) Microfinance does not only create benefits for the new clientele, but the progress of microfinance has implications for the financial system in general and may through this channel influence a sustainable and participatory economic growth (*ibid*).

Furthermore, they argue that the microfinance sector in Bolivia has transformed the

country's financial sector. This structural transformation has had both aggregate effects and substitution effects. The aggregate effect includes incorporation, the introduction of financial services to new segments of the population that did not use them before. It also includes expansion which is adding new dimensions of financial services, such as deposits, to those with access. The latter effect, the substitution effect, is represented by three effects. For one, a partial replacement of informal finance in favour of a kind of institutionalised financial services, represented by reductions in the costs of credit for marginalised segments when substituting formal for informal.

Secondly, the substitution effect of microfinance institutions from unregulated to regulated That is, an institutionalisation of the financial markets in Bolivia. This effect has been considerate, compared to the situation about ten years ago. The third substitution effect is the increased participation of traditional microfinance institutions within the regular financial system both in terms of deposits and credit portfolio. A shift from the banking sector to the specialised non-banking sector.

This effect can be interpreted as a transition in the financial system due to technological shocks, inducing a move from technologies used by traditional banks towards better adapted technologies for this market. This is shown by the continuous growth of the microfinance institutions, a trend which is the opposite to the crisis in the banking sector and the stagnation in other non-bank financial entities. (p. 10, 11) Thus, the impact of microfinance on the financial system in Bolivia has been broadening financial services and adjusting financial institutions to a changing environment.

The microfinance institutions successfully commercialised in Bolivia but did experience difficulties due to increased competition during the economic crisis in 1998-2002[65] (see section 2.2.4 and 3.1.2). The crisis led to debt spirals as the borrowers, now with multiple sources to lend from, and little coordination between these lenders to ensure compliance and repayment discipline, had to borrow to repay loans (Armendáriz and Morduch, 2005 p. 127, 128). This is a case where credit bureaus, coordination between institutions and appropriate regulation would have prevented such a situation.

[65] Marconi and Mosley (2006) find that microfinance seemed to intensify the recession that the country experienced during the global crisis instead of being a shock-absorber. This was due to the Government undermining repayment moral by condoning loans, pressured by debtor groups, as well as an unbalanced structure of demand (the sectors of importance for micro-entrepreneurs (p. 237, see section 3.1.2).

3.3 Chapter Discussion

In this part of the thesis, we have looked at direct effects, in terms of sectoral and micro-enterprise development, to economic growth. The informal sector in Bolivia poses specific obstacles to both measurement as well as income-generation. We also briefly summarise some indirect effects.

The microfinance development has been closely linked to the macroeconomic situation in the country and income-generation of the microfinance clients has also been affected by the macro-level changes. In the analysis above, we show that the sectoral distribution in the economy is bifurcated in terms of a labour-intensive and a capital-intensive sector, but also in terms of a formal and an informal sector. It is in the labour-intensive and informal sector that we find the micro- and small-scale entrepreneurs that constitute the microfinance client. These hold most of the employment and their economic activities, manufacturing, traditional agriculture, and commerce and services, have grown slowly but absorbed high employment numbers. The resulting low productivity led to a decrease in real incomes between 1996 and 2003.

However, incomes seem to have increased when examining the period 1999-2005 in terms of informal and formal sector activity. We note that other studies seem to find both a shock-absorbing role and a growth-generating role of the informal sector. The expansion and contraction of the informal sector, following ups and downs in the economic performance in the wider economy, seem to be in function but mainly in terms of incomes. Furthermore, changes in the regulatory environment affect distribution of economic activities, such as manufacturing.

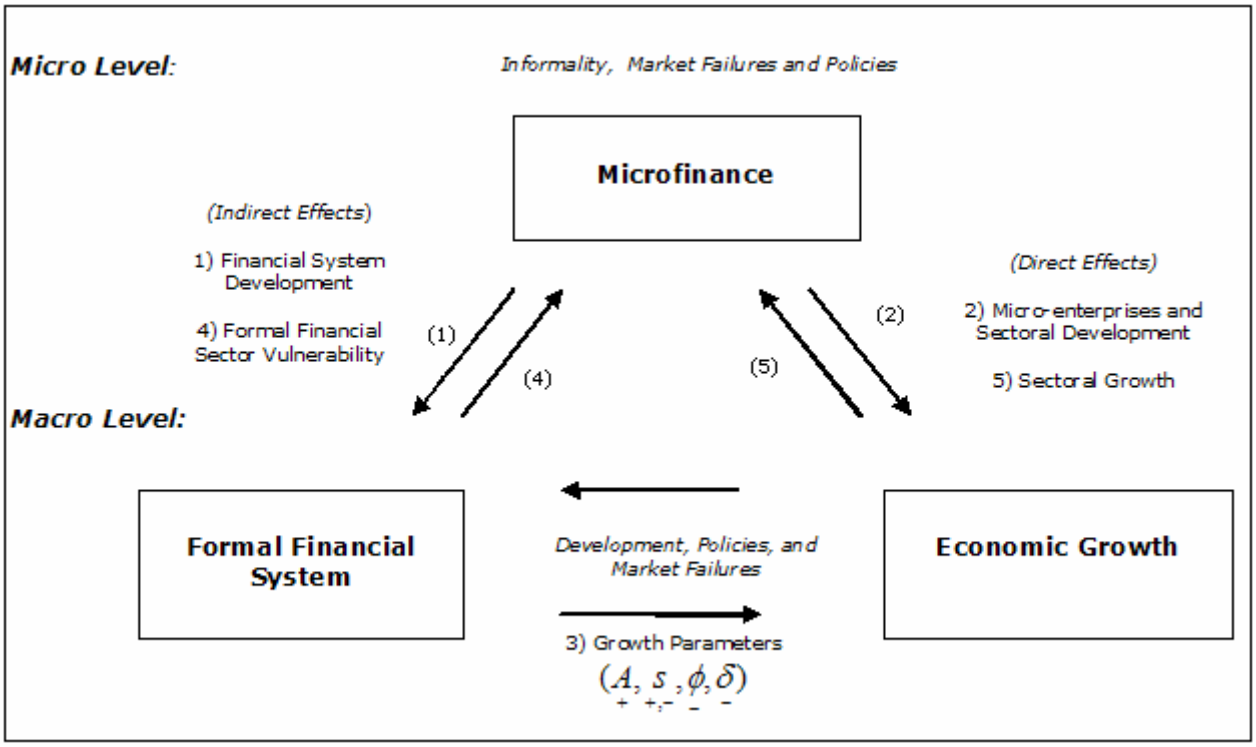
Transition between the informal and formal sector has been small where costs of entering the formal sector and remaining there are high in Bolivia. This may deter micro- and small-scale enterprises from growing. Furthermore, the prerequisites for being able to graduate from a micro- or small-scale informal business to a formal larger-scale business may not be in place. Factors such as education and training. Finally, physical capital and human capital investments have different time spans which further make inference on a fairly recent type of financial institution difficult.

Also, there may not be such a simple step where the client can move from the informal financial sector to microfinance and then on to the formal financial sector (as discussed in section 2.3.1). Although accounting for most of the clients, the microfinance institutions make up a small share of the financial sector. This share may not be large enough to make a significant impact. However, microfinance may have an important role of broadening the base as the banking sector seems to be vulnerable. The indirect effects of microfinance on financial system development show promising results for economic growth in Bolivia, once it has reached its threshold. In the next section, we use our findings to modify our theoretical framework to incorporate important features of the Bolivian experience.

4 Modification of the Theoretical Framework

The country case study above has provided us with some aspects that are likely to be of general character. This leads us to modify the theoretical framework that we put together in section 2.3.2. Figure 7 shows three new aspects, the environment in which microfinance is placed, and two arrows flowing back to microfinance from the formal financial system and economic growth.

Figure 7. Microfinance Linkages to Economic Growth



In the above figure, we have added link 4 which represents the condition of the financial system in a country. As we found in section 3.2.1, the narrow base of a formal financial system may increase vulnerability and there may be a substitution effect for microfinance. Link 5 is the effect that sectoral economic growth has on microfinance performance. We saw that there was a concentration of microfinance clients in specific sectors. The dynamics and conditions in these sectors will affect both income-generation of the client and the performance of the microfinance institutions.

Finally, informality and policies affect microfinance. In sections 3.1.4 and 3.1.5, we found that informality brings with it specific problems for the productive use of credit and the growth prospect of micro-enterprises. Microfinance, just like the formal financial system, seems to be sensitive to the policy environment.

5 Discussion of Findings

First of all, with respect to the wide area investigated, the time and size restrictions in this thesis have had implications for the depth of examining impacts. The lack of studies that explicitly link microfinance to economic growth induced us to develop a framework of possible links between microfinance and economic growth. To do this, we connected microfinance to the macro-level.

Thus, we have approached microfinance mainly from the macro-level trying to capture impacts on economic growth. Therefore, except for the theoretical outline of microfinance, we have spent little time examining studies of effects on the micro-level. Particularly, the Bolivian case study would benefit from a deeper examination of the micro-level. The macro-level approach is likely to affect our findings negatively as the changes may be small. However, positive effects may still be important at very low levels of income and effects could further differ between areas with a high concentration of microfinance clients and areas without.

Microfinance could also have a multiplier effect where improved income and productivity spread to non-microfinance clients (see Khandker, 2003). Further attempts to capture macro-level income effects include measuring the effect of credit on the accumulation of assets reflecting the economic growth variables among microfinance borrowers (see FINRURAL). These effects have not been included in this thesis. Thus, microfinance may still affect capital assets and incomes on the micro-level although not to such a degree that it is possible to find significant impacts on the macro-level data used in this thesis.

One area which has emerged as important is the effect of human capital. Human capital formation through access to microfinance may affect investment in human capital (see for example Maldonado, González and Romero, 2002). Also, provision of business training and other types of training provided by microfinance institutions could positively affect income-generation. Human capital formation was found to be a prerequisite for the financial sector to influence economic growth (see section 2.1.3) and may also influence the likelihood of micro-enterprises in the informal sector to graduate to larger formal enterprises (see sections 3.1.3 and 3.1.5). Thus, inclusion of human capital formation could positively influence our findings.

The findings are further affected by the choice of studies and the data we base our investigation on. The lack of data on the informal sector and the difficulties in measuring impacts on income as an effect of microfinance make inference difficult. Also the time span for which we have data may be inappropriate to find long-run economic growth effects. However, the country case study still provides important additions to the theoretical framework of microfinance implications for economic growth.

6 Conclusion

The aim of this study is to explore the linkages of microfinance to economic growth. Due to the lack of previous studies explicitly linking microfinance to economic growth, the weight of the thesis falls on the development of a theoretical framework where the different channels to economic growth can be discerned.

To help us isolate the linkages, we set up three hypotheses that are examined step-wise in the theoretical outline. These are further assessed by the Bolivian country case study. Based on the aspects chosen in the case study and the findings in the theoretical outline, we draw the following conclusions:

Hypothesis 1: *Financial system development leads to economic growth*. We find that there is a link between the financial system and economic growth where the effects of the financial system work through the growth variables A, s, ϕ, δ. However, the financial system seems to have to reach a certain threshold to affect economic growth, a finding that is supported by the Bolivian case study. The threshold effect is particularly important when accounting for directionality. We further find that our initial hypothesis has a one-way implication and should be modified to allow for real activity to influence the financial system. We conclude that the financial system development affects economic growth once it passes the threshold.

Hypothesis 2*: Microfinance leads to financial system development*. The findings show that if a microfinance institution manages to successfully deal with market imperfections, and to compete with informal financial intermediaries, it may be able to reduce costs and the probability of default. The result is an expansion of financial services. A learning-by-doing effect seems to be present in the microfinance sector. The microfinance institutions in Bolivia have been able to adapt themselves to changing conditions and continue to expand financial services.

The development of the financial sector however has not been one of transferring clients to the formal financial sector but rather to take on the role of institutionalisation and incorporate clients left out of the formal financial sector. That is, both clients without previous access as well as clients with previous access to formal finance. We conclude that, with appropriate technologies, microfinance leads to the expansion of financial services but the type of development of the financial system is likely to be contextual.

Hypothesis 3*: Microfinance exerts an impact on economic growth.* We examined this hypothesis by binding together the first two hypotheses and other findings from the micro-level. The result was a framework with indirect effects of microfinance on financial system development (hypothesis 2) working through to economic growth (hypothesis 1), and direct

effects, where expansion of income-generation in micro-enterprises and sectoral growth directly affect economic growth.

The theoretical background shows that on the micro-level, there has been limited impact of microfinance on productive assets and income-generation; plateaus, structural and individual restrictions. At very low levels of income, vulnerability seems to affect the willingness to use credit to engage in new technology. The case study examines mainly the direct effects and in Bolivia we find some evidence of the microfinance clients engaging in growth-enhancing economic activities. However, the growth dynamics seems to be dependent on the changes in the wider economy. Human capital constraints seem to be present, both in terms of formal education and in terms of business training. The character of the informal sector seems to be inhibiting for micro-enterprise growth.

In sum, the case study shows that there has been little change in income, productive assets and productivity in micro-enterprises and the economic sectors relevant to microfinance clients. We find that economic growth and macro-level policies affect both the microfinance client and the microfinance institution.

Bearing in mind that the thesis does not cover all the links in our theoretical framework, we conclude that microfinance has not led to a large-scale significant macro-level impact in terms of direct effects in Bolivia. However, we add to this that microfinance still may have impacts on the micro-level and that the effect of microfinance may need a longer timeframe in terms of accumulation of human capital, aspects little researched in this thesis. Furthermore, the microfinance share of the total portfolio of the financial system in Bolivia may not be large enough.

Further research could closer examine the links of microfinance to economic growth, adding complementary micro-level studies on economic growth variables and their dynamics. An area that would provide important additions is investigating constraints of human capital for micro-enterprise growth. Research of the effects of human capital formation on economic growth due to credit and impacts in a longer time frame would provide further insights. The character of the informal sector for the micro-entrepreneur calls for examining how to create an incentive structure that would incur a shift from informal to formal sector activities. This in order to decrease costs and inefficiencies of informality, expand the base of fiscal incomes in the economy and provide protection for the economic agent.

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Appendix

A.1 A Brief Description of Microfinance Practices

With the information asymmetries in financial markets and the lack of collateral, formal banks would incur high costs to obtain the necessary information in order to avoid the risks of moral hazard and adverse selection. Microfinance methodologies minimise these risks and shift some of the costs to the borrower. That is, microfinance institutions let borrowers use their information on their peers for evaluation, monitoring and enforcement. There are several approaches and we will look at some techniques. We follow Armendáriz and Morduch (2005, chapter 4, 5).

Group lending has often been synonymously used with microfinance and is an arrangement where potential borrowers lacking collateral join together to obtain individual loans from a lender. Group lending builds on joint liability; if one borrower in the group defaults, the whole group faces the responsibility of either paying the debt, or if the group is unable to pay the due amount, the whole group will be cut off from future access to the lender. Group lending thus solves the information problem by letting the group members keep track of each other and use the information that they have to ensure compliance with the loan terms. Since these loans are often made to a large number of people at the same time, costs are further cut.

In terms of adverse selection, the group formation allows the lender to charge a higher interest rate for risky borrowers and still offer the same interest rate to all borrowers. As risky borrowers have a higher probability of defaulting, safe borrowers would stick to safe borrowers, leaving risky borrowers to form their own groups (assortive matching). If a risky borrower defaults, the group members would have to pay and implicitly pay a higher interest rate.

In the case where groups form without self-selection, advantage is taken of the fact that risky borrowers, when successful, earn a higher return than safe borrowers. Due to limited liability, that borrowers cannot repay more than their current income and collateral is lacking, safe borrowers cannot repay for risky borrowers but risky borrowers repay for risky borrowers when successful. That is, in a group with two risky borrowers and two safe borrowers, a risky borrower defaults. The two safe borrowers cannot repay but the other risky borrower can and would to keep access to credit for the group. The risky borrower has then been implicitly charged a higher interest rate.

In both the self-selection scenario and the “forced” scenario, the interest rate is the same for all group members and it is also lower as the risk for adverse selection is mitigated. This

induces the safe borrowers, with lower returns that were previously screened out of the market due to high interest rates, to re-enter.

Group lending also solves moral hazard by transferring monitoring and enforcement to the group members. The assumption is that the group members will use social sanctions in order to ensure that all members put all effort in and also the group may induce the borrower to take on less risky projects.

Several mechanisms and methods are used to accommodate different situations, such as 2:2:1 staggering, where a five-member group is given testing loans (first two members receive a loan, and when successfully paid off two other members receive one, and if successful the group leader finally receives a loan). Testing loans also start small and increase in size after successful repayment (progressive lending). The special feature is that they build up a credit relationship between the borrower and the lender and give early warning on the riskiness of the client.

Individual loans are also offered by microfinance institutions. Borrowing is based on dynamic incentives; the threat that the borrower would be cut off from future access to credit. This approach builds on the personal relationship and repeated lending feature as well as trying to restrict other sources of borrowing (as many alternative sources reduce the credibility of the threat of no access for the borrower). Progressive lending also increases opportunity costs for the borrower in case of default. Frequent repayment instalments, that suit the cashflow of household income rather than income from investment. Other techniques used are accepting different kinds of collateral (where the collateral is valued by the client despite being less valuable for the lender), financial collateral (mandatory deposits), target women (repayment records are better than for men), and public repayments (to induce social pressure on the client).

A.3 Financial Sector Entities and Microfinance Institutions in Bolivia

The financial sector can be separated into banks, Fondos Financieros Privados (FFPs), Credit Unions, Credit and Savings Cooperatives, other financial services businesses and microfinance institutions. The microfinance institutions in turn follow a dual structure in which some financial institutions are under the regulator, the Superintendencia de Bancos (SBEF) whilst others remain outside (Velasco and Marconi, 2004 p. 521).

Microfinance, as small loans and savings, may be offered not only by microfinance institutions but by banks, credit unions and cooperatives (see Collao and Prado, 2005, MacLean, 2005 p. 19). MacLean (2005) notes that the credit unions and savings and loans associations only have a small microfinance portfolio and that credit provided by credit unions is mainly directed towards consumer credit, and in the case of savings and loans

associations, mortgages and lending to house improvements. Also, González and Villafani (2004 p. 3) separate between microfinance consumer FFPs and traditional microfinance FFPs where the latter are distinguished by specific mechanisms of lending, institutional design such as ownership and governance.

Consumer credit is likely to have a different impact in terms of economic growth (see section 2.1.2). The regulated microfinance organizations are authorized to collect savings whilst the non-regulated are not (Marconi and Mosley, 2006 p. 238) We note as well that some microfinance institutions provide additional services, such as health, education and training, and may have further impacts on economic growth through improving the abilities of the client (see section 2.3.3).

Table 10. The Financial Entities in Bolivia 2006

REGULATED FINANCIAL ENTITIES (1)	DESCRIPTION	CLASSIFICATION	TOTAL
BANKS	Regulated under SBEF 11 Banks / 2 MFI	Bank Entities / MFI	13
FONDOS FINANCIEROS PRIVADOS (2)	Regulated under SBEF 1 FFP (Fondo de la Comunidad)/ 5 MFI	Non-bank Financial Entities / MFI	6
SAVINGS AND LOANS ASSOCIATIONS (3)	Regulated under SBEF Specialised in mortagages	Non-bank Financial Entities	12
CREDIT UNIONS (4)	Regulated under SBEF.	Non-bank Financial Entities	24
BUSINESSES WITH OTHER FINANCIAL SERVICES (5)	Regulated under SBEF	Excluded from analysis	8
NON-REGULATED MICROFINANCE ENTITIES	Not regulated by SBEF. Autoregulated under FINRURAL	NGO MFI	13

Sources: 1) SBEF, Entidades Supervisadas, www.sbef.gov.bo 2) Fondos Financieros Privados. 3) Mutuales de Ahorro y Préstamo 4) Cooperativas de Ahorro y Crédito 5) Empresas de Servicios Financieros

Table 11. The Microfinance Institutions in Bolivia

TYPE OF INSTITUTION:	DESCRIPTION	ASSOCIATION	CLASSIFICATION
REGULATED MFI (1)			
Banco Solidario S.A	The NGO PRODEM founded in 1987 that was converted into BancoSol, a commercial bank in 1992 and PRODEM FFP. Specialised in microfinance	ASOFIN	MFI (Bank)
Banco Los Andes Procredit S.A	Started as the NGO ProCrédito in 1992. Caja Los Andes was founded in 1992 and turned into a commercial bank in 2005 specialized in microfinance.	ASOFIN	MFI (Bank)
ECOFUTURO S.A	Founded in 1999 and was converted into FFP 1999, formed by ANED, CIDRE, FADES, UNITAS and IDEPRO.	ASOFIN	MFI FFP
FASSIL S.A	Started operations in 1996 as FFP. Restructured 2002-2003.	ASOFIN	FFP Consumo
FIE S.A	Started as and NGO FIE in 1985. Converted into FFP in 1998.	ASOFIN	MFI FFP
FORTALEZA S.A	Started as Financia Coop in 1998. Converted into and started operations as FFP in 2002.	ASOFIN	FFP Consumo
ACCESSO	Started as FFP 1995 and expired by 2003.	-	FFP Consumo
PRODEM S.A	The NGO PRODEM was founded in 1987 and converted into BancoSol, a commercial bank in 1992 and 2000 PRODEM FFP.	ASOFIN	NGO MFI / MFI FFP
NON-REGULATED MFI (2):			
AGROCAPITAL	Foundation that started in 1992 and began operations in 1992.	ASOFIN	NGO MFI
ANED	Founded in 1978. Started operations in 1978. In cooperation with FFP FIE, have savings facility.	FINRURAL	NGO MFI Maximalist (3)
CIDRE	Founded in 1981. Started operations in 1991.	FINRURAL	NGO MFI
CRECER	Started as part of Freedom from Hunger in 1985 and was founded nationally as CRECER 1999, began operations 1996.	FINRURAL	NGO MFI Maximalist.
DIACONIA FRIF	Founded in 1991. Started operations in 1991.	FINRURAL	NGO MFI
FADES	Founded in 1986. Started operations in 1987	FINRURAL	NGO MFI
FONDECO	Founded in 1995. Started credits in 1995.	FINRURAL	NGO MFI
FUBODE	Founded in 1997 but began operations in 1996.	FINRURAL	NGO MFI Maximalist
FUNCRESOL	Founded in 1997. Began operations in 1997.	FINRURAL	NGO MFI
FUNBODEM	Founded in 1987. Began operations in 1987.	FINRURAL	NGO MFI. Maximalist.
IDEPRO	Founded in 1988. Began operations in 1991.	FINRURAL	NGO MFI. Maximalist.
IMPRO	Founded in 1995. Began operations in 1995.	FINRURAL	NGO MFI
PRO MUJER	Founded in 1991 and began operations in 1991. 1993 started credit activities.	FINRURAL	NGO MFI Maximalist.
SARTAWI	Founded 1989. Started operations in 1990.	FINRURAL	NGO MFI

1) The regulated microfinance institutions are authorized for all types of financial services, and are under ASOFIN, created 1999, plus the NGO MFI Agrocapital. Source: ASOFIN, 2005, Resumen Institutcional, Dossier Estadístico Microfinazas 1990-2002, MacLean, 2005 p. 19-20, Marconi and Mosely, 2006, Gonzàlez and Villafani, 2006 p. 3, and **www.microfinanzasBolivia.com**. **2**) The un-regulated microfinance institutions are under FINRURAL, created in 1993. Sources: FINRURAL, 2006, Autorregulación 26, FINRURAL, 2005. Nuestras Socias, La Paz, Bolivia, **www.microfinanzasBolivia.com** 29/5-07, and cooperation from FINRURAL **3**) Maximalist: Provision of additional services such as health, education, information and training services. Note that excluded from the list is OMED, a small organisation with six employees and one agency, founded in 1992 that began operations in 2000 and member of FINRURAL in 2004. Data is insufficient for its inclusion.

A.4 Direct Effects Tables

Table 12. Population Economically Active (%)

	2000	2001	2002	2003-2004(1)	2005	Total Growth(2)	Yearly Trend Growth(2)
Total	0.5	7.3	-1.3	8.2	2.9	18.4	3.4
Urban	4.0	4.3	-1.5	8.2	5.6	22.0	4.0
Rural	-4.2	11.7	-0.9	8.1	-0.8	13.7	2.6

Source: 1999 - 2005 INE, author's elaboration; 1) Based on household surveys between November 2003 and October 2004 (2) during the period 1999-2005

Table 13. Distribution of Type of Employment (%) Rural and Urban
(according to main employment source)

RURAL AND URBAN		1999	2000	2001	2002	2003-2004(1)	2005	Yearly Trend Growth
	Change in No of Employed		***0.02***	***6.80***	***-1.50***	***9.70***	***1.50***	***3.1***
Other	Domestic	1.89	2.60	3.05	2.33	2.88	2.45	8.4
Informal	Family	65.96	66.10	64.88	63.74	59.24	59.96	1.2
	Semi-enterprises	6.83	7.40	7.46	6.99	6.93	7.35	6.2
	Total Informal (2)	*72.79*	*73.50*	*72.34*	*70.73*	*66.17*	*67.31*	*2.0*
Formal	Enterprises	10.62	8.80	10.05	13.13	15.03	12.37	7.0
	Public	14.71	15.10	14.56	13.80	15.92	17.86	4.6
	Total Formal	*25.32*	*23.90*	*24.61*	*26.94*	*30.95*	*30.24*	*6.3*
URBAN	***Change in No of Employed***		***3.70***	***3.10***	***-1.80***	***1.12***	***3.40***	***3.8***
Other	Domestic	3.01	4.20	5.07	3.92	4.63	3.82	8.5
Informal	Family	47.89	48.30	47.18	46.51	44.62	42.26	1.3
	Semi-enterprises	15.40	12.60	14.14	17.59	19.15	16.87	5.6
	Total Informal (2)	*63.28*	*60.90*	*61.32*	*64.11*	*63.77*	*59.13*	*2.4*
Formal	Enterprises	23.37	24.20	22.20	21.32	22.85	27.25	6.8
	Public	10.34	10.70	11.41	10.65	8.76	9.81	2.7
	Total Formal	*33.71*	*34.90*	*33.61*	*31.97*	*31.60*	*37.05*	*5.7*
RURAL	***Change in No of Employed***		***-4.60***	***1.18***	***-1.20***	***7.80***	***-0.90***	***2.3***
Other	Domestic	0.492	0.400	0.530	0.368	0.644	0.630	7.3
Informal	Family	88.45	90.20	86.96	85.13	77.96	83.61	1.2
	Semi-enterprises	4.67	3.80	4.95	7.60	9.75	6.37	8.5
	Total Informal (2)	*93.12*	*94.00*	*91.91*	*92.72*	*87.71*	*89.97*	*1.6*
Formal	Enterprises	3.92	2.70	5.02	4.47	7.05	5.32	8.4
	Public	2.46	2.90	2.54	2.44	4.59	4.07	12.4
	Total Formal	*6.38*	*5.60*	*7.56*	*6.91*	*11.64*	*9.40*	*10.1*

Source: 1999 - 2005 INE, author's elaboration; 1) Based on household surveys between November 2003 and October 2004 (2) Domestic not included.

Table 14. Distribution and Change in Real Income in Sector Rural and Urban

(in 2005 price Bolivianos)

RURAL AND URBAN		1999	2000	2001	2002	2003-2004(1)	2005	% Change 2005	Yearly Trend Growth (%)
	Average Income	***799***	***800***	***693***	***810***	***995***	***922***	***15***	***2.9***
Other	Domestic	628	687	674	755	513	586	-7	-1.4
Informal	Family	422	393	320	429	626	425	1	0.1
	Semi-enterprise	1121	957	921	1021	898	1314	17	3.2
	Average Informal (2)	*772*	*675*	*620*	*725*	*762*	*869*	*13*	*2.4*
Formal	Enterprise	1892	2103	1611	1845	1666	1916	1	0.3
	Public	1624	1631	1850	1862	1767	2009	24	4.3
	Average Formal	*1758*	*1867*	*1731*	*1853*	*1717*	*1963*	*12*	*2.2*
URBAN	***Average Income***	***1246***	***1228***	***1071***	***1242***	***1217***	***1396***	***12***	***2.3***
Other	Domestic	651	689	682	781	533	595	-9	-1.8
Informal	Family	815	728	597	797	829	837	3	0.5
	Semi-enterprise	1227	1013	991	1126	1026	1469	20	3.6
	Average Informal	*1021*	*870*	*794*	*961*	*927*	*1153*	*13*	*2.4*
Formal	Enterprise	2006	2192	1748	2013	1834	2041	2	0.3
	Public	1729	1764	1987	2001	1899	2202	27	4.8
	Average Formal	*1867*	*1978*	*1867*	*2007*	*1866*	*2121*	*14*	*2.6*
RURAL	***Average Income***	***242***	***221***	***222***	***274***	***569***	***287***	***19***	***3.5***
Other	Domestic	456	663	577	405	324	513	12	2.3
Informal	Family	158	151	132	179	389	146	-8	-1.6
	Semi-enterprise	684	704	671	721	578	766	12	2.2
	Average Informal	*421*	*855*	*803*	*901*	*967*	*912*	*116*	*15.4*
Formal	Enterprise	1045	1017	858	853	970	1063	2	0.3
	Public	1077	975	1081	1106	1446	1391	29	5.1
	Average Formal	*1061*	*996*	*970*	*980*	*1208*	*1227*	*16*	*2.9*

Source: 1999 - 2005 INE, author's elaboration; 1) Based on household surveys between November 2003 and October 2004
(2) Domestic not included.