

Master's Thesis in Banking and Finance

Center for Microfinance
Department of Banking and Finance
University of Zürich

Macroeconomic Models of Microfinance and Growth

Oxana Lüber

Supervisor: Dr. Annette Krauss
Chair: Professor Dr. Urs Birchler

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Executive summary

*“Give a man a fish, and you feed him for a day.
Give him a micro-credit to buy a fishing net, and you feed him for a lifetime.”*

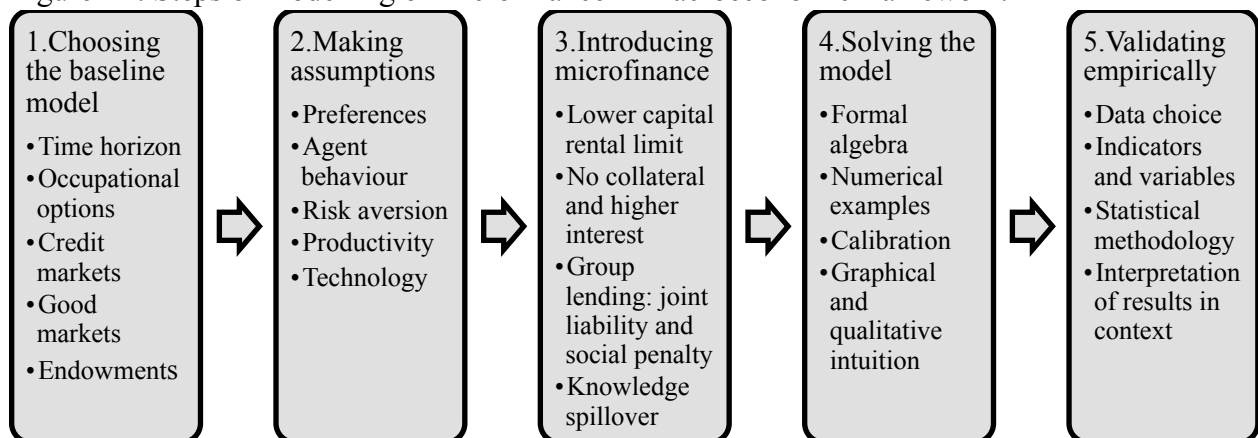
Source: Modified from a Chinese proverb.

The main goal of this thesis is to provide insight into the various models that bring together the defining macroeconomic realities and the innovation of microfinance. The linkages between macroeconomic factors and microfinance can be revealed by empirically evaluating or by theoretically modelling them. As the microfinance industry is still fairly young, the available datasets are too short to formulate conclusions from a long-term perspective. The data on performance of microfinance institutions (MFIs) is also by no means exhaustive and is in fact biased towards the biggest and most successful MFIs. This is due to the requirements of voluntary reporting in addition to further complications that arise when an MFI has to comply with certain regulatory and accounting guidelines in order to report. Even the most sophisticated statistical methods and careful choice of indicators frequently do not lead to unbiased results.

Consequently, theoretical models need to be used to deduce the impact of microfinance in the macroeconomic perspective and to reveal the long-term effects. By imposing assumptions and abstracting from the MFI- and individual-specific features, these models provide valuable information on the *ceteris paribus* effects by narrowing the focus towards specific variables. These forecasted effects of microfinance could bring to light the importance of the sector for the country as a whole, highlight the gaps in policies and suggest how a more supportive environment for a successful microfinance sector and its clients can be created.

This thesis discusses the theoretical models and the empirical evaluations that attempt to provide an insight into the linkages between microfinance and the variables that are the most influential for economic development. This research provides a structured overview of the approaches to date, which is valuable when designing further empirical studies and theoretical models. This study is therefore thought provoking regarding the possible extensions to the models by means of including important but till now unexplored factors.

Figure E1. Steps of modelling of microfinance in macroeconomic framework.



Source: Own figure based on all the models discussed in the thesis.

The choice of a baseline model builds the foundation for the discussion by providing a framework that imposes implications on the technology, production and preferences. The assumed exogeneity and endogeneity of the occupational choice and heterogeneous wealth and talent endowments shape the economy in the equilibrium. The agents' behaviour and the modelling of the credit market determine how the economy evolves when microfinance is not yet present. Imperfect contract enforcement leads to an upper capital rental limit or a collateral requirement by traditional banks. This way only the agents who fulfil the repayment incentive compatibility can borrow and the ones who have initial wealth below a certain threshold are excluded from the capital markets, which restricts their income earning opportunities. Such restrictions highlight the need for financial market innovation, as they do not allow for a full development of the economy in the equilibrium, where the social welfare is maximized through attaining the highest possible income, employment of the most productive technology, absence of inequality and elimination of poverty.

Microfinance provides poor agents with non-collateralized loans, which gives the poor agents access to credit markets, and as a consequence, to more productive technology. MFIs secure themselves against losses from defaults by micro-borrowers through imposing a higher interest rate or via a group lending contract. The higher interest rate on micro-loans directs the choice of rich individuals towards traditional loans and micro-credit therefore becomes an enlargement of the opportunity set for poor individuals only.

Building upon this theory, Ahlin and Jiang (2005) model microfinance as a financial market innovation providing access to non-collateralised loans. The social penalty in the group lending contract performs the disciplinary function. As the social penalty function increases with wealth and talent, the poor and less talented borrowers are punished more severely, and this reflects the importance of social support system.

On the other hand, Müller (2013) introduces the theory of joint liability in a slightly different way: it leads to an increase in the interest rate to be paid by an agent if the group partner defaults. An MFI can only claim the returns of the business in this model and the borrowers can be incentivised to repay by means of the costly monitoring. By including the money growth rate, Müller (2013) models how the funding costs of entrepreneurs change with inflation and in this manner illustrates the effect of inflation on the success of the microfinance mission.

Furthermore, in the model by Buera et al. (2012) microfinance leads to a more relaxed capital rental limit. As the credit limit increases in wealth, rich agents already have access to traditional loans, and the constraint becomes less binding only for the poor borrowers making them eligible for a loan up to a certain amount.

Finally, Batbekh and Blackburn (2008) also model microfinance innovation as a group lending contract with joint liability, whereas social penalty is a fixed amount and limited liability restricts the claims made by MFIs to the returns on the project. The interesting feature of this model is the higher return on micro-enterprise investments after microfinance is introduced, which is attributable to knowledge spillover during group meetings.

As a conclusion, the results and their interpretation strongly depend on the initial assumptions of the baseline model and on how microfinance is introduced into the model. By taking into account the heterogeneous productivity of the project types, the adjustments of wages, the possible transitions over capital accumulation, and the effects of such macroeconomic factors as inflation, the effect of microfinance on the economy may vary dramatically. Therefore, the theoretical models emphasize the importance of taking into consideration such factors that may amplify or diminish the success of microfinance from a macroeconomic perspective.

The illustration below depicts the different approaches to the evaluation of the linkages between the microfinance sector and the macroeconomic factors and to the empirical measurement of the effects.

Table E1. Variables used in empirical studies of microfinance in macroeconomic context.

Microfinance and macroeconomic environment	
Microfinance → Economy	Economy → Microfinance
Kaboski and Townsend (2012) Maksudova (2010)	Ahlin et al. (2010) Marconi and Mosley (2005) Imai et al. (2012) Wagner and Winkler (2013) Vanroose and Gonzalez (2007) D'Espallier (2009)
Explanatory and dependent variables	
Microfinance performance indicators:	Macroeconomic indicators and variables:
– Outreach	– Economic development in general
– Operations	– Institutional environment
– Asset management	– Financial sector indicators
– Profitability	– Political stability
– Loan portfolio quality	

Source: Own table based on all the models discussed in the thesis.

Accordingly, this type of research can help to identify the linkages and the channels of influence, in addition to the sign and the direction of the causality of the relationship between microfinance and the macroeconomic realities. The most frequently used macroeconomic variables are economic growth, political and institutional factors, and indicators of financial sector development. Microfinance performance is measured by its profitability, cost-efficiency, portfolio quality, as well as its outreach indicators.

The choice of the variables is determined by the hypotheses and by the *a priori* assumptions based on the underlying theories and previous research, as well as by the specifics of the data. The importance of the current trends, including the fast growth of microfinance, its increasing integration into the financial sector, its industrialization and the facilitated access to external funding due to the interest of commercial and institutional investors, cannot be underestimated when conducting such research.