

POVERTY PENALTY AND MICROCREDIT

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Abstract

A poverty penalty arises when the poor pay more than the non-poor to access goods and services. An example is the cost to access credit. Microfinance Institutions (MFIs) usually explain their high interest rates on grounds of the high risk involved in microcredit, the high fixed cost associated with small loans and the high financial expenses borne by MFIs given their difficulty in deposit collection. After identifying and quantifying poverty penalty in a sample of MFIs from 17 countries, this paper focuses on the Colombian case. The study reveals that the causes are MFIs' low efficiency and low leverage, associated to their loan methodology and their institutional nature.

Keywords: Microfinance, poverty penalty, mission drift, banking

Acknowledgements: This work was supported by grant ECO2010-20228 of the Spanish Ministry of Education, and the European Regional Development Fund and by grant Ref. S-14/2 of the Government of Aragon.

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INTRODUCTION

Caplovitz (1963) found that the poor usually pay more than the non-poor for goods and services, introducing the concept of poverty penalty. Being most microcredit users poor and financially excluded (Carbó et al. 2005), the high microcredit interest rates could be considered as a form of a financial poverty penalty. Microfinance Institutions (MFIs) usually explain their high interest rates with several arguments such as the high risk of microcredit, the high fixed costs associated with small loans, the high MFIs' financial expenses, and their need for profits to be sustainable and not dependent on donors. The aim of this study is to quantify poverty penalty and to identify the factors explaining microcredit interest rates. The paper analyzes an original dataset comprising annual accounts, as well as the Effective Annual Interest Rate (EIR).

Several research questions are formulated. The first attempts to confirm the existence of a poverty penalty and its magnitude. Several authors have studied microcredit interest rates, Morduch (2000), Hudon and Sandberg (2013) and Roberts (2013). There is a debate regarding the sustainability of MFIs and whether such sustainability would account for their high interest rates or whether it would be better to subsidize MFIs' high interest rates. While Adams et al. (1984) affirm that access to cheap credit gives no incentive to save, Yunus (2007) warns of loan sharks, those MFIs that charge interest rates close to usury. Rosenberg et al. (2009) recognizes that some MFIs are charging their clients rates that are so high that they are difficult to understand from a development perspective. One of the more serious problems for the microfinance sector is the profit orientation of a number of MFIs, according to the annual study by the Centre for the Study of

Financial Innovation (CSFI, 2012). As Hudon and Sandberg (2013) state, the most salient criticism to MFIs in recent years concerns the comparatively high interest rates charged by them. This paper tries to shed light on the above debate, testing if microcredit interest rates are higher than those of other financial products.

The second research question studies the drivers of these high interest rates. Firstly, microcredit risk is analyzed: if lending to the poor involves a high level of non-repayment, it is sensible to compensate this risk by increasing interest rates. But Mersland and Strøm (2010) argue that giving many small loans is a way of diversifying risks for any financial institution. As a second driver, financial expenses are analyzed, which can be high because non-regulated MFIs cannot access deposits, a cheap funding source, Hartarska and Nadolnyak (2007). However, many MFIs receive donations and subsidized funds that lower their funding costs. Next, administrative costs associated with small loans are analyzed; because a microcredit involves high fixed costs, Aleem (1990) and González (2010). Finally, profits are analyzed, which are needed to be self-sustainable, Cull et al. (2007). Beyond sustainability, several socially oriented MFIs are drifting to maximize profits by charging excessively high interest rates, as warned by Augsburg and Fouillet (2010).

Many recent studies on MFIs use information from annual statements. Mersland and Strøm (2009) confirm the high portfolio yield of MFIs (defined as interest revenue to loan portfolio) and also find that MFIs financial performance is related to their governance. Ahlin et al. (2011) find that the mean of the interest markup (defined as the difference between the average financial revenue per dollar loaned and the average financial expense per dollar loaned) is 34.7%. Tchakoute-Tchuigoua (2010) finds that the profit margin (net operating income to financial revenue) does not differ significantly among MFIs by legal status. Rosenberg et al. (2009) analyze the country

distribution of the interest yield (the sum of costs and profits of the loan portfolio). The study by González (2010) finds a clear relationship between interest yield and operating efficiency.

The previous studies have the restriction of solely using information on margins extracted from the annual accounts of MFIs. Accordingly, they do not analyze the EIR, which is the actual interest rate paid by clients. One of the paper's contributions is the use of the EIR, taken from Mftransparency.org, a non-governmental organization that collects information on microcredits and their prices. To the best of our knowledge, there is no previous study about microcredit poverty penalty. This paper analyzes the Colombian case. Colombian microfinance industry is well developed and provides detailed EIR data by product and by institution. In addition to analyzing the data relative to effective rates, the paper analyzes financial statements of MFIs and commercial banks, some of which offer microcredits. This allows for a comprehensive study of the whole financial sector. It is found that the interest rates paid by the clients of MFIs are higher than other interest rates within the data analyzed. Factors driven EIR are analyzed.

The rest of the paper is structured as follows. The first section reviews the literature on financial poverty penalty. The second section presents the hypotheses. The third section contains the empirical study, and the final section presents the discussion and the conclusions.

1. FINANCIAL POVERTY PENALTY

Mendoza (2011) asserts that poverty penalty is the relatively higher cost shouldered by the poor compared to the non-poor for their participation in certain markets. One of the first authors to use the poverty penalty term was Caplovitz (1963), who demonstrates its presence in different products and services. A particular case is financial poverty penalty, which happens when the poor pay more than the non-poor for financial services. A well-developed financial system will result in

interest rates that fully reflect the relative attractiveness of different investment opportunities, Scholtens (2006). There is a relationship between financial exclusion and poverty. Carbó et al. (2005) affirm that financial exclusion is linked to poverty levels and a lack of capital resources. Microfinance institutions reach people that are excluded from the formal financial sector.

There are no specific studies on microcredit poverty penalty, but several authors identify clear examples of a financial poverty penalty. As a first approach, although not focusing on microcredit, the pioneer study by Hartwell (1947) finds that loan size is negatively correlated with interest rates. Rosenberg et al. (2009) study 1,400 MFIs and find that while the median interest rate for microcredits is 26%, it can reach as high as 85%. Driouchi and Mertou (2012) study the informal housing transactions in Morocco and confirm that the poor are charged interest rates that exceed the formal credit markets rates. Bertrand and Morse (2011) find that payday loans are indeed expensive, with annual percentage rates usually over 400%. Prahalad and Hart (2002) claim that Indian moneylenders charge daily interest rates above 20 percent. Valenzuela (2002) finds that the interest rates charged by commercial banks entering the microcredit market are higher for microcredits than they are for small business products, which serves as an example of price discrimination.

Another line of research related to poverty penalty tries to explain its causes, which in our case is what drives microcredit high interest rates. To analyze the causes of the financial poverty penalty in depth, the first stage is to know how interest rates are set. This is an issue largely studied by economists, since Adam Smith's work which notes that interest rates in the colonies were remarkably high and which also discusses the usury phenomenon (Smith, 1937). In the microfinance field, Hudon (2007) explains how clients' interest rates are fixed according to four theories: the procedural approach, the perfect market approach, the credit right approach and the consequentialism approach.

The procedural approach affirms that any interest rate is fair to the extent that it is the result of a free negotiation process where the client is neither coerced nor deceived, Hudon (2007). Small companies have less negotiation power than large companies facing financial institutions. In the case of microfinance, many poor clients are not even in a position to allow for any type of negotiation. The reason lies in their lack of financial literacy and their low financial inclusion, both of which are typical in countries where MFIs operate, Demirgüç-Kunt and Klapper (2012). Bertrand and Morse (2011) illustrate the case of payday borrowers who fail to add up the total cost of lending over time.

According to the perfect market approach, the fair interest rate is agreed upon by the MFI and its poor clients in a perfect financial market. However, as MFIs operate in imperfect markets, different country studies find evidence of tacit collusion, such as Galindo and Jaramillo (2011) in Colombia.

Advocates of the credit right approach affirm that providing money to the poor is not enough, arguing that the provision must be cheap money, Yunus (2007). Hudon (2009) wonders if access to credit should be a right while warning that credit also has potential negative consequences, including over-indebtedness and abusive collection practices by lenders.

Finally, according to the consequentialist approach, MFIs' interest rates should maximize the utility of the lender and the borrower, rather than only maximizing the MFIs' profits, as microcredit is justified by poor empowerment, Hudon (2007). However, many authors are in favor of high interest rates as a way to achieve MFI financial sustainability and to avoid donor dependence.

2. THE HYPOTHESES

This section addresses the main arguments generally provided by MFIs to explain their high interest rates, such as the high risk involved in microcredit, the high financial costs associated with microcredit, the high administrative costs of microcredit and the need for profits in light of the lack of donations.

H1 on risk. Lending to the poor, who lack collateral, seems a risky business despite the proverb, *the poor always pay back*. If microcredit risk was higher than risks for other financial products, higher interest rates would be necessary to compensate for defaults. Yunus (1999), founder of the pioneer Grameen Bank, implemented solutions to minimize the risks associated with lending to the poor. MFIs have developed different mechanisms to address microcredit risk, such as group lending, Morduch (2000). Basel banking accords (Basel Committee 2010) recommend differentiating microcredit risk according to the type of collateral and establishing adequate loan provision levels and capital requirements.

Some authors affirm that as the loan size decreases, the risk grows; Jiménez and Saurina (2004) argue that institutions study large loans more carefully, but Mersland and Strøm (2010) affirm that having many small loans is a way of diversifying and minimizing risk. Though theory may offer arguments for both sides, empirical studies show that, in general, default rates are very low in microfinance, at approximately 1.9 percent, according to Rosenberg et al. (2009). These authors further affirm that MFI interest rates are not being inflated by unreasonable loan losses. Therefore:

Hypothesis 1. Risk levels, measured in terms of loan losses, are expected to be similar for microcredit and other loans.

H2 on solvency. Credit risk is not the sole risk faced by financial institutions. Many banks

have gone bankrupt for investing in products that proved to be toxic assets or for investing in derivatives or in the real estate market. Taking into account the origin of most MFIs, which started from funds set up by social investors, MFIs generally exhibit a solid balance structure with a high level of equity that includes donations and do not generally operate complex financial products. In fact, due to the nature of the microcredit business, Krauss and Walter (2009) advise international investors to include microfinance in their portfolios to reduce the volatility. Therefore:

Hypothesis 2. Solvency levels, measured in terms of the leverage ratio, are expected to be higher for MFIs than that of other financial institutions.

H3 on financial expenses. The banking business is based on margins where money, a standardized product, is sold and bought. The cost of money matters. As many MFIs are not regulated, they cannot collect deposits, a cheap funding source, as noted by Hartarska and Nadolnyak (2007). However, MFIs do receive donations. Hermes and Lensink (2011) affirm that 70% of the microfinance programs depend on subsidies. According to Armendáriz and Morduch (2005), many MFIs use subsidies to cover the costs of serving their poorest clients in rural areas. It could be questioned whether the amount of donations (at subsidized or even zero cost) is enough to compensate for the lack of deposits. D'Espallier et al. (2013) empirically studied subsidized and non-subsidized MFIs and found that African and Asian MFIs compensate for non-subsidization by charging their clients higher interest rates, while in other areas some unsubsidized MFIs target less poor clients, thereby drifting from their social mission. Therefore:

Hypothesis 3. Financial expenses are expected to be similar in MFIs and other financial institutions.

H4 on efficiency. In every financial institution, processing a loan involves fixed costs, which are costs that do not depend on loan size. Fixed costs are among the most important costs for the

lender. According to Maudos and Solís (2009), operating costs are the most relevant determinants of the intermediation margin for financial institutions. These costs can explain microcredit high interest rates. Aleem (1990) found that half of the amount of the loan is spent on operating costs. In a survey conducted by Jenkins (2000), 40% of the respondents state that “higher administrative costs” discourage banks from entering the microcredit market. González (2010) affirms that the high operating costs necessary to process and deliver small loans are the main reason for the high microcredit interest rates. While the correlation between administrative costs and interest rates seems clear, the real explanation may actually be low efficiency, as reported by Servin et al. (2012), who studied the relationship between the type of institution and efficiency. Their results show that non-governmental organizations have much lower technical efficiency than banks. Microcredit needs a more labor-intensive relationship between loan officers and clients than consumer loans. Watkins (2010) reviewed MFIs administrative processes and internal controls, and found several redundancies in the processes and a lack of standardization in internal controls. This leads to high operating costs.

It is important to compare microcredit interest rates to other small loan interest rates, such as consumer credit. High operating costs would explain high interest rates in microcredits if these interest rates were similar to other loans of the same size. Though Rosenberg et al. (2009) compare MFI rates with consumer lending rates; their results are inconclusive as they depend on the country. Accordingly, further evidence is needed. Therefore:

Hypothesis 4. The efficiency of MFIs is expected to be lower than that of other financial institutions.

H5 on profits. One of the historical debates in microfinance focuses on sustainability. Advocates of the financial system approach emphasize sustainability, Adams et al. (1984). If the

aim is sustainability, this could be obtained via margins, which would then account for the high interest rates associated with microcredit. However, concern for profits seems to collide with the social mission of many MFIs, particularly those with non-profit legal status. Advocates of the poverty lending approach claim that subsidies should lower interest rates, Hudon (2007). According to Hermes and Lensink (2011), the proponents of the financial systems approach appear to have won the debate in the last several years. Empirical studies find no significant difference in profitability between MFIs according to their legal status, Tchakoute-Tchuigoua (2010). Mersland and Strøm (2009) also show that the legal status of MFIs has no significant effect on profitability.

In microfinance, however, sustainability must be differentiated from profit orientation. Accordingly, MFIs should not follow the example of commercial enterprises whose main objective is to earn large profits, a practice denounced by Yunus (2007). There are notorious cases such as the MFI Compartamos that imposed interest rates above 85% and thereby produced an annual return of 55 percent to its shareholders (Rosenberg et al, 2009) at the expense of current borrowers (Chiu, 2014). González (2010) explains, however, that this is an exceptional example and that the reason for the high interest rates is not profit seeking but rather their associated operating costs. Rosenberg et al (2009) reinforces this idea: they find that while, on average, MFIs have higher returns on assets than commercial banks, they generate lower returns on equity for their owners. Roberts (2013) finds that a strong for-profit orientation is associated with high interest rates. However, this does not contribute to higher profitability because a stronger profit orientation is also associated with higher MFI costs. D'Espallier et al. (2013) do not find differences in profitability between subsidized and non-subsidized MFIs. Morduch et al. (2003) find a low correlation between the profitability of MFIs and the average loan size, results that are similar to those of Cull et al. (2007). In our opinion, if MFIs are social entities that are not profit oriented, obtaining profit levels that exceed those of

commercial banks would not be easy to understand. Low efficiency should lead to low profits. However, the lack of competition allows MFIs to charging their clients high interest rates. To summarize, the microfinance business is as profitable as other financial businesses. Therefore:

Hypothesis 5. MFI profitability levels are expected to be similar to those of other financial institutions.

3. EMPIRICAL STUDY

3.1. Poverty Penalty

The first research question attempts to prove the existence of a poverty penalty and its magnitude. The Mftransparency.org database publishes the effective rate of interest (EIR) of 394 MFIs from 17 countries. The EIR is the real price of a microcredit, including not only interest payments but other charges and fees received by the lender, and it takes into account the effect of compounding. Each MFI commercializes different type of loans, and for each type of loans scanned original documents containing repayment tables are available. In all, 1,416 financial products are analyzed, and for each, approximately 5 samples are collected to ensure accuracy.

Table 1 shows the 2011 microcredit country's EIR as calculated using the average data from MFIs in the country, which is available at Mftransparency.org. It also shows the 2011 country's lending interest rate, according to The World Bank and the Central Intelligence Agency (CIA). In all the countries, the microcredit interest rate is higher than the country's lending interest rate. The data reveal the existence of a poverty penalty as, on average, microcredit borrowers pay double or triple the country's lending interest rates.

**** Table 1 ****

A study that analyzes all countries encounters many difficulties, as shown by Rosenberg et al. (2009). The country effect is relevant because some countries establish caps on interest rates while other countries may subsidize microfinance institutions. Furthermore, the level of financial inclusion also differs among countries as does the development of countries' financial sectors. To examine the causes of the poverty penalty, a single country, Colombia, will be analyzed. Data availability was a key issue to develop this study. The database combines data from three different sources: MFIs financial information from MixMarket, MFIs interest rates information from Mftransparency, and the same information (financial and interest rates) for banks and regulated entities from the Colombian Financial Superintendency (CFS). A set of laws on client protection including rules about pricing transparency were approved in 2009. The CFS allows downloading spreadsheets with monthly information on interest rates for each bank, distinguishing among financial products, as well as the share of each product in the loan portfolio.

The sample includes 6 years of financial information, from 2006 to 2011. It includes all 61 Colombian regulated financial institutions and their associated data from the CFS. Of the 61 institutions, 13 are banks that do not offer microcredit (Pure Banks), and 6 are downscaled banks which means that they are entities that have entered the microcredit business (Down Bank). Five of the 61 are MFIs that have upgraded to become banks and are now regulated (Reg MFI), while 23 are specialized sectoral financiers (SSF), mostly dealing in leasing operations, and another 6 are financial cooperatives (COOP). The Colombian regulated financial sector also contains 8 second floor banks (SECOND) whose main purpose is to channel funds to productive sectors using other financial institutions as intermediaries. Finally, the sample is completed with 26 non-regulated MFIs (NGO MFI) whose financial information has been captured from the MIX Market database.

The sample includes all the 33 institutional members of Asomicrofinanzas, the Colombian Microfinance Association. Their affiliates represent 90% of the Colombian microcredit market. According to the report by the Multilateral Investment Fund (Trujillo, 2013) there are 103 Colombian non-regulated MFIs. So there are 77 entities which have not been analyzed. They are very small MFIs, with an aggregated loan portfolio which accounts for 10% of the Colombian microfinance market. Colombian MFIs in our sample lend to 2,289,703 clients. The last year analyzed includes 87 financial institutions.

Table 2 shows the 2007-2011 average EIR of 6 different financial products (preferential loans, ordinary loans, consumer loans, overdrafts, credit cards and microcredits) offered by the 11 Colombian regulated institutions that offer microcredit (the 6 downscaled banks and the 5 regulated MFIs) using data from the CFS. The highest EIR from all the products corresponds to microcredit. This EIR is above the EIR for credit cards and consumer loans. Further, it is double the ordinary loan EIR and triple the preferential loan EIR. Note that the ordinary loan EIR is 10.87%, which is very similar to the Colombian lending interest rate of 11.20% as reported by The World Bank in Table 1. The 6 downscaled banks have given 59,727 microcredits in 2011, with an average EIR of 35.01%. The 5 regulated MFIs have given 181,705 microcredits, with an average EIR of 35.24%. Note, again, the closeness of the rates for these two categories. These rates are below the average EIR of the MFIs analyzed using the Transparency.org, which is 40.9% according to Table 1.

*** Table 2 ***

Table 2 incorporates the Colombian usury rate evolution. Note that the 2011 average microcredit EIR (35.18%) is well above the usury rate of 26.75%. This is because Colombian law sets a different usury rate for microcredit, which for 2011 is 45.64%. While this is a high rate, it

must be noted that though usury is illegal in Colombia, moneylenders do exist, as can be evidenced every morning in any Colombian market. The usual rate for these moneylenders is a monthly 10%, which in annual terms would be an EIR of 213%. However, as their rates can be set at 10% per day, it is clear that microcredit is cheaper than borrowing from moneylenders.

3.2 Determinants of microcredit's interest rates

Once the poverty penalty has been identified and what the poverty penalty means in quantitative terms, the drivers of microcredit high interest rates will be analyzed. With this aim, financial information published in annual statements will be analyzed. Table 3 displays the 9 financial ratios that are related to the hypotheses.

**** Table 3****

Table 4 shows the results of an exploratory analysis that compares the 7 types of Colombian financial institutions. The median and the results of a non-parametric Mann-Whitney U test are displayed. This test is useful for determining if there are statistically significant differences among the various types of financial institutions (group 1) and the rest of the institutions (group 2). Given the small size of the sample, especially in the first years analyzed, test results must be interpreted carefully. Figure 1 visually shows the evolution of the type of entities that are of interest for this study, that is, NGO MFIs, downscaled banks, regulated MFIs and pure banks.

**** Table 4 ****

**** Figure 1 ****

To test Hypothesis 1 on loan losses, the ratio loan provisions to portfolio (RISK) is used, following Hermes et al. (2011) and D'Espallier et al. (2011). Provisions depend on regulatory

authorities, but their amount also involves subjective judgments, McKenzie (1996). Banking provisions suffer from managers' subjectivity, as several studies on income smoothing prove, see Bushman and Williams (2012). It would be contradictory for MFIs to consider microcredit as a risky business and, at the same time, to keep a low level of loan loss provisions. NGO MFIs have the lowest level of the provision for loan impairment to gross loan portfolio (2% in 2011), compared to commercial banks at 3.4% and regulated MFIs at 4.8%. No statistically significant differences among groups are found.

Inspired by the Basel guidelines, Colombian regulated entities weight their loans according to different risk categories: normal (A), acceptable (B), appreciable (C), significant (D) and bad debts (E). Table 5 shows the portfolio share for each category, in average terms, of the Colombian financial regulated sector. For the year 2011, 8 different financial products are displayed. These include microcredit, housing loans, consumer loans, business loans, consumer credit cards, business credit cards, acquisition, development and construction loans, and car leasing. The type of collateral has been detailed when necessary. The 93.79% of microcredits with appropriate collateral belong to the lowest risk category (A), and the percentage is similar to other financial products, such as housing loans (94.56%), ordinary consumer loans (93.45%), and car leasing (91.40%). The lowest percentage in the A category corresponds to acquisition, development and construction loans with other collateral (76.47%). The product with the highest level of bad debts is microcredit, especially with other collateral (3.80%), while the rest of the products barely approach 2%. This is consistent with the results in Table 4 regarding the provisions level. However, the percentage of portfolio at risk is low and does not account for the high interest rates charged by microcredit. If the bad debt level of a given portfolio grows from around 2% to 4%, this would lead to an increase in the EIR of slightly less than 1% to compensate for the incurred loss. To explain the current level of the

financial poverty penalty, the bad debt level should be close to 50%. These facts lead to the acceptance of Hypothesis 1: according to the Colombian data analyzed, no significant differences in risk exist.

**** Table 5 ****

To test Hypothesis 2 on solvency, the ratio total equity to total assets (SOLVENCY) is used. This leverage ratio is a common measure used to analyze a banks' capital adequacy. It is one of the indicators issued by the Basel Committee on Banking Supervision (BCBS) or Basel III Accords, Basel Committee (2013). According to Hermes et al. (2011) this ratio measures the differences in risk taking by MFIs. NGO MFIs have the highest solvency at 34.1% compared to pure banks at 13.7% and regulated MFIs at 17.8%. The differences are statistically significant for the group of NGO MFIs. These entities have a solid balance structure with relatively high equity and low-leverage ratios compared to banks. Hypothesis 2 is accepted based on the analysis of the Colombian data.

Hypothesis 3 analyzes financial expenses as measured by the ratio of financial expense to loan portfolio. The advantage of the use of this ratio is that it allows for a comparison with the lending rate because the ratio can be considered as a proxy for the interest rate paid by the institution. The 2011 financial expense is 4.5% for NGO MFIs and 4.4% for regulated MFIs, expenses that are similar to those for pure banks at 5.2% and 7.2% for specialized sectoral financiers (which do not capture deposits). The differences are not statistically significant. The financial costs of NGO MFIs are low, although they lack deposits. The explanation lies on donations. Table 4 indicates that NGO MFIs are the only group to receive donations. MFIs' annual statements reflect little donations, although many NGOs register donations under an off balance

third party operation account. For example, a city council created a microcredit fund to be managed by an NGO MFI. The NGO MFI did not register it as a donation but as an off balance third party operation, following Colombian accounting rules. Hypothesis 3 is accepted. That is, according to the Colombian data analyzed, there are no significant differences in financial expenses between MFIs and other financial institutions.

Hypothesis 4 analyzes efficiency. The ratio of administrative expense to financial revenue is clearly higher for NGO MFIs (29.9%) compared to pure banks (8.2%), and regulated MFIs (17.6%). The differences are statistically significant. Personnel expenses are clearly higher for NGO MFIs (31.2%) compared to pure banks (10.2%) and regulated MFIs (26.7%), and the differences are statistically significant. A lack of efficiency associated with a labor-intensive business model, due to the current microcredit loan methodology, is clearly apparent. Hypothesis 4 is accepted based on the analysis of the Colombian data.

It can be debated whether the cost of processing small loans explains the high interest rates. To do so, microcredit interest rates have been compared to consumer lending rates. Data were taken from MFTransparency, which collects data on different financial products offered by MFIs. The sample selected only contains Colombian MFIs that offer both microcredit and consumer loans. The sample includes 40 microcredits and 45 consumer loans. For each product, loan size and EIR are available. Two means tests, a parametric (ANOVA) and a non-parametric (Mann-Whitney), were performed. Table 6 shows the results. No statistically significant differences were found with respect to loan size. However, statistically significant differences were found with respect to interest rates, which, on average, is 34.89% for microcredit and 21.13% for consumer loans.

**** Table 6 ****

To summarize, the same MFIs charge higher interest rates for microcredit borrowers than for consumer borrowers even though loan sizes are not significantly different. Rosenberg et al. (2009) also compares microcredit and consumer lending rates using data from 36 countries and find that MFI rates appear lower than consumer credit rates in many countries, although they did not find differences in Colombia. It must be noted that their study included credit cards in the consumer lending category, which usually charge one of the highest interest rates. When microcredit rates are higher than consumer loan rates, Rosenberg et al. (2009) argue that micro lending requires a more labor-intensive relationship between the loan officer and the client than do consumer loans. In our opinion, what matters is not only loan size but loan methodology.

Hypothesis 5 on profits analyzes three ratios. The yield on gross loan portfolio is 25.4% for NGO MFIs, which is double that of pure banks at 13.6%. Regulated MFIs have a yield of 18.4%. If hypothesis 4 reveals the low efficiency of MFIs, this lack of efficiency is compensated here with high margins, which are then transferred to clients. Among all entities, the highest Return on Equity (ROE) corresponds to regulated MFIs at 15%, while the NGO MFIs ROE is 12.8% Pure banks report a 10.1% ROE. Another interesting financial ratio relates profits to revenues. This ratio helps to determine what share of the financial revenues remunerates capital. The highest ratio corresponds to NGO MFIs at 17.7%, compared to 6.8% for pure banks and 12.1% for regulated MFIs. The case of NGO MFIs is remarkable given their non-for-profit mission, as their profit share is the highest among all the analyzed entities. Differences in profitability ratios are not statistically significant within the groups analyzed. Hypothesis 5 is accepted, based on the analysis of the Colombian data.

To confirm univariate analysis results, EIR has been regressed on measures of risk, financial expenses, administrative and personnel costs, profitability and donations (Table 7). EIR data were only available for 2011. The number of observations was 39, distributed as follows: 16 NGO-MFI,

5 regulated MFIs, 12 pure banks and 6 downscaled banks. Given the collinearity between personnel expenses and administrative expenses, and between ROE and profit to revenues, four models have been estimated. The statistically significant variables were operating expenses (personnel and administrative), as well as solvency: the same variables that presented statistically significant differences among the different kind of financial institutions (see Table 4 and Figure 1). The results are in line with the theoretical model by Ho and Saunders (1981) and the previous empirical evidence of several studies, such as (Saunders and Schumacher (2000) or Maudos and Solís (2009).

**** Table 7 ****

According to Maudos and Solís (2009) operating costs are the most relevant determinants of interest rates. NGO-MFIs have high operating expenses, which are associated to the microcredit loan methodology. Gains in efficiency, by means of lower operating expenses, would reduce EIR.

As for solvency, the banking business consists in borrowing to lend money: the higher the leverage of the institution, the lower its solvency is. Basel III accords recommend a minimum leverage ratio of 3%. A way of keeping profitability, in the presence of low leverage, is charging high interest rates. In this sense, the empirical results by Saunders and Schumacher (2000) find an important policy trade-off between assuring financial entity solvency and lowering the cost of financial services to clients. In the sample analyzed, the ratio is 13.7% for pure banks and 34.1% for NGO-MFIs (Table 4). The low leverage of NGO-MFIs also explains their high interest rates. Higher leverage would imply lower EIRs, as regulated MFIs are already getting (the ratio average is about 17% for them), but this would also lead to take higher risks.

In addition to the statistical analysis, we have analyzed separately each of the 26 Colombian NGO MFIs. The analysis identified 8 NGO MFIs that provide small loans to poor people, which are

funded at a cost below the Colombian average, receive donations, charge interest rates above the country average and obtain a ROE above the country average. Though this behavior is not representative of the whole microfinance sector, it may be a sign of a profit orientation among certain MFIs. The extreme example is an MFI in the sample with a 30% ROE and a 40% share of profits to financial revenues and whose microcredit borrowers pay an average EIR of 40%, even though its financial expense is below 5%, its non-repayment is less than 1%, its efficiency rate is average and it also receives donations. Consistent with this, Rosenberg et al. (2009), analyzing worldwide data, find that the most profitable 10% of the worldwide microcredit portfolios produced ROEs above 34%. They further contend that this level is undoubtedly high enough to raise concerns about its pertinence. We encourage the use of external social audits, as a tool useful for identifying practices that conflict with the microfinance social mission. The analysis has also identified MFIs that charge their clients an EIR of approximately 15%, thereby realizing modest profits, awarding small loans and not drifting from their mission.

CONCLUSIONS

This paper confirms that a financial poverty penalty does exist. That is, the clients of microcredit pay more for their loans than other formal financial services users. The study finds that microcredit interest rates are higher than other financial product rates, though they are far from moneylender rates. MFIs explain their high interest rates with several arguments such as: the high risk involved in microcredit, the high financial expenses associated with microcredit, the high administrative costs of microcredit and the need for profits due to the lack of donations.

The case of Colombia was deeply examined by empirically analyzing the Effective Interest Rate (EIR) of several financial products offered by different financial institutions, including MFIs and commercial banks. Colombian microcredit level of loan losses is not significantly higher than

that of other financial products. Moreover, MFIs have a solvent balance structure that is even better than that of banks. The low leverage of NGO-MFIs is one of the factors explaining their high interest rates. Higher leverage, which also leads to a higher loan portfolio, would imply lower EIRs, as regulated MFIs are already getting. But this would also lead to taking higher risks. The financial costs borne by MFIs are not especially high. Although NGO MFIs cannot capture deposits given their non-regulated nature, the amount of donations received are high enough to compensate for the lack of deposits, a cheap funding source.

Products of similar size, such as consumer loans, have lower interest rates than microcredit. An explanation lies in the low efficiency of MFIs, which is transferred to clients in the form of higher interest rates. This low efficiency is caused by microcredit high operating costs, which uses a different lending methodology to consumer lending. While in a perfect market, this type of institutions would be eliminated from the market, the joint presence of a lack of concurrence, a lack of financial literacy and the null negotiating power of microcredit clients make this situation more common than desired. Finally, the study has identified some MFIs that claim to have a social mission and give small loans to poor people. Their funding costs are low, they receive donations, they charge the poor with interest rates above the microcredit market average and they obtain profits that exceed those of banks. The use of external social audits would be useful for identifying these practices.

From the analysis, some policy recommendations can be suggested. Low efficiency is an important driver of high interest rates. The use of technologies can lead to gains in efficiency. An example is M-Pesa, Kenya's mobile-phone based money transfer service. This is a win-win technology: it is way of achieving financial inclusion for customers and it is also a way of improving MFIs efficiency, through online microbanking. Another aspect to be improved is clients'

financial literacy. Bertrand and Morse (2011) analyze payday loans in a field experiment and find that clear information about finance costs results in less borrowing. A higher level of competitiveness among the Colombian financial sector would be preferable, as this sector suffers from tacit collusion, according to Galindo and Jaramillo (2011), and, as found by Demirgüç-Kunt and Huizinga (1999), financial entities that face higher competition within a given country reduce their margins. Finally, we encourage MFIs and regulatory bodies to improve transparency pricing in microcredit. This study can be replicated in other countries, but its first limitation is data on EIR, both in microcredit and conventional banks.

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	<i>Lending interest rate</i>		<i>EIR microcredit</i>				<i>Poverty Penalty</i>	
	World Bank	CIA prime rate	Min	Mean	Max	StDev	Difference	%
Azerbaijan	19.0%	19.00%	32.2%	38.9%	48.1%	4.99	19.92	104.8%
Bolivia	10.9%	10.92%	16.2%	32.7%	64.5%	11.81	21.74	199.1%
Bosnia and Herzegovina	7.4%	7.14%	8.5%	26.6%	41.6%	6.92	19.43	272.1%
Cambodia	-	15.22%	27.7%	35.5%	54.0%	5.67	20.26	133.1%
Colombia	11.2%	11.22%	11.7%	40.9%	61.0%	11.25	29.65	264.3%
Ecuador	-	8.35%	14.9%	25.9%	41.0%	6.72	17.55	210.2%
Ethiopia	-	16.00%	12.8%	21.1%	46.3%	9.12	5.06	31.6%
Ghana	-	18.20%	25.8%	89.3%	236.8%	35.85	71.15	390.9%
India	10.2%	10.19%	18.0%	28.4%	49.7%	5.42	18.17	178.3%
Kenya	15.0%	15.05%	10.1%	35.5%	44.1%	9.61	20.43	135.7%
Malawi	23.8%	23.80%	17.1%	60.8%	119.1%	28.30	36.96	155.3%
Mozambique	19.1%	19.10%	33.9%	71.3%	117.3%	22.33	52.21	273.3%
Philippines	6.7%	6.66%	36.2%	50.2%	137.8%	21.65	43.5	653.1%
Rwanda	-	17.40%	18.1%	45.3%	95.3%	20.24	27.88	160.2%
Tanzania	15.0%	14.96%	28.4%	62.0%	160.9%	26.41	47.03	314.4%
Uganda	21.8%	21.83%	29.8%	58.0%	120.8%	20.27	36.17	165.7%
Zambia	18.8%	18.84%	28.2%	87.2%	275.2%	63.38	68.41	363.1%
Mean	14.91%	14.93%	21.75%	47.61%	100.81%	18.23	32.68	235.6%

Table 1. Country lending interest rate vs microcredit country Effective Interest Rate (EIR). Source: Mftransparency.org, The World Bank and Central Intelligence Agency. Last columns calculate the poverty penalty. Column labeled “difference” is the difference between the country EIR microcredit mean and the CIA prime rate. Column “percentage” is the difference between the country EIR microcredit mean and the CIA prime rate, divided by the CIA prime rate.

	2007	2008	2009	2010	2011
Preferential loan	12.35%	14.71%	10.59%	6.85%	7.91%
Ordinary loan	15.71%	16.93%	14.00%	11.15%	10.87%
Consumer loan	22.36%	25.76%	23.12%	17.92%	18.25%
Overdraft	24.93%	29.84%	26.18%	21.34%	24.32%
Credit cards	25.35%	31.57%	28.24%	22.35%	26.41%
Microcredit	28.71%	31.01%	30.93%	31.10%	35.18%
Usury rate	29.57%	32.36%	28.76%	22.73%	26.75%
Usury rate for microcredit	33.93%	33.93%	33.93%	34.66%	45.64%

Table 2. Colombian average Effective Interest Rate (EIR) of 6 financial products offered by the Colombian regulated institutions offering microcredits. Source: author's calculations based on data from the Colombian Financial Superintendency.

Variable	Definition
RISK	Provision for loan impairment / Gross Loan Portfolio
SOLVENCY	Total Equity / Total Assets
FINANCIAL EXPENSES	Financial expense / Gross Loan Portfolio
DONATIONS	Donated equity / Gross Loan Portfolio
ADMIN. EXPENSE	Administrative expense / Financial Revenue
PERSONNEL EXPENSES	Personnel expense / Financial Revenue
YIELD	Yield on gross portfolio. Interest and Fees on Loan Portfolio / Gross Loan Portfolio
ROE	Return on equity. Net Income / Total Equity
PROFIT-TO-REVENUES	Net Income / Financial Revenue

Table 3. Variables and their definitions.

	2006	2007	2008	2009	2010	2011
RISK						
Microfinance Institutions (NGO MFI)	0.013	0.016**	0.036	0.025	0.02	0.02
Commercial Banks (Pure Bank)	0.034	0.04	0.046	0.054	0.034	0.034
Downscaled Banks (Down Bank)	0.034	0.036	0.045	0.051	0.041	0.033
Regulated MFIs (Reg MFI)	0.056	0.062	0.058	0.069	0.06	0.048
Specialized Sectoral Financiers (SSF)	0.041	0.056	0.06	0.043	0.043	0.03
Financial Cooperatives (COOP)	0.042	0.052	0.059	0.045	0.045	0.031
Second floor banks (SECOND)	0.032	0.013	0.022	0.027	0.027	0.021
SOLVENCY						
Microfinance Institutions (NGO MFI)	0.365***	0.311*	0.303**	0.357**	0.27	0.341***
Commercial Banks (Pure Bank)	0.104***	0.118	0.109***	0.137***	0.122***	0.137***
Downscaled Banks (Down Bank)	0.122***	0.123***	0.111***	0.122***	0.133***	0.132***
Regulated MFIs (Reg MFI)	0.079	0.075	0.08	0.098	0.097	0.178
Specialized Sectoral Financiers (SSF)	0.107***	0.12	0.13	0.16	0.16	0.147
Financial Cooperatives (COOP)	0.194	0.215	0.204	0.179*	0.179	0.18**
Second floor banks (SECOND)	0.214	0.21	0.224	0.167	0.167	0.118
FINANCIAL EXPENSES						
Microfinance Institutions (NGO MFI)	0.054**	0.072	0.07	0.057*	0.05	0.045
Commercial Banks (Pure Bank)	0.063	0.073	0.089	0.085***	0.046	0.052
Downscaled Banks (Down Bank)	0.062	0.068	0.08	0.071	0.042	0.046
Regulated MFIs (Reg MFI)	0.062	0.061	0.07	0.062	0.045	0.044
Specialized Sectoral Financiers (SSF)	0.086***	0.11	0.101	0.064	0.064	0.072
Financial Cooperatives (COOP)	0.05	0.07	0.063	0.046	0.046	0.047
Second floor banks (SECOND)	0.037***	0.064	0.049	0.035	0.035	0.049
DONATIONS						
Microfinance Institutions (NGO MFI)	0.106	0.09	0.162**	0.309**	0.115**	0.081
Commercial Banks (Pure Bank)	0.006	0	0	0	0	0.001
Downscaled Banks (Down Bank)	0.007	0	0	0	0	0
Regulated MFIs (Reg MFI)	0.008	0	0	0	0	0
Specialized Sectoral Financiers (SSF)	0	0	0	0	0	0.009
Financial Cooperatives (COOP)	0	0	0	0	0	0.005
Second floor banks (SECOND)	0	0	0	0.001*	0.001*	0.078
ADMIN. EXPENSE						
Microfinance Institutions (NGO MFI)	0.247***	0.266***	0.307***	0.28***	0.265***	0.299***
Commercial Banks (Pure Bank)	0.075***	0.068***	0.056***	0.06***	0.078***	0.082***
Downscaled Banks (Down Bank)	0.111	0.087	0.079***	0.088***	0.061	0.058
Regulated MFIs (Reg MFI)	0.183	0.148	0.116	0.118	0.129	0.176
Specialized Sectoral Financiers (SSF)	0.062	0.043*	0.062**	0.077	0.077	0.067***
Financial Cooperatives (COOP)	0.153	0.167	0.162	0.161	0.161	0.151
Second floor banks (SECOND)	0.017**	0.009***	0.013***	0.014***	0.014**	0.014

PERSONNEL EXPENSES						
Microfinance Institutions (NGO MFI)	0.297***	0.286***	0.286***	0.333***	0.312***	0.312***
Commercial Banks (Pure Bank)	0.129**	0.102	0.072	0.106	0.103	0.102***
Downscaled Banks (Down Bank)	0.141	0.111	0.105	0.095	0.09	0.092
Regulated MFIs (Reg MFI)	0.176	0.163	0.148	0.163	0.19	0.267
Specialized Sectoral Financiers (SSF)	0.088	0.089*	0.09*	0.114	0.114	0.113
Financial Cooperatives (COOP)	0.176	0.221	0.192	0.22	0.22	0.254
Second floor banks (SECOND)	0.053*	0.036**	0.039*	0.067	0.067*	0.046*
YIELD						
Microfinance Institutions (NGO MFI)	0.212***	0.212	0.304**	0.26***	0.25***	0.254
Commercial Banks (Pure Bank)	0.128	0.139	0.166	0.174	0.118	0.136
Downscaled Banks (Down Bank)	0.141	0.153	0.176	0.165	0.139	0.12
Regulated MFIs (Reg MFI)	0.173	0.171	0.196	0.2	0.183	0.184
Specialized Sectoral Financiers (SSF)	0.099**	0.105**	0.103**	0.095***	0.095**	0.094**
Financial Cooperatives (COOP)	0.19	0.22	0.21	0.189	0.189	0.193
Second floor banks (SECOND)	0.082	0.105	0.082	0.062	0.062	0.14
ROE						
Microfinance Institutions (NGO MFI)	0.129	0.134	0.077	0.078	0.089	0.128
Commercial Banks (Pure Bank)	0.096	0.106	0.081	0.092	0.078	0.101
Downscaled Banks (Down Bank)	0.104	0.129	0.127	0.118	0.099	0.116
Regulated MFIs (Reg MFI)	0.268*	0.245	0.23	0.192	0.16	0.15
Specialized Sectoral Financiers (SSF)	0.099	0.082	0.062	0.098	0.098	0.114
Financial Cooperatives (COOP)	0.064	0.105	0.088	0.091	0.091	0.141
Second floor banks (SECOND)	0.08	0.116	0.134**	0.071	0.071	0.074
PROFIT-TO-REVENUES						
Microfinance Institutions (NGO MFI)	0.176	0.091	0.088	0.069	0.084	0.177
Commercial Banks (Pure Bank)	0.059	0.059*	0.04**	0.065	0.068	0.068
Downscaled Banks (Down Bank)	0.08	0.101	0.078	0.091	0.094	0.093
Regulated MFIs (Reg MFI)	0.154	0.139	0.127	0.121	0.116	0.121
Specialized Sectoral Financiers (SSF)	0.064	0.051	0.046*	0.066	0.066	0.084
Financial Cooperatives (COOP)	0.103	0.134	0.078	0.087	0.087	0.167
Second floor banks (SECOND)	0.109	0.135	0.19*	0.104*	0.104	0.147
N= number of entities						
Microfinance Institutions (NGO MFI)	12	16	23	25	22	26
Commercial Banks (Pure Bank)	9	11	11	11	9	13
Downscaled Banks (Down Bank)	5	5	5	5	5	6
Regulated MFIs (Reg MFI)	2	2	2	2	2	5
Specialized Sectoral Financiers (SSF)	24	26	26	20	20	23
Financial Cooperatives (COOP)	6	8	8	8	8	6
Second floor banks (SECOND)	9	7	6	6	6	8

Table 4. Exploratory analysis showing the median and a Mann-Whitney U test, * p<0.1 ** p<0.05 ***p<0.01.

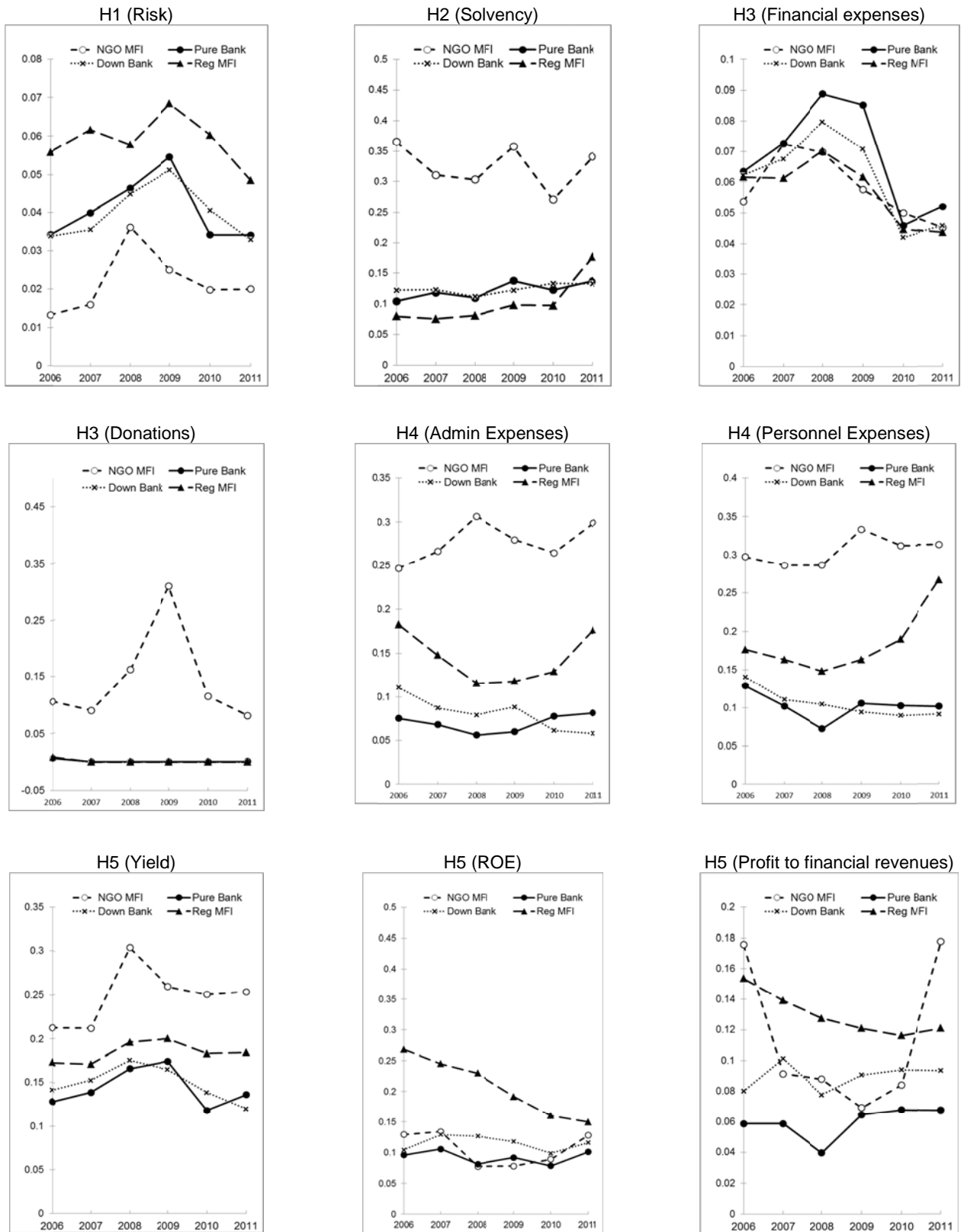


Figure 1. Time evolution of the four groups' median: NGO MFIs, pure banks, downscaled banks and regulated MFIs for each of the 9 financial ratios analyzed.

<i>Type of loan</i>	<i>Risk categories</i>				
	Normal (A)	Acceptable (B)	Appreciable (C)	Significant (D)	Bad debt (E)
Microcredit (appropriate collateral)	93.79%	1.72%	1.22%	0.82%	2.45%
Microcredit (other collateral)	91.23%	2.35%	1.82%	0.80%	3.80%
Housing loans	94.56%	2.78%	1.06%	0.52%	1.08%
Ordinary consumer loans (appropriate collateral)	93.45%	2.30%	1.53%	1.63%	1.10%
Ordinary consumer loans (other collateral)	93.22%	2.22%	1.40%	1.94%	1.22%
Consumer credit cards (appropriate collateral)	90.03%	4.86%	1.24%	2.21%	1.65%
Consumer credit cards (other collateral)	91.92%	2.98%	1.50%	2.47%	1.13%
Ordinary business loans (appropriate collateral)	90.36%	4.35%	1.79%	2.79%	0.71%
Ordinary business loans (other collateral)	95.07%	2.42%	1.12%	0.68%	0.71%
Business credit cards (appropriate collateral)	85.57%	9.75%	1.26%	3.27%	0.15%
Business credit cards (other collateral)	90.22%	4.98%	1.45%	2.62%	0.72%
Acquisition, development and construction loans (appropriate collateral)	93.75%	2.76%	1.34%	1.28%	0.88%
Acquisition, development and construction loans (other collateral)	76.47%	20.75%	0.34%	0.96%	1.48%
Car leasing (appropriate collateral)	91.40%	5.75%	0.70%	1.41%	0.75%
Car leasing (other collateral)	95.82%	2.94%	0.10%	0.03%	1.12%

Table 5. Portfolio share of each of the 5 risk categories, in average terms, of the Colombian regulated sector, using data from the Financial Superintendency.

<i>Variable</i>		<i>Type of loan</i>		<i>Test of means</i>	
		<i>Microcredit (n=40)</i>	<i>Consumer (n=45)</i>	<i>ANOVA F (Sig.)</i>	<i>Mann-Whitney U (Sig.)</i>
Loan size (USD)	Mean	4,232	6,015	2.968 (0.186)	751 (0.189)
	Min.	104	75		
	Max.	22,100	20,800		
	Std Dev.	5,642	6,574		
Effective interest rate	Mean	34.89%	21.13%	5.049 (0.000)	83 (0.000)
	Min.	15.6%	9.6%		
	Max.	40.8%	27.8%		
	Std Dev.	6.10	4.35		

Table 6. Study of the relationship among loan size, effective interest rate and type of loan (microcredit vs consumer loan). In parentheses, the p values.

Variable	(1)	(2)	(3)	(4)
Risk	-0.296 (-0.36)	-0.510 (-0.58)	-0.413 (-0.49)	-0.549 (-0.61)
Solvency	0.549*** (3.17)	0.538*** (2.86)	0.461*** (2.93)	0.480*** (2.81)
Financial Expenses	1.195 (1.08)	0.787 (0.65)	0.794 (0.69)	0.643 (0.52)
Donations	-0.967 (-1.49)	-0.901 (-1.27)	-1.066 (-1.62)	-0.952 (-1.34)
Administrative Expenses		0.094** (2.50)		0.079** (2.21)
Personnel Expenses	0.215*** (3.63)		0.191*** (3.26)	
ROE			-0.033 (-0.19)	-0.099 (-0.52)
Profit-to-Revenues	-0.225 (-1.09)	-0.198 (-0.87)		
Constant	0.082 (1.14)	0.119 (1.54)	0.107 (1.53)	0.134* (1.81)
N obs	39	39	39	39
R ²	0.398	0.286	0.375	0.275

Table 7: Determinants of Effective Interest Rates. T-statistics are in parentheses. One sample t-test have been used for testing if the mean value for the NGO-MFIs' residuals distribution is equal to zero.

*** significant at 1% level; ** significant at 5% level; * significant at 10% level.