Universidad del Desarrollo
Facultad de Economía y Negocios

SERIE WORKING PAPERS

The Effect of Labor Market Flexibility on Microfinance Institutions' Performance: International Evidence

Cristián Pinto

August 2015 Working Paper 21

The Effect of Labor Market Flexibility on Microfinance Institutions' Performance: International Evidence[*]

Cristian Pinto-Gutierrez[†]

Centro de Investigación de la Empresa

Universidad del Desarrollo

Santiago, Chile

August, 2015

[*] I would like to offer thanks to my advisors James W. McFarland and John M. Trapani for their comments. I am also indebted to the participants of the 2014 Latin American Research Consortium at Tulane University. I would like to acknowledge the financial support of the Government of Chile and the National Commission for Scientific and Technological Research (CONICYT) through the Bicentennial Becas-Chile Scholarship that allow me to undertake Ph.D. studies.

[†] 680 Plaza Av., San Carlos de Apoquindo, Santiago, Chile. Email: cristianpinto@udd.cl. Phone: +56 9 51242168.

The Effect of Labor Market Flexibility on Microfinance Institutions' Performance: International Evidence

Abstract

I investigate whether the degree of labor market imperfections in a country affect microfinance institutions' (MFIs) profitability and impact MFIs' effectiveness in improving low-income households' inclusion in financial markets. I find that the financial performance of MFIs is high in heavily regulated labor markets. I also find evidence of a substitution between MFIs' outreach performance and labor market regulations. Overall, the evidence is consistent with the view that microfinance is most successful when the demand for microcredits increases as rigid regulations decrease the number of outside job opportunities.

Keywords: Microfinance, microfinance institutions, labor regulation.

JEL Classification: G21, O16, J30.

1. Introduction

Over the last few decades, the idea that lack of financial access is linked to poverty has motivated governments and entrepreneurs around the world to form different types of financial service providers that target low-income individuals. This new industry, microfinance, comprises the group of financial institutions, more commonly referred to as microfinance institutions (MFIs), that provide very small loans to low-income households that the formal financial systems have traditionally excluded. The basic premise is that these small loans will enable individuals to purchase productive assets to start up small-scale businesses and pull themselves out of poverty. The main goal of the microfinance industry is to alleviate poverty without public subsidies and, in the process, allow MFIs to be operationally self-sufficient and even make profits.

At the time of this writing, no consensus appears to exist among researchers about the impact of microfinance on their clients and on MFIs' financial sustainability. In the last several years, critics have insisted that microcredits have no sustained impact on the clients' outcomes (such as improve their health care, pursue education, or empower women) that proponents claim microfinance can influence (see, for example, Banerjee, Duflo, Glennerster, and Kinnan, 2015). Furthermore, a recent theoretical paper by Emran, Mahbud, and Stiglitz (2011) suggests that the success of microfinance is limited. The authors contend that microloans' successes come from the extent to which they can fill the gaps that a lack of labor markets creates, especially for poor women. Emran et al. (2011) suggest that when labor markets are missing or imperfect, microcredits enable workers within households to be productive, but as the cost of hiring and firing workers goes down and more jobs opportunities are available, individuals will be unwilling to pay high microcredit interest rates. The authors conclude that microcredits can play a vital role in

underdeveloped labor markets, but noted that demand for such loans may progressively weaken as these markets develop.

This labor market-failure hypothesis is the focus of my investigation in the present study. In particular, I provide an empirical analysis of the effects that labor market frictions have on both the financial and operational activities of MFIs. First, I examine whether the degree of labor market flexibility in a country can affect the financial performance of MFIs. Compared to a labor market with rigid regulations, a more flexible labor market should create more wage-earning opportunities (see, for example, Botero et al., 2004), especially for unskilled workers and poor women, and thus, result in a limited client base for MFIs. Second, I investigate the social performances of MFIs in developing countries as a function of labor market frictions. I perform this analysis because MFIs claim to pursue a double bottom line approach (attaining financial success while achieving positive social impact).

Using a data base of global microfinance institutions, I attempt to find empirical evidence that the differences between the financial and social performances of MFIs across the world are functions of labor market frictions. I perform this analysis while controlling for MFI-specific variables related to size, leverage, productivity, risk, liquidity, and profit status. I also control for other country-specific variables such as the degree of financial accessibility, rate of inflation, size of the economy, and income per capita.

My results are consistent with Emran et al.'s (2011) hypothesis; in particular, I find that in contrast to countries with relaxed labor rules, MFIs situated in countries that have more rigid labor rules charge high interest rates and perform better financially. Portfolio yields returns on assets, and profit margins are all negatively and significantly associated with an indicator of flexibility of labor regulations. I also find evidence of a substitution between the social performances of MFIs

and wage opportunities in the labor markets. Flexible labor regulations are negatively associated with the number of borrowers, especially with female borrowers. I conclude that MFIs appear to have the most successful financial and social performances in rigid labor markets. This situation occurs especially when the customers' demand for microfinance services increase as tight regulations create difficulties for them to find wage-earning opportunities in the economy.

The study in this paper fits into the body of literature that examines how institutional factors affect MFIs performance. Perhaps the most closely related paper to the present study is that of Ahlin, Lin, and Maio (2011), who investigate the effects that macroeconomic and macro-institutional features have on MFIs' performance. I differentiate from Ahlin et al. (2011) in that they control by labor force participation only. In this study, by contrast, I specifically estimate the effect of labor market flexibility on the performance of MFIs by using measures of the tightness of labor regulation in five areas: minimum wage, hiring, work hours, collective bargaining, and costs of worker dismissal regulations.

I structure the remainder of the paper as follows. Section 2 provides a literature review. Section 3 outlines the empirical methodology. Section 4 presents the data sets I use in the empirical analysis. Section 5 establishes the key empirical results. The last section contains a summary and concluding remarks.

2. Hypotheses Development

Emran, Mahbud, and Stiglitz (2011) theorize about the role of missing or imperfect labor markets in explaining some of the puzzles in microfinance, such as high repayment rates with high interest rates, difficulties in scaling up projects, and conflicting views about interest rate elasticity of demand for microcredits. They propose that while microcredits can play vital roles in creating economic opportunities when labor markets are underdeveloped, demand for such high interest

loans will progressively decline as markets develop and the costs of participating in the labor market lessen.

In their model, Emran et al. (2011) show that when the costs of acquiring information and searching for jobs in the labor market are high, the willingness of poor household to take high interest rate microcredit loans increases. This willingness to assume loans occurs because when the labor market is missing, access to microcredit enables the labor within households to be productive. Because individuals value labor at a very low shadow wage, the net income gain from access to microcredit is much higher than the marginal product of capital in micro activities that poor households undertake. Therefore, these poor households are willing to pay very high interest rates for access to such loans. The model implies that an individual will be willing to pay progressively lower interest rates for microcredit loans as the labor markets develop and as the costs of participation in the labor force decreases.

According to Emran et al. (2011), the cost of acquiring information and searching for jobs in the labor market may be alternatively interpreted as the unemployment rate. The higher the unemployment rate, the lower the wage individuals expect when they look for outside employment causing more individuals to start businesses out of necessity. This hypothesis is supported by the findings of Fairlie (2013), who documents that local labor market conditions are a major determinant of entrepreneurship. More specifically, Fairlie (2013) finds that high local unemployment rates increase the probability that individuals will become self-employed and that individuals who are initially not employed respond more to high local unemployment rates by starting businesses than wage workers.

Empirical evidence indicates that a high level of unemployment exits in countries with rigid labor market institutions. For instance, Botero et al. (2003) find that heavy regulation of labor

is associated with a larger unofficial economy, low labor force participation, and high unemployment. They also document that richer countries regulate labor less than poorer countries do. Finally, two studies use labor market flexibility indicators (such as those I use in this chapter) to analyze the empirical effects of labor regulation on unemployment around the world. Feldmann (2009) finds that high regulation increases unemployment, especially among females and young people. Bernal-Verdugo et al. (2012) suggest that improvements in labor market flexibility have a significant negative impact on youth unemployment and long-term unemployment.

In this paper, the objective is to test some of Emran et al.'s (2011) predictions. In particular, I hypothesize that labor market frictions in a country will affect MFIs' profitability and outreach efforts. I believe an appropriate way to test the impacts of labor market frictions on the performances of MFIs is to use indicators of the flexibility of different rules related to labor markets. Therefore, in the empirical analysis that follows, I use measures of the flexibility of labor market regulations across countries as proxies for the costs that households face when their members look for outside jobs. I perform this analysis under the assumption that rigid regulations lower the demand for labor and thus diminish the wage-earning opportunities available for poor households. The following are the hypotheses in this article:

> ***Hypothesis 1****: Microfinance institutions' financial performance is negatively related to the degree of labor market flexibility in the economy.*
>
> ***Hypothesis 2****: Microfinance institutions' social performance (outreach) is negatively related to the degree of labor market flexibility in the economy.*

I now proceed to describe the empirical methodology, the data set, and construction of the measures for MFIs' financial and social performance and countries' labor market flexibility.

3. Empirical Methodology

To examine the effect of labor market flexibility on financial and social performances of microfinance institutions, I employ to empirical specifications. First, I estimate the following static cross-sectional model:

$$Y_{ijt} = \beta_0 + \beta_1 LF_{jt} + \beta_2 X_{it} + \beta_3 C_{jt} + \delta_i + \lambda_t + \epsilon_{it}, \quad (1)$$

where Y_{ijt} is a vector of variables for financial and social performance of MFI i, in country j, on year t. The vector LF_{jt} contains variables of labor market flexibility, and X_{it} is a vector of microfinance institution-specific control variables such as size, leverage, productivity, risk, liquidity, and profit status. The vector C_{jt} contains country-specific control variables such as degree of accessibility to the formal financial system, the size of the economy, rate of inflation, income per capita, and size of population.

The dependent variables consider the dual goals of MFIs, financial success and social impact. I consider four measures of MFI financial performance, returns on assets (ROA) (defined as net operating income / average total assets), operational self-sufficiency (OSS) (define as financial revenues / financial expenses + net impairment loss + operating expenses), yields on gross loan portfolios (defined as financial revenue from loan portfolio/the average gross loan portfolio), and profit margins (defined as net operating income/financial revenue). The second measure, OSS, is a widely use measure of institutional sustainability. The third measure, gross portfolio yields, can also be interpreted as the average interest rate MFIs charge to their clients.

Social and outreach measures include: MFI's average outstanding loan size, number of credit clients served, number of depositor clients, and the fraction of female borrowers over the total number of borrowers. The intuition of the first measure is simple: poor households typically need and ask for very small loans; therefore, an indication that a MFI reaches the very poor

customers is that it must provide loans that, on average, are small. I also include as a social performance measure, the number of depositor clients. Empirical evidence by Collins et al. (2009) shows that poor households are not exclusively interested in borrowing. Indeed, low-income households also need quality and reliable instruments to save. The last social performance measure is the percentage of female borrowers. This variable is intended to be a measure of women's empowerment. If women are credit constrained, and also excluded from labor markets, then credits give them the opportunity for greater economic participation.

MFI-specific controls include variables such as size (the logarithm of total assets), leverage (debt to equity), financing structure (deposits/gross loan portfolios and deposits/total assets), efficiency (operating expenses/average gross loan portfolios), risk and liquidity (portfolios at risk), and profit status (dummy variable that equals one if MFI is a non-profit organization, and it equals zero if MFI is for-profit). Country-level control variables include number of branches of commercial banks, CPI inflation, GDP growth, GDP per capita, and population size.

I estimate coefficients in equation (1) by using a random effects model based on the Generalized Least Squares (GLS) method. One requirement to use random effects models is that the unobserved individual effect is uncorrelated with the other regressors in the model. I assume that my measurements of labor market flexibility are uncorrelated with the unobservable MFI effects and the use of the random effects model is appropriate. In the finance literature, the fixed effects approach is the most common alternative panel-data model. Using a fixed effect model transforms the data by subtracting the entity-specific average from each variable (de-meaned variables). This transformation eliminates the individual specific constant term, δ_i, from the model, but it also removes any other time invariant independent variable. Some of the proxies I use for labor market flexibility do not vary, or they vary very little from one year to another.

Therefore, the fixed effects transformation eliminates the variation of the explanatory variables; thus, it makes identifying the coefficients difficult; it also inflates the standard errors, reducing the statistical significance of the estimates (Greene, 2012). This fact further supports my decision to use a random effects approach instead of a fixed effects model in this study.

I also estimate a dynamic panel specification to address endogeinity concerns that arise from the fact that relationships among MFI's observable performances are likely to be dynamic. For example, the current observations of some of the explanatory variables (MFI-specific controls) may not be independent of past values of the dependent variable, MFI performance; see, for example, Wintoki et al. (2012) for a similar problem in corporate finance research. Also, consider the fact that many microcredit programs use dynamic incentives and progressive lending in order to deter borrower moral hazard (Armendariz and Murdoch, 2010). Under these schemes, MFIs generate information on their clients by starting with very small loans and gradually increasing loan size as the clients demonstrate reliability. This contract structure would make the average loan size (the dependent variable in some of my previous models) a function of the size of past loans. If this situation is the case, then the appropriate empirical model should be a dynamic model of the form:

$$Y_{ijt} = \beta_0 + \gamma Y_{ijt-1} + \beta_1 LF_{jt} + \beta_2 X_{it} + \beta_3 C_{jt} + \delta_i + \epsilon_{it}, \qquad (2)$$

where Y is the vector of variables that measure MFIs' social and financial performance, LF is the vector of variables for labor market flexibility, FA represents financial access, X is a vector of microfinance institution-specific control variables such as size, leverage, risk, liquidity, and profit status. The vector C contains country-specific control variables such as the size of the economy, rate of inflation, income per capita, and size of population.

The problem in equation (2) is that Y_{ijt-1} is endogenous to the fixed-effects term, δ_i, which is absorbed by the error term, causing an endogeneity bias. To alleviate this endogeneity concern, I apply the dynamic Generalizing Methods of Moments (GMM) estimator (Arellano and Bond, 1991; Blundell and Bond, 1998) to the panel of MFIs to estimate the relationship between labor market flexibility and MFIs' financial and social performance.[3]

4. Data

In this section, I describe the data sources I use in the empirical analysis. My data sets come from several sources. The microfinance institutions' financial and social performance and other MFI characteristics data are from the Microfinance Information Exchange (MIX). MIX provides access to financial and social performance for more than 2,100 microfinance institutions in 120 countries in the developing world, dating back to 1995. MIX is the main source of self-reported data on entities that are involved in microfinance; accordingly, MIX provides the most complete data available on microfinance institutions around the world. A drawback of this data set is that MFIs submit all of this data on a voluntary basis. Therefore, some data could be missing if the institution failed to submit that data to MIX. Furthermore, some information may also be inaccurate. In the analysis beginning in the next section, I clean the data in the following ways. First, I include only MFIs that have at least four years of observations available. Second, MIX uses a diamond scale system ranging from one to five to evaluate the transparency of the information it receives from the organizations. I include in my analysis only MFIs data that MIX ranked four or five diamonds. Finally, I Winsorize all the dependent and microbank-specific independent variables at the upper and lower one percent levels. Outliers are common in MIX data, and this

[3] I estimate the dynamic GMM regressions using the "xtabond2" Stata command developed by Rodman (2009). I consider all variables as endogenous, and I instrument them using up to two lags.

approach is the standard procedure scholars use in the finance literature to minimize the influence of extreme outliers.

Labor market flexibility is proxied by the five indicators proposed by Gwartney, Hall, and Lawson (2013). These indicators include measurements of the tightness of regulations in five areas: (i) minimum wage, (ii) mandated costs of workers dismissal, (iii) hiring and firing, (iv) centralized collective bargaining, and (v) hours regulations. The indicators range between zero and ten. The higher the score the more flexible the labor market. Appendix A describes these indicators and their sources.

I measure financial levels of access using the number of branches of commercial banks per 100,000 adults. I take this variable from the Global Financial Development Database of the World Bank (for a complete description of the data set, see Čihák, Demirgüç-Kunt, Feyen, and Levine, 2012). Finally, I take data on country-level control variables from the World Bank's World Development Indicators 2013 (WDI). WDI is the primary World Bank data base for development data from officially recognized international sources.

The final data set consists of unbalanced panel data for 863 MFIs from 96 countries over the period 1995-2012 for a total of 7,615 MFI-year observations. Table 1 provides descriptive statistics for the dependent variables, labor market indicators, and control variables. I report correlations among the variables in Table 2.

[Table 1 about here]

[Table 2 about here]

5. Empirical Results

In the analysis that follows, I establish a relationship between a country's labor market flexibility and MFIs' financial and social performances by first doing a univariate analysis, and then estimating static random-effects regressions and dynamic GMM regressions.

5.1 Univariate Analysis

First, I establish a relationship between a country's labor market flexibility and MFIs' performance variables (financial and social performance) by reporting mean values for performance measures in different categories according to the degree of labor markets flexibility. More specifically, I form portfolios of MFIs by dividing the countries into above- and below-median values for each labor market flexibility indicator.

Panel A of Table 3 reports the results of comparing MFI financial performance between low and high labor market flexibility. Results indicate that MFIs achieve superior financial goals in countries with high labor market friction. Among the different labor market flexibility indicators analyzed that show statistically significant differences, I find that MFIs in countries that have flexible regulations on the mandated cost of worker dismissal have lower portfolio yields (which, as I noted before, could be interpreted also as the average interest that MFIs charge) than the yields of MFIs located in countries with tighter regulations on this area. Profit margins are also low for MFIs in countries that have flexible regulations about the mandate cost of worker dismissal. The results suggest that a complementary relationship exists between market friction and microfinance. In particular, average interest rates are high when regulations increase the costs of worker dismissals.

Panel B of Table 3 reports the results of comparing MFIs social performance between low and high labor market flexibility. Results also indicate that MFIs achieve superior social goals in

countries with high labor market frictions. For example, the average loan is relatively small for MFIs operating in countries with rigid rules about centralized collective bargaining and about mandated costs of worker dismissals (as noted before, small loans are a desirable output when one is interested in financial inclusion, as the very poor customers ask for small amounts of money). The percentage of female borrowers is also high in countries with rigid work rules in the same areas. These results support the idea of competition between MFIs' outreach and flexible labor markets.

[Table 3 about here]

5.2 Multivariate Analysis: Static Specification

In this section, I use a multivariate setting to examine the effects that labor market flexibility has on MFIs' performance. I regress each of my proxies of financial and social performances on the explanatory variable measuring labor market flexibility and control variables. In these regressions, I use random effects models and correct standard errors for clustering of observations at the MFI level (i.e., I assume observations are independent across MFIs, but not within MFIs).

First, I estimate random effects models including a composite labor market index (calculated as the equal-weighted average of the five regulation indicators in Gwartney et al., 2013). Table 4 presents the results from regressions for each of the dependent variables on the labor market regulation index and control variables. The results show that MFIs located in countries with flexible labor regulations have relatively low financial performance. An interesting result is that the average interest rate (or portfolio yield) is high when labor markets have more friction. This result is consistent with Emran et al.'s (2011) model that shows that when frictions in the labor market increases the cost of information and search, then poor households will be

willing to take high interest rate microcredits. With regard to MFI outreach efforts, the results I show in Table 4 indicate that when using the static random effects models, the association between labor market flexibility and MFIs social performance is statistically insignificant.

[Table 4 about here]

For comprehensiveness, I also control for a number of factors, such as the degree of financial inclusion of each country and MFIs' characteristics that appear in the existing literature and may also affect MFIs' performance. Regression results show that the financial and social performances of MFIs are low for MFIs in countries with high access to the formal financial system. This result is consistent with a market-failure hypothesis that states that MFIs' financial performance is high when formal banks are less accessible. Idiosyncratic characteristics of MFIs, such as size; capital structure; risk, and liquidity, are also important determinants of the financial and social successes of MFIs, independent of the imperfections of the markets where they are located.

Now, with the intention to obtain a more detailed assessment of the role of labor market flexibility, I individually consider the effects that each of the five regulation flexibility indicators in Gwartney et al. (2013) have on MFIs' financial and social performance.

Table 5 reports the results for the random effects regressions of MFIs' financial performance on the five labor market flexibility indicators. As before, I estimate four alternative models, using ROA, portfolio yield, OSS, and profit margin as the dependent variable, respectively. In particular, the regression estimates in Table 5 show a negative association between the flexibility of rules regarding the number of work hours and all the measures of financial performance (ROA, portfolio yields, OSS, and profit margins). To restate these findings, MFIs that operate in countries with rigid rules on work hours have relatively high financial performance.

Overall, results are consistent with Emran et al.'s (2011) predictions. The results regarding the high profitability of microcredits in countries with rigid regulations on work hours is also consistent with the evidence of Botero et al. (2003), who find that heavy regulation of labor is associated with a large unofficial economy, low labor force participation, and high unemployment.

[Table 5 about here]

Table 6 reports the results for the random effects regressions of MFIs' social performance measures on the five labor market flexibility indicators. I estimate four alternative models, using average amount lent, number of borrowers, number of depositors, and the percentage of female borrowers of the total portfolio of loans as the dependent variable, respectively. The results are mixed. For example, the indicator for the mandated costs of worker dismissal regulations is positively and significantly related to the size of the average loan, indicating that MFIs in countries with low labor market frictions in this area provide relative large loans. The same flexibility indicator is negatively and significantly related to the percentage of female borrowers, meaning that MFIs that operate in countries with high costs of dismissing workers are likely to have more female borrowers in their loan portfolios than otherwise. These results are consistent with the hypothesis that countries' labor market flexibility indicators are negatively and significantly related to the social performance of their MFIs. However, other indicators, like regulation on minimum wage, are positively associated with MFIs' social performance, indicating that the more flexible the regulation on minimum wage, the greater the demand for microcredits. Overall, regulation of labor in different areas appears to have different effects on the outreach efforts of MFIs.

[Table 6 about here]

5.3 Multivariate Analysis: Dynamic Models

Table 7 displays the estimates for different specifications of MFIs' financial performance. The results show that the composite labor market flexibility index (calculated as the average of the five flexibility indicators) has a negative and significant relationship to the financial performance of MFIs. Returns on assets, portfolio yields, and profit margins are all negatively and significantly associated with the flexibility index. These results suggest that the positive relationship reported earlier between the labor regulation and MFIs' financial performance retains the same sign after controlling for potential endogeneity problems.

[Table 7 about here]

Table 8 reports the results for the dynamic panel GMM regressions for the MFIs' social performance on labor market flexibility indicators. The results show that the labor market flexibility index has now a negative and significant relationship to MFIs' social performance. In particular, more flexible labor regulation is negatively associated with the number of borrowers, especially female borrowers. These results show that when correcting for the endogeneity bias, the relationships between MFIs' social performance and labor market failures become negative and statistically significant.

[Table 8 about here]

While Table 7 and Table 8 report dynamic regressions using the aggregate labor regulation index, Table 9 reports dynamic regressions using the five individual indicators of this index. For brevity, I report in Table 9 only coefficients of interest and suppress all control variables. I find that hiring and firing regulations have the strongest and most statistically significant effect on MFI's financial performances. Meanwhile, different labor flexibility indicators appear to have different effects on the social performances of MFIs. Finally, this additional estimation method

yields statistically significant effects for indicators in areas that are different from those when I use random effect regressions. This finding casts some doubts on the robustness of the relationships between individual labor market flexibility indicators and MFIs' performances.

[Table 9 about here]

6. Summary and Concluding Remarks

In this article, I have shown how cross-country variations in labor market flexibility variables, measuring the presence and restrictiveness of regulation, affect the financial and social performance of MFIs. Recently, several researchers have investigated the link among financial development, institutional characteristics, and MFIs' performance (see, for example, Ahlin et al., 2011). However, the link between MFIs' performance and the flexibility of the labor market remains unexplored in the literature. The results from my analysis sheds light on these issues and should be of interest for microfinance practitioners, policymakers, and donors. They might like to know, for example, whether the effectiveness of microfinance as an anti-poverty device in some poor developing countries in Asia and Africa may be replicated in countries with more developed labor markets.

This research shows that the performance of microfinance should depend on the country's labor market regulations in the sense that as the cost of labor force participation lessens, more wage-earning opportunities are available in the economy. In addition, fewer poor households will be willing to pay high interest rates to access microcredits, thus lowering the demand for these types of loans and the profitability of MFIs. The findings in this study confirm this hypothesis. Friction in the labor markets limit the extent to which an MFI can be profitable and successful in its outreach to very poor customers.

The bottom line of this analysis is that microfinance is more successful financially in economies with imperfect labor markets. I also find some evidence of the same substitution between MFIs social performance and labor markets frictions. Also, idiosyncratic characteristics of an MFI including size, capital structure, and riskiness are important determinants of an MFI's financial and social success. Overall, this article identifies some important determinants of microfinance success. More importantly, this study illuminates how the degree of labor market flexibility of a country in which an MFI operates significantly affects the MFI's profitability and the cost that low-income households must pay for financial services.

List of References

Ahlin, C., J. Lin, and M. Maio. (2011). "Where Does Microfinance Flourish? Microfinance Institution Performance in Macroeconomic Context," *Journal of Development Economics* 95, 105-120.

Armendariz, B. and J. Murdoch. (2010). *The Economics of Microfinance*, Second Edition, MIT Press, Cambridge MA.

Banerjee, A. E. Duflo, R. Glennerster, and C. Kinnan. (2015). "The Miracle of Microfinance? Evidence from a Randomized Evaluation," *American Economic Journal: Applied Economics* 7, 22-53.

Beck, T., A. Demirgüc-kunt, and M. Martinez Peria. (2007). "Reaching out: Access to and Use of Banking Services across Countries," *Journal of Financial Economics* 47, 221-248.

Beck, T., A. Demirguc-Kunt, and R. Levine. (2007). "Finance, Inequality, and the Poor," *Journal of Economic Growth* 12, 27–49.

Bernal-Verdugo, L. D. Furceri, and D. Guillaume. (2012). "Labor Market Flexibility and Unemployment: New Empirical Evidence of Static and Dynamic Effects," *Comparative Economic Studies* 54, 251-273.

Botero, J., S. Djankov, R. LaPorta, F. Lopez de Silanes, and A. Shleifer. (2004). "The Regulation of Labor," *Quarterly Journal of Economics* 119, 1339-1382.

Brau, J. and G. Woller. (2004). "Microfinance: A Comprehensive Review of the Existing Literature," *Journal of Entrepreneurial Finance* 9, 1-26.

Callaghan, I., H. Gonzalez, D. Maurice, and C. Novak. (2007). "Microfinance: On the Road to Capital Markets," *Journal of Applied Corporate Finance* 19, 115-124.

Carpena, F., S. Cole, and J. Shapiro. (2010). "Liability Structure in Small-scale Finance: Evidence from a Natural Experiment," *Word Bank Policy Research Working Paper Series*.

Cihak, M., A. Demirguc-Kunt, E. Feyen, and R. Levine. (2012). "Benchmarking Financial Systems around the World, " Policy Research working paper no. WPS 6175. Washington D.C. - The Worldbank.

Collins, D., J. Murduch, S. Rutherford, and O. Ruthven. (2009). *Portfolios of the Poor: How the World's Poor live on $2 a day*, Princeton University Press.

Cowan, K., A. Drexler, and A. Yanez. (2009). "The Effect of Credit Insurance on Liquidity Constraints and Default Rates: Evidence from a Governmental Intervention," Central Bank of Chile Working Papers.

Cull, R., A. Demirgüc-kunt, and J. Morduch. (2007). "Financial Performance and Outreach: A Global Analysis of Leading Microbanks," *Economic Journal* 117, 107-133.

Cull, R., A. Demirgüc-kunt, and J. Morduch. (2009). "Microfinance Meets the Market," *The Journal of Economic Perspectives* 23, 167-192.

Ehrbeck, T. (2006). Optimizing Capital Supply in Support Microfinance Industry Growth. McKinsey & Co. presentation at Microfinance Investor Roundtable, Washington, D.C., October 24-25.

Elaydi, R. and C. Harrison. (2010). "Strategic Motivations and Choice in Subsistence Markets,"*Journal of Business Research* 63, 651-655.

Feldmann, H. (2009). "The Unemployment Effects of Labor Regulation around the World," *Journal of Comparative Economics* 37, 76–90.

Fairlie, R. (2013). "Entrepreneurship, Economic Conditions, and the Great Recession," *Journal of Economics and Management Strategy* 22, 207-231.

Galema, R., R. Lensink, and L. Spierdijk. (2011). "International Diversification and Microfinance," *Journal of International Money and Finance* 30, 507-515.

Garmaise, M.J. and G. Natividad. (2010). "Information, the Cost of Credit, and Operational Efficiency: An Empirical Study of Microfinance," *The Review of Financial Studies* 23, 2560-2590.

Greene, W. (2012). *Econometric Analysis*, Seventh Edition, Prentice Hall.

Gwartney, J., J. Hall, and R. Lawson. (2013). "Economic Freedom of the World: 2012 Annual Report" Vancouver: Fraser Institute.

Hermes, N., R. Lensink, and A. Meesters. (2009). "Financial Development and the Efficiency of Microfinance Institutions," working paper University of Groningen.

Honohan, P. (2008). "Cross-country Variation in Household Access to Financial Services," *Journal of Banking and Finance* 32, 2493-2500.

Karlan, D. and J. Zinman. (2008). "Credit Elasticities in Less-developed Economies: Implication for Microfinance," *American Economic Review* 98, 1040-1068.

Karlan, D. and J. Zinman. (2010). "Expanding Credit Access: Using Randomized Supply Decisions to Estimate the Impacts," *The Review of Financial Studies* 23, 433-464.

Krauss, N. and I. Walter. (2009). "Can Microfinance Reduce Portfolio Volatility," *Economic Development and Cultural Change* 58, 85-110.

Levine, R. (2002). "Bank-based or Market-based Financial Systems: Which is Better?" *Journal of Financial intermediation* 11, 1-30

Levine, R. (2005). “Finance and Growth: Theory and Evidence, Handbook of Economic Growth,” in: Philippe Aghion & Steven Durlauf (ed.), Handbook of Economic Growth, Edition 1, Volume 1, Chapter 12, 865-934.

Merland, R., T. Randoy, and R. Oystein Strom. (2011). “The Impact of International Influence on Microbanks' Performance: A Global Survey,” *International Business Review* 20, 163-176.

Mersland, R. and R. Oystein Strom. (2009). “Performance and Governance in Microfinance Institutions,” *Journal of Banking and Finance* 33, 662-669.

Pande, R. and R. Burgess. (2005). “Can Rural Banks Reduce Poverty? Evidence from the Indian Social Banking Experiment,” *American Economic Review* 95, 780-95.

Roodman, D. (2009). “How to do xtabond2: An introduction to "difference" and "system" GMM in Stata,” *Stata Journal* 9, 86-136.

Schreiner, M. (2002). “Aspects of Outreach: A Framework for Discussion of the Social Benefits of Microfinance,” *Journal of International Development* 14, 591–603.

Shahe, M., A.K.M. Mahbub, and J. Stiglitz. (2011). “Microfinance and Missing Markets,” working paper, Columbia University.

Stiglitz, J.E. and A. Weiss. (1981). “Credit Rationing in Markets with Imperfect Information,” *American Economic Review* 71, 393-419.

Techakoute-Tchuigoua, H. (2010). “Is there a Difference in Performance by the Legal Status of Microfinance Institution?” *The Quarterly Review of Economics and Finance* 50, 436-442.

Wintoki, M.B., J. S. Linck, and J. M. Netter. (2012). “Endogeneity and the Dynamics of Internal Corporate Governance,” *Journal of Financial Economics* 105, 581-606.

Appendix A. Definition for dependent and independent variables

Variable Nature	Definition	Source
MFI's Financial Performance		
ROA	(Net operating income - taxes) / average total assets.	MixMarket
Operational Self-sufficiency (OSS)	Financial revenue / (financial expenses + net impairment loss + operating expense).	MixMarket
Portfolio yield	Financial revenue from loan portfolio / average gross loan portfolio.	MixMarket
Profit Margin	Net operating income / financial revenue.	MixMarket
MFIs' Social Performance		
Average Loan	Average loan balance per borrower (expressed in thousands of dollars).	MixMarket
Borrowers	(Number of borrowers with loans outstanding / country's population)*1000.	MixMarket
Depositors	(Number of deposits with any type of deposit account / country's population) *1000.	MixMarket
% of Female Borrowers	Number of active female borrowers / number of active borrowers.	MixMarket
Labor Market Flexibility Indicators		
(The indicators range between 0 and 10. Higher score indicates a more flexible labor market)		
Minimum Wage	This sub-component is based on the World Bank's Doing Business "Difficulty of Hiring Index". The difficulty of hiring index measures: (i) whether fixed-term contract are prohibited for permanent tasks; (ii) the maximum cumulative duration for fixed-term contract; and (iii) the ratio of the minimum wage for a trainee or first time employee to the average value added per worker. Countries with greater difficulty of hiring are given lower ratings.	Gwartney et al. (2013) World Bank's Doing Business
Hiring and Firing Regulations	This sub-component is based on the Global Competitiveness Report question: "The hiring and firing of workers is impeded by regulations or flexibly determined by employers."	Gwartney et al. (2013) Global Competitiveness Report

(Continued)

(Appendix A continued)

Variable Nature	Definition	Source
Centralized Collective Bargaining	This sub-component is based on the Global Competitiveness Report question: "Wages in your country are set by a centralized bargaining process or up to each individual company."	Gwartney et al. (2013) World Bank's Doing Business
Mandated Cost of Worker Dismissal	This sub-component is based on the World Bank's Doing Business data on the cost of requirements for advance notice, severance payments, and penalties due when dismissing a redundant worker with tenure of ten years.	Gwartney et al. (2013) World Bank's Doing Business
Hours Regulations	This sub-component is based on the World Bank's Doing Business "Rigidity of Hours Index.". The rigidity hours index has 5 components: (i) whether there are restrictions on night work; (ii) whether there are restrictions on weekly holiday work; (iii) whether the workweek can extend to 50 hours or ore (including overtime) for 2 months a year in response to a seasonal increase in production; and (v) whether paid annual vacation is 21 working days or fewer. Countries with less rigid work rules receive better scores in this component.	Gwartney et al. (2013) World Bank's Doing Business (http://www.doingbusiness.org)

Table 1. **Descriptive statistics for key variables**

This table gives descriptive statistics for dependent and independent variables in Chapter 4. Labor market flexibility indicators are taken from Gwartney et al. (2013). Indicators range from 1 to 10. A higher score indicates a more flexible labor market. Country-level control variables are from the World Bank's World Development Indicators 2013. Data on financial and social performance is collected from the MixMarket database for the period 1995 to 2012. The table presents the number of observations, min, mean, max, standard deviation, skewness, and kurtosis.

	N	Min	Mean	Max	SD	Skewness	Kurtosis
Financial Performance							
ROA	6389	-0.464	0.013	0.202	0.090	-2.391	12.613
Portfolio yield	5363	0.057	0.329	0.956	0.170	1.405	5.254
OSS	7135	0.163	1.142	2.626	0.370	0.630	6.179
Profit margin	7119	-4.298	-0.025	0.614	0.654	-4.553	26.981
Social Performance							
Average loan	7161	0.091	0.845	2.756	0.880	1.146	2.972
Borrowers	5980	0.000	1.983	52.930	7.141	5.563	36.024
Depositors	6773	0.002	1.882	27.919	4.106	4.169	23.013
% of female borrowers	6201	0.050	0.670	1.000	0.272	-0.287	1.949
Labor Market Flexibility							
Indicators							
Minimum Wage	5929	0.000	5.947	10.000	2.745	0.001	2.058
Hiring and Firing Regulations	5665	1.000	4.601	8.162	1.265	0.165	2.313
Centralized Collective Bargaining	5665	2.020	6.638	8.877	0.995	-0.653	3.752
Mandated Cost of Worker Dismissal	5587	0.000	4.366	10.000	3.154	0.065	1.651
Conscription	5887	3.674	8.041	10.000	1.798	-0.598	2.464
Financial Development							
Bank Private Credit to GDP	6281	2.242	29.015	109.088	16.216	1.492	6.871
Branches per 100,000 Adults	4734	0.715	13.243	92.681	13.253	2.843	13.399
MFI control variables							
Ln(Assets)	7461	11.346	15.791	20.615	1.912	0.224	2.857
Debt to Equity	7248	-11.890	4.333	54.580	7.481	4.132	26.245
Deposits to Loan	5758	0.000	0.289	2.150	0.425	1.874	6.952
Deposit to Total Assets	5719	0.000	0.198	0.859	0.266	1.097	2.802
Portfolio at Risk (30)	6422	0.000	0.055	0.460	0.075	3.007	14.201
Profit Status	7552	0.000	0.570	1.000	0.495	-0.282	1.079
Country control variables							
CPI Inflation	6894	-13.226	7.230	96.094	6.691	6.230	73.538
Ln (GDP per Capita)	7060	4.902	7.277	9.266	0.914	-0.029	2.052
GDP Growth	7063	-14.800	5.354	46.500	3.859	1.512	17.031
Ln (Population Size)	7141	12.070	17.192	20.936	1.676	0.639	2.978

Table 2. **Correlations among dependent and independent variables**

This table reports correlations among dependent variables (Panel A), and among the indicators of labor market flexibility (Panel B). I describe the variables in Appendix A.

Panel A:								
Dependent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ROA (1)	1							
Portfolio yield (2)	0.0382	1						
OSS (3)	0.7866	-0.0218	1					
Profit margin (4)	0.8217	0.0373	0.7029	1				
Average loan (5)	0.0907	-0.3203	0.1391	0.1329	1			
Borrowers (6)	0.0347	-0.1116	0.0605	0.0598	0.1453	1		
Depositors (7)	0.1118	-0.0749	0.125	0.1074	0.1157	0.6947	1	
% of female borrowers (8)	-0.0322	0.1927	-0.073	-0.0535	-0.66	-0.0473	-0.0619	1
Panel B:								
Labor Market Flexibility Indicators and Trend	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Minimum Wage (1)	1							
Hiring and Firing Regulations (2)	0.2453	1						
Centralized Collective Bargaining (3)	0.4124	0.5704	1					
Mandated Cost of Worker Dismissal (4)	0.291	0.4478	0.4977	1				
Hours Regulations (5)	0.1094	0.068	-0.0961	-0.0572	1			
Labor Force Participation (6)	-0.0754	-0.0878	-0.0279	-0.1013	-0.0786	1		
Labor Force Participation, Female (7)	0.0189	0.0635	0.0734	0.1249	-0.0669	0.9192	1	
Unemployment (8)	-0.0136	0.0794	0.0591	0.2705	0.0718	-0.3281	-0.1211	1

Table 3. **Mean-comparison tests (univariate analysis) of MFIs' performances**

This table presents averages and univariate t-tests for the differences in means of the proxies for financial (Panel A) and social performance (Panel B) across two groups of countries according to the degree of labor market flexibility. Comparisons are made between the average of the variable for MFIs in countries with high degree of labor market flexibility and the average for MFIs in countries with low degree of labor market flexibility. The period of analysis is 1995 to 2012. *, **, and *** indicate the means are significantly different at the 10%, 5%, and 1% significant level, respectively.

Panel A: MFI Financial Performance										
		Number of	*ROA*		*Portfolio yield*		*OSS*		*Profit margin*	
	Group	countries	Mean	Difference	Mean	Difference	Mean	Difference	Mean	Difference
Labor Market Flexibility Indicators										
Minimum Wage	Low	39	-0.0070	-0.0024	0.3139	-0.0373	1.0568	-0.0774	-0.1250	0.0711
	High	57	-0.0045		0.3512		1.1342		-0.1960	
Hiring and Firing	Low	38	-0.0036	0.0032	0.3344	-0.0027	1.0830	-0.0326	-0.1534	0.0227
Regulations	High	58	-0.0068		0.3371		1.1156		-0.1761	
Centralized Collective	Low	38	-0.0062	-0.0011	0.3262	-0.0163	1.0655	-0.0617	-0.1512	0.0264
Bargaining	High	58	-0.0051		0.3425		1.1271		-0.1776	
Mandated Cost of	Low	39	0.0018	0.0123	0.3699	0.0570**	1.1366	0.0570	-0.0486	0.1997**
Worker Dismissal	High	57	-0.0105		0.3128		1.0796		-0.2483	
Hours Regulations	Low	38	-0.0051	0.0007	0.3294	-0.0132	1.0538	-0.0911	-0.1726	-0.0034
	High	52	-0.0059		0.3426		1.1449		-0.1692	
Panel B: MFI Social Performance										
		Number of	*Average loan*		*Borrowers*		*Depositors*		*% of female borrowers*	
	Group	countries	Mean	Difference	Mean	Difference	Mean	Difference	Mean	Difference
Labor Market Flexibility Indicators										
Minimum Wage	Low	39	0.9591	-0.0492	1.7447	-1.7425	1.5621	-1.5976*	0.6250	0.0049
	High	57	1.0082		3.4872		3.1597		0.6201	
Hiring and Firing	Low	38	0.9823	-0.0099	1.4745	-2.1269*	1.8580	-1.0366	0.6148	-0.0120
Regulations	High	58	0.9922		3.6013		2.8945		0.6269	
Centralized Collective	Low	38	0.7847	-0.3370**	1.5589	-2.1117*	1.8774	-1.0680	0.6757	0.0887**
Bargaining	High	58	1.1216		3.6706		2.9454		0.5870	
Mandated Cost of	Low	39	0.6801	-0.5190***	1.7048	-1.8124	1.7234	-1.3154	0.6904	0.1151**
Worker Dismissal	High	57	1.1991		3.5172		3.0387		0.5753	
Hours Regulations	Low	38	1.1077	0.1879	2.0605	-1.3389	1.5440	-1.7980*	0.5851	-0.0696
	High	52	0.9198		3.3994		3.3420		0.6547	

Table 4. **Random-effects regressions of MFIs' performances**

This table presents the parameter estimates for the following model: $Y_{ijt} = \beta_0 + \beta_1 LF_{jt} + \beta_2 FA_{jt} + \beta_3 X_{it} + \beta_4 C_{jt} + \delta_i + \epsilon_{it}$, where Y is a vector that contains measures for MFI performance, LF represents labor market flexibility (in this case, the average of the five indicators in Gwartney et al., 2013), FA represents financial access, X is a vector of microfinance institution-specific control variables. The vector C contains country-specific control variables. MFI-clustered robust standard errors in parentheses. *, **, and *** indicate the coefficient is significantly different from zero at the 10%, 5%, and 1% significant level, respectively.

	ROA	*Portfolio yield*	*OSS*	*Profit margin*	*Average loan*	*Borrowers*	*Depositors*	*% of female borrowers*
Labor Market Flexibility								
Labor Market Flexibility Index	-0.0064**	-0.0090**	-0.0137	-0.0361***	0.0222	0.1292	0.1120	0.0107*
	(0.0025)	(0.0040)	(0.0086)	(0.0139)	(0.0171)	(0.1088)	(0.0710)	(0.0061)
Financial Access								
Commercial Bank Branches per	-0.0004**	-0.0011***	-0.0020***	-0.0012	0.0138***	0.0046	0.0062	-0.0010**
100,000 Adults	(0.0001)	(0.0002)	(0.0007)	(0.0008)	(0.0017)	(0.0129)	(0.0077)	(0.0004)
MFI control variables								
Ln (Assets)	0.0106***	-0.0153***	0.0348***	0.0704***	0.0931***	1.1392***	1.0023***	-0.0055*
	(0.0020)	(0.0029)	(0.0065)	(0.0146)	(0.0120)	(0.1955)	(0.0942)	(0.0032)
Debt to Equity	-0.0009***	-0.0002	-0.0033***	-0.0026	0.0006	0.0125*	0.0133***	-0.0000
	(0.0003)	(0.0004)	(0.0009)	(0.0029)	(0.0010)	(0.0075)	(0.0039)	(0.0002)
Deposits to Loans	-0.0385***	0.0762***	-0.1029**	-0.3263**	-0.1680*	-0.8022	-1.2890**	-0.0478
	(0.0142)	(0.0257)	(0.0462)	(0.1411)	(0.0989)	(1.4750)	(0.5457)	(0.0465)
Deposit to Total Assets	0.0579**	-0.1197***	0.1838**	0.5952***	0.7651***	8.7955***	2.9811***	0.0379
	(0.0231)	(0.0437)	(0.0774)	(0.2065)	(0.1701)	(2.2262)	(0.9112)	(0.0742)
Portfolio at Risk (30 days)	-0.1960***	-0.0756***	-0.8017***	-1.1619***	-0.1284	-2.0336**	-0.3105	-0.1388***
	(0.0283)	(0.0290)	(0.1047)	(0.2432)	(0.1117)	(0.8646)	(0.3084)	(0.0538)
Profit Status (0,1)	0.0074	-0.0492***	0.0205	0.0174	-0.1518***	-0.7188*	-0.1139	0.0938***
	(0.0059)	(0.0121)	(0.0224)	(0.0353)	(0.0489)	(0.4171)	(0.2407)	(0.0184)
Country control variables								
CPI Inflation	-0.0001	0.0015***	0.0008	0.0020	-0.0028*	0.0225	0.0059	0.0004
	(0.0003)	(0.0004)	(0.0012)	(0.0021)	(0.0015)	(0.0219)	(0.0056)	(0.0006)
Ln (GDP per Capita)	0.0042	0.0643***	0.0172	0.0087	0.2337***	-0.5265*	-0.3360**	-0.0360***
	(0.0043)	(0.0101)	(0.0144)	(0.0245)	(0.0318)	(0.2881)	(0.1584)	(0.0118)
GDP Growth	0.0015***	-0.0001	0.0070***	0.0045**	-0.0008	-0.0187	-0.0237**	0.0009
	(0.0003)	(0.0004)	(0.0013)	(0.0018)	(0.0026)	(0.0186)	(0.0093)	(0.0006)
Ln (Population Size)	-0.0002	0.0039	-0.0112*	-0.0105	-0.1902***	-0.6114***	-0.6400***	0.0620***
	(0.0015)	(0.0031)	(0.0064)	(0.0089)	(0.0138)	(0.1444)	(0.0736)	(0.0050)
N	3242	3237	3359	3359	3349	3117	3350	3097
Within R2	0.1041	0.0375	0.1074	0.0961	0.2543	0.0877	0.2429	0.0105
Between R2	0.0576	0.1621	0.0453	0.0493	0.4903	0.3038	0.4066	0.2931
Overall R2	0.0850	0.1648	0.0782	0.0674	0.4815	0.2990	0.4098	0.2745

Table 5. **Random-effects regressions of MFIs' financial performances**

This table presents the parameter estimates for the following model: $Y_{ijt} = \beta_0 + \beta_1 LF_{jt} + \beta_2 FA_{jt} + \beta_3 X_{it} + \beta_4 C_{jt} + \delta_i + \epsilon_{it}$, where Y is a vector that contains measures for MFI financial performance, LF is a vector of labor market flexibility variables, FA represents financial access variables, X is a vector of microfinance institution-specific control variables. The vector C contains country-specific control variables. MFI-clustered robust standard errors in parentheses. *, **, and *** indicate the coefficient is significantly different from zero at the 10%, 5%, and 1% significant level, respectively.

	ROA	*Portfolio yield*	*OSS*	*Profit margin*
Labor Market Flexibility Indicators				
Minimum Wage	0.0003	-0.0012	0.0021	0.0031
	(0.0012)	(0.0022)	(0.0045)	(0.0075)
Hiring and Firing Regulations	-0.0018	0.0035	-0.0116	0.0045
	(0.0023)	(0.0034)	(0.0092)	(0.0137)
Centralized Collective Bargaining	0.0022	-0.0094**	0.0215*	-0.0173
	(0.0032)	(0.0042)	(0.0128)	(0.0258)
Mandate Cost of Worker Dismissal	-0.0006	-0.0003	-0.0014	-0.0043
	(0.0010)	(0.0018)	(0.0038)	(0.0056)
Hours Regulations	-0.0042***	-0.0042*	-0.0127**	-0.0264***
	(0.0014)	(0.0023)	(0.0051)	(0.0086)
Financial Access				
Commercial Bank Branches per 100,000 Adults	-0.0003*	-0.0011***	-0.0016**	-0.0007
	(0.0002)	(0.0003)	(0.0007)	(0.0009)
MFI control variables				
Ln (Assets)	0.0117***	-0.0149***	0.0391***	0.0743***
	(0.0021)	(0.0030)	(0.0068)	(0.0147)
Debt to Equity	-0.0010***	-0.0001	-0.0036***	-0.0029
	(0.0003)	(0.0004)	(0.0010)	(0.0031)
Deposits to Loans	-0.0358***	0.0931***	-0.1161**	-0.2406***
	(0.0120)	(0.0283)	(0.0506)	(0.0849)
Deposit to Total Assets	0.0662***	-0.1411***	0.2427***	0.5389***
	(0.0213)	(0.0478)	(0.0864)	(0.1499)
Portfolio at Risk (30)	-0.2008***	-0.0847***	-0.8165***	-1.2146***
	(0.0289)	(0.0305)	(0.1042)	(0.2473)
Profit Status	0.0097*	-0.0432***	0.0268	0.0283
	(0.0059)	(0.0125)	(0.0227)	(0.0341)
Country control variables				
CPI Inflation	-0.0001	0.0013***	0.0019	0.0013
	(0.0003)	(0.0004)	(0.0013)	(0.0021)
Ln (GDP per Capita)	0.0034	0.0642***	0.0110	0.0092
	(0.0043)	(0.0107)	(0.0145)	(0.0240)
GDP Growth	0.0013***	-0.0001	0.0063***	0.0035**
	(0.0003)	(0.0004)	(0.0013)	(0.0017)
Ln (Population Size)	-0.0005	0.0032	-0.0128*	-0.0116
	(0.0019)	(0.0035)	(0.0077)	(0.0113)
N	3048	3043	3158	3158
Within R2	0.1201	0.0416	0.1289	0.1075
Between R2	0.0511	0.1581	0.0483	0.0452
Overall R2	0.0822	0.1693	0.0839	0.0684

Table 6. **Random-effects regressions of MFIs' social performances**

This table presents the parameter estimates for the following models: $Y_{ijt} = \beta_0 + \beta_1 LF_{jt} + \beta_2 FA_{jt} + \beta_3 X_{it} + \beta_4 C_{jt} + \delta_i + \epsilon_{it}$, where Y is a vector that contains measures for MFI social performance, LF is a vector of labor market flexibility variables, FA represents financial access variables, X is a vector of microfinance institution-specific control variables. The vector C contains country-specific control variables. MFI-clustered robust standard errors in parentheses. *, **, and *** indicate the coefficient is significantly different from zero at the 10%, 5%, and 1% significant level, respectively.

	Average loan	*Borrowers*	*Depositors*	*% of female borrowers*
Labor Market Flexibility Indicators				
Minimum Wage	0.0026	0.2353**	0.1907***	0.0112***
	(0.0089)	(0.1033)	(0.0515)	(0.0030)
Hiring and Firing Regulations	0.0048	0.1246	0.1173	0.0010
	(0.0168)	(0.1327)	(0.0805)	(0.0054)
Centralized Collective Bargaining	0.0100	-0.0660	0.0556	-0.0140*
	(0.0161)	(0.1469)	(0.0850)	(0.0080)
Mandate Cost of Worker Dismissal	0.0213***	-0.0740	-0.1108***	-0.0096***
	(0.0083)	(0.0633)	(0.0372)	(0.0028)
Hours Regulations	0.0061	-0.1099	0.0018	0.0120***
	(0.0116)	(0.1148)	(0.0534)	(0.0033)
Financial Access				
Commercial Bank Branches per 100,000 Adults	0.0136***	0.0252*	0.0177**	-0.0009**
	(0.0017)	(0.0134)	(0.0078)	(0.0004)
MFI control variables				
Ln (Assets)	0.0737***	0.9621***	0.9965***	-0.0046
	(0.0117)	(0.1972)	(0.0995)	(0.0034)
Debt to Equity	0.0005	0.0062	0.0120***	0.0001
	(0.0011)	(0.0056)	(0.0042)	(0.0003)
Deposits to Loans	-0.2054*	-1.9581	-1.4011**	-0.0675
	(0.1065)	(1.7270)	(0.6496)	(0.0559)
Deposit to Total Assets	0.7776***	7.9096***	3.0535***	0.0207
	(0.1805)	(2.2315)	(1.0091)	(0.0876)
Portfolio at Risk (30)	-0.0972	-1.1777	-0.2303	-0.1516***
	(0.1187)	(0.8410)	(0.3234)	(0.0571)
Profit Status	-0.1769***	-0.8640**	-0.0610	0.0928***
	(0.0480)	(0.3928)	(0.2383)	(0.0186)
Country control variables				
CPI Inflation	-0.0034**	0.0188	0.0002	0.0000
	(0.0016)	(0.0248)	(0.0061)	(0.0007)
Ln (GDP per Capita)	0.2259***	-0.7636**	-0.3522**	-0.0347***
	(0.0315)	(0.3268)	(0.1580)	(0.0112)
GDP Growth	-0.0009	-0.0290	-0.0299***	0.0012*
	(0.0027)	(0.0203)	(0.0101)	(0.0006)
Ln (Population Size)	-0.1751***	-0.6333***	-0.7160***	0.0502***
	(0.0154)	(0.1750)	(0.0882)	(0.0053)
N	3148	2926	3149	2898
Within R2	0.2522	0.0690	0.2457	0.0046
Between R2	0.5169	0.2825	0.4090	0.3682
Overall R2	0.5080	0.2760	0.4134	0.3292

Table 7. **Dynamic GMM regressions of MFIs' financial performances**

This table presents dynamics GMM parameter estimates for the following model: $Y_{ijt} = \beta_0 + \beta_1 Y_{ijt-1} + \beta_2 LF_{jt} + \beta_3 FA_{jt} + \beta_4 X_{it} + \beta_5 C_{jt} + \delta_i + \lambda_t + \epsilon_{it}$, where Y is a vector that contains measures for MFI social performance, LF represents labor market flexibility variables (in this case, the average of the five indicators in Gwartney et al., 2013), FA represents financial access variables, X is a vector of microfinance institution-specific control variables. The vector C contains country-specific control variables. The GMM models include one lag of the dependent variable. Year dummies are included in all specifications. All t-statistics are based on robust MFI-clustered standard errors. *, **, and *** indicate the coefficient is significantly different from zero at the 10%, 5%, and 1% significant level, respectively. *AR*(1) and *AR*(2) are tests for first-order and second-order serial correlation in the first-differenced residuals, under the null of no serial correlation. The Hansen J test of over-identification is under the null that all instruments are valid.

	ROA	*Portfolio yield*	*OSS*	*Profit margin*
ROA_{t-1}	0.2402***			
	(0.0724)			
$Portfolio\ yield_{t-1}$		0.7336***		
		(0.0603)		
OSS_{t-1}			0.2489***	
			(0.0781)	
$Profit\ margin_{t-1}$				0.2186***
				(0.0706)
Labor Market Flexibility				
Labor Market Flexibility Index	-0.0119**	-0.0383***	-0.0125	-0.0938**
	(0.0056)	(0.0092)	(0.0215)	(0.0396)
Financial Access				
Commercial Bank Branches per 100,000 Adults	0.0002	0.0018***	0.0006	0.0039
	(0.0004)	(0.0006)	(0.0017)	(0.0027)
MFI control variables				
Ln (Assets)	0.0125**	-0.0022	0.0212	0.0567*
	(0.0049)	(0.0061)	(0.0143)	(0.0338)
Debt to Equity	-0.0009	-0.0016	-0.0038	-0.0015
	(0.0008)	(0.0012)	(0.0023)	(0.0047)
Deposits to Loans	-0.0547*	0.0464	-0.0673	-0.3822
	(0.0313)	(0.0646)	(0.1547)	(0.2355)
Deposit to Total Assets	0.0093	-0.1223	-0.0785	0.1714
	(0.0530)	(0.0968)	(0.2398)	(0.4001)
Portfolio at Risk (30)	-0.2405***	-0.2186***	-1.1442***	-1.9801***
	(0.0569)	(0.0667)	(0.1823)	(0.5000)
Profit Status	-0.0076	-0.0311	-0.0630	-0.0364
	(0.0220)	(0.0313)	(0.0865)	(0.1507)
Country control variables				
CPI Inflation	-0.0006	-0.0016	-0.0035	-0.0030
	(0.0009)	(0.0014)	(0.0035)	(0.0055)
Ln (GDP per Capita)	-0.0071	-0.0385**	-0.0204	-0.0817
	(0.0102)	(0.0162)	(0.0428)	(0.0640)
GDP Growth	0.0021***	0.0018*	0.0088***	0.0121***
	(0.0005)	(0.0009)	(0.0027)	(0.0035)
Ln (Population Size)	-0.0013	0.0096**	-0.0144	0.0031
	(0.0028)	(0.0048)	(0.0122)	(0.0182)
Year dummies	Yes	Yes	Yes	Yes
N	2867	2733	3117	3114
Hansen J (p-value)	0.1409	0.1929	0.1115	0.1136
AR(1) (p-value)	0.0000	0.0000	0.0000	0.0014
AR(2) (p-value)	0.0188	0.7568	0.5541	0.5768
Number of Instruments	182	181	182	182

Table 8. **Dynamic GMM regressions of MFIs' social performances**

This table presents dynamics GMM parameter estimates for the following model: $Y_{ijt} = \beta_0 + \beta_1 Y_{ijt-1} + \beta_2 LF_{jt} + \beta_3 FA_{jt} + \beta_4 X_{it} + \beta_5 C_{jt} + \delta_i + \lambda_t + \epsilon_{it}$, where Y is a vector that contains measures for MFI social performance, LF represents labor market flexibility variables (in this case, the average of the five indicators in Gwartney et al., 2013), FA represents financial access variables, X is a vector of microfinance institution-specific control variables. The vector C contains country-specific control variables. The GMM models include one lag of the dependent variable. Year dummies are included in all specifications. All t-statistics are based on robust MFI-clustered standard errors. *, **, and *** indicate the coefficient is significantly different from zero at the 10%, 5%, and 1% significant level, respectively. *AR*(1) and *AR*(2) are tests for first-order and second-order serial correlation in the first-differenced residuals, under the null of no serial correlation. The Hansen J test of over-identification is under the null that all instruments are valid.

	Average loan	*Borrowers*	*Depositors*	*% of female borrowers*
$Average\ loan_{t-1}$	0.9306***			
	(0.0315)			
$Borrowers_{t-1}$		0.8568***		
		(0.1335)		
$Depositors_{t-1}$			0.9479***	
			(0.0257)	
$\%\ of\ female\ borrowers_{t-1}$				0.3172***
				(0.0987)
Labor Market Flexibility				
Labor Market Flexibility Index	-0.0001	-0.6656*	-0.3898***	-0.0840***
	(0.0242)	(0.3696)	(0.1148)	(0.0197)
Financial Access				
Commercial Bank Branches per 100,000 Adults	0.0006	-0.0092	0.0030	0.0013
	(0.0015)	(0.0251)	(0.0070)	(0.0015)
MFI control variables				
Ln (Assets)	0.0384*	2.0269**	0.5627***	0.0283*
	(0.0208)	(0.8982)	(0.1145)	(0.0164)
Debt to Equity	0.0009	0.0311	-0.0045	-0.0014
	(0.0022)	(0.0439)	(0.0097)	(0.0017)
Deposits to Loans	-0.3133*	2.3759	-0.5689	-0.0646
	(0.1718)	(2.4245)	(0.6483)	(0.0916)
Deposit to Total Assets	0.5877**	-5.7967	-1.8655*	-0.1613
	(0.2617)	(3.9876)	(1.0005)	(0.1614)
Portfolio at Risk (30)	-0.2220	-0.4826	-2.6242***	0.0201
	(0.1383)	(1.9475)	(0.7317)	(0.0974)
Profit Status	-0.1196	0.3958	-0.2039	0.0630
	(0.0941)	(1.2794)	(0.5558)	(0.0712)
Country control variables				
CPI Inflation	0.0032	0.2072	0.0074	0.0009
	(0.0035)	(0.1336)	(0.0170)	(0.0020)
Ln (GDP per Capita)	0.0233	-0.3280	-0.3454*	-0.0663*
	(0.0330)	(0.5523)	(0.2031)	(0.0381)
GDP Growth	0.0066**	-0.0562	0.0508***	-0.0004
	(0.0030)	(0.0545)	(0.0173)	(0.0016)
Ln (Population Size)	-0.0632***	-0.2901	-0.1412	0.0763***
	(0.0170)	(0.2916)	(0.1014)	(0.0144)
Year dummies	Yes	Yes	Yes	Yes
N	3168	2684	3182	2645
Hansen J (p-value)	0.0095	0.2489	0.0443	0.6974
AR(1) (p-value)	0.0000	0.1876	0.0096	0.0000
AR(2) (p-value)	-1.8468	1.1298	0.4656	0.1135
Number of Instruments	182	182	182	182

Table 9. **Dynamic GMM regressions of MFIs' performances on individual labor market flexibility indicators**

This table presents dynamics GMM parameter estimates for the following model: $Y_{ijt} = \beta_0 + \beta_1 Y_{ijt-1} + \beta_2 LF_{jt} + \beta_3 FA_{jt} + \beta_4 X_{it} + \beta_5 C_{jt} + \delta_i + \lambda_t + \epsilon_{it}$, where Y is a vector that contains measures for MFI performance, LF represents labor market flexibility variables, FA represents financial access variables, X is a vector of microfinance institution-specific control variables. The vector C contains country-specific control variables. The GMM models include one lag of the dependent variable. Year dummies are included in all specifications. All t-statistics are based on robust MFI-clustered standard errors. *, **, and *** indicate the coefficient is significantly different from zero at the 10%, 5%, and 1% significant level, respectively. *AR*(1) and *AR*(2) are tests for first-order and second-order serial correlation in the first-differenced residuals, under the null of no serial correlation. The Hansen J test of over-identification is under the null that all instruments are valid.

	ROA	*Portfolio yield*	*OSS*	*Profit margin*	*Average loan*	*Borrowers*	*Depositors*	*% of female borrowers*
Lagged dependent Variable	0.2297***	0.8135***	0.2239***	0.1832***	0.8961***	0.8305***	0.9597***	0.3223***
	(0.0742)	(0.0446)	(0.0724)	(0.0643)	(0.0421)	(0.1459)	(0.0237)	(0.0966)
Labor Market Flexibility Indicators								
Minimum Wage	0.0038	-0.0062	0.0025	0.0062	-0.0234**	0.1686	-0.0244	-0.0106
	(0.0036)	(0.0045)	(0.0134)	(0.0189)	(0.0109)	(0.1777)	(0.0521)	(0.0100)
Hiring and Firing Regulations	-0.0170***	-0.0154**	-0.0620***	-0.0986***	0.0225	-0.1564	-0.1213	0.0043
	(0.0053)	(0.0072)	(0.0190)	(0.0279)	(0.0208)	(0.2346)	(0.0909)	(0.0123)
Centralized Collective Bargaining	0.0009	-0.0036	0.0680**	0.0291	0.0113	-0.5396	0.0892	-0.0111
	(0.0079)	(0.0083)	(0.0294)	(0.0450)	(0.0274)	(0.3320)	(0.1185)	(0.0211)
Mandate Cost of Worker Dismissal	-0.0005	0.0022	0.0008	0.0022	0.0206**	-0.1382	-0.0708	-0.0212***
	(0.0022)	(0.0034)	(0.0094)	(0.0161)	(0.0103)	(0.2221)	(0.0548)	(0.0066)
Hours Regulations	0.0005	0.0001	0.0071	-0.0147	-0.0059	0.6731	-0.0253	-0.0056
	(0.0037)	(0.0050)	(0.0146)	(0.0259)	(0.0143)	(0.4464)	(0.0726)	(0.0079)
Financial Access								
Commercial Bank Branches per	-0.0008**	-0.0008	-0.0022	-0.0000	0.0027*	-0.0276	-0.0085	0.0004
100,000 Adults	(0.0004)	(0.0005)	(0.0014)	(0.0022)	(0.0015)	(0.0226)	(0.0059)	(0.0009)
MFI control variables	Included	Included	Included	Included	Included	Included	Included	Included
Country control variables	Included	Included	Included	Included	Included	Included	Included	Included
Year dummies	Included	Included	Included	Included	Included	Included	Included	Included
N	2696	2568	2928	2925	2976	2976	2976	2976
Hansen J (p-value)	0.1418	0.1418	0.1418	0.1418	0.0112	0.0112	0.0112	0.0112
AR(1) (p-value)	0.0001	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000
AR(2) (p-value)	0.0112	0.0112	0.0112	0.0112	0.1101	0.1101	0.1101	0.1101
Number of Instruments	224	223	224	224	224	225	226	227