Does Microfinance Cause or Reduce Suicides?
Policy recommendations for reducing borrower stress

Arvind Ashta², Saleh Khan³ & Philipp Otto⁴

This is a work in progress paper and we invite comments
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ABSTRACT

At a time when suicides by microfinance borrowers in Andhra Pradesh are extensively discussed, this paper makes an initial tentative exploration into the impact of microfinance on suicides. Does MF reduce or increase suicides? Data limitations imply methodological limitations and provisional conclusions. The literature review, starting with Emile Durkheim, of research on suicides brings out the importance of psychological factors, divorce, and unemployment. We investigate time series data on suicides in India and find a just significantly positive correlation with male suicide rates and slightly negative correlations (not significant) with female suicide rates – but no relation between microfinance and total suicides. Cross-sectional data of Indian states indicates a significant positive correlation of total suicides with number of SHGs loans outstanding to Banks, higher than with microfinance loans provided by MFIs, which only shows a weak correlation. Going beyond India, a global country-wise analysis indicates that there is no correlation between microfinance and male or female suicides, yet regression analysis of 31 countries (weakly) indicates that microfinance penetration among the poor is a causal factor for increased suicides. Three related questions are discussed. First, do rapid growth and sustainability aims make MFIs forget the human angle? Second, is social pressure necessary to make people repay? Third, if Microfinance increases suicides, is this impact to be differentiated between women and men possibly due to changing roles? Based on these, we tentatively propose policy recommendations.

Keywords: microfinance, microcredit, impact, suicide, development, over-indebtedness, group lending, health.

Overall picture of this paper
1. There has been a lot of uproar about suicides and borrower stress with a lot of talk on interest rates
2. We look at the causes of suicide (Durkheim) and find that poor countries should have lower suicides but that increase in egoistic and anomic suicides should accompany development of a country
   a. Egoistic as family sizes reduce and smaller autonomous families are formed
   b. Anomic because the roles of people in the society change
3. The empirical evidence is presented to indicate what the data can tell us.
4. We find suicides seem to accompany microfinance growth and penetration, especially male suicides.
5. This could therefore point towards egoistic as well as anomic suicides, which could be due to changing roles in the family.
6. The major recommendation would be that (new) support groups are required for males.
7. Nevertheless, other recommendations are made to reduce borrower stress, in view of the noise.

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INTRODUCTION

For some time now, a spate of suicides by microfinance borrowers has been making the news (Microfinance Focus, Hulme 2000). Already in 2006, there were warnings that the pressures of hitting outreach numbers at any cost, pressures attributed to the governments of Andhra Pradesh and Tamil Nadu, was creating immense stress on NGOs who feared their subsidies would be cut if they don’t expand sufficiently (Guerin et al. 2006). Indeed, Andhra Pradesh (along with Karnataka) is the state with the most saturated microfinance market in India. Does this quick expansion come with a cost?

Microcredit is the lending of small amounts of money to the poor and financially excluded to enable them to increase income and smooth consumption. The sector has been experience fast growth rates and has been considered as an important tool of economic development, in conjunction with other initiatives such as education, health, sanitation, infrastructure and public governance. Based on over 3552 reporting MFIS, the microcredit summit campaign indicates that the sector has an outreach of 155 million people in 2007 (Daley-Harris 2009). Table 1 provides details of median MFIs from a sample of over one thousand MFIs reporting to Microfinance Information Exchange (MIX). The median MFI as about a hundred employees who lend to about 10,000 people. The average loan size is USD 523. The MFI lends at about 28% per annum are makes a positive return on both equity and assets. The portfolio at risk (30 days) is about 4.76%. A Nobel Peace Prize has been awarded to an MFI institution and its founder in 2006 to indicate the importance of this initiative. Millions of people are working in this sector, often as volunteers or working at lower than market wages and returns, because they believe that microfinance can create a difference at the grassroots level by making people responsible (as opposed to handouts). And, now, one wonders whether the initiative has not gone awry?

Table 1: Characteristics of a Median MFI institution

<table>
<thead>
<tr>
<th>Institutional characteristics</th>
<th>All</th>
<th>India</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of MFIs reporting</td>
<td>1132 to 1146*</td>
<td>88</td>
</tr>
<tr>
<td>Personnel</td>
<td>104</td>
<td>287</td>
</tr>
<tr>
<td>Number of MFIs</td>
<td>1146</td>
<td>88</td>
</tr>
<tr>
<td>Number of active borrowers</td>
<td>10,487</td>
<td>65,008</td>
</tr>
<tr>
<td>Percent of women borrowers</td>
<td>63.39%</td>
<td>100.00%</td>
</tr>
<tr>
<td>Gross loan portfolio USD</td>
<td>4,902,526</td>
<td>8,405,779</td>
</tr>
<tr>
<td>Average loan balance per borrower USD</td>
<td>523</td>
<td>144</td>
</tr>
<tr>
<td>Number of MFIs</td>
<td>1141</td>
<td>88</td>
</tr>
<tr>
<td>Return on assets</td>
<td>1.50%</td>
<td>1.81%</td>
</tr>
<tr>
<td>Return on equity</td>
<td>7.27%</td>
<td>10.54%</td>
</tr>
<tr>
<td>Yield on gross portfolio (nominal)</td>
<td>27.93%</td>
<td>23.97%</td>
</tr>
<tr>
<td>Portfolio at risk &gt; 30 days</td>
<td>4.76%</td>
<td>0.51%</td>
</tr>
</tbody>
</table>

source: http://www.mixmarket.org/mfi/benchmarks/csv
*All 1146 did not provide information for all indicators.

Recently, Microfinance Focus (2010) has reported that there have been 54 suicides by microfinance borrowers in the State of Andhra Pradesh alone. When there are one or two suicides it could be chance or coincidence, but adding up to 54? Who can be liable?

5 http://www.mixmarket.org/mfi/benchmarks consulted on 29th December 2010
The English law of torts distinguishes between strict liability and vicarious liability. Strict liability is liability that does not depend on actual negligence or intent to harm, but that is based on the breach of an absolute duty to make something safe. The question here is when does microfinance become dangerous? Which practices are to be avoided? What features are required to make microloans safe? Who is responsible for safety?

This brings us to the concept of vicarious liability (the etymology of which is that the vicar is an agent through whom the Pope exercises authority). This is liability that a supervisory party (such as an employer) bears because of the actionable conduct of a subordinate or associate (such as an employee) because of the relationship between the two parties.

Putting the two concepts together, if certain microfinance practices can now be considered dangerous, and if the CEOs of microfinance firms take no action to account for the involved risk, they could be held to be vicariously strictly liable.

In this context, one can understand that the Andhra Pradesh government has passed an ordinance (2010) limiting interest rates at a maximum of the loan amount.

Article 9. (1) No MFI shall recover from the borrower towards interest in respect of any loans advanced by it, whether before or after commencement of this Ordinance, an amount in excess of the principal amount.

This looks like a 100% interest rate ceiling, but is really much more, as we show in table 2 below. It is important to understand the pressure of interest rates and so a few minutes spent on understanding this table will help appreciate the crisis. MFIs usually ask for weekly repayment (columns 2 &3), fortnightly repayments (columns 4 & 5) or monthly repayments (columns 6 &7). The interest and principal can either be equalized so that the borrower pays the same total amount (columns 2,4,6), or the interest can be paid periodically with a bullet repayment of the principal in the last week, fortnight or year (columns 3,5,7). If the payment is in the last period, it works out to an annualized percentage return of 100% only if the interest is paid in the last week for weekly payments, last fortnightly for fortnightly payments or last month for monthly payments (see even columns in table below). However, if we assume weekly equalized payments on a 52 week loan, this works out to an APR of 158% (Kothari 2010) or to an Effective Annual Rate of 373% (with compounding) as shown in the first column of table below. The figures are slightly lower for fortnightly repayment and monthly repayments. A last column (8) has been added to show that APR and EAR can both be 100% only if the full repayment and interest are collected at the end of the year so that there is only one period.

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7 These calculations are reasonable and other research comes out with similar results for Grameen bank's effective annual interest rate to be about 95.93 percent under the old contract (interest paid at the end of the loan period) and an effective rate of 556.44 percent under the new contract where interest is paid weekly Borden, Karl, 2009. "Microenterprise Lending At The Grameen Bank: Effective Lending Rates On A Sample Loan Portfolio." B>Quest:1-27.)
Our point is that the regulator is the one who should decide what the market should bear. For this, it needs to monitor the market. If such high rates are used as caps, it means that some operators in the market are charging even more!!! This means that the high interest rates could be linked with ability to repay or get more in debt. The table presented above is based on one year loans. Obviously the caps would be lower for longer term loans and higher for shorter term loans.

As can be seen from Table 1, the median MFI in India is almost three times larger in terms of employees than the median worldwide. The median Indian MFI has six times more borrowers, thus indicating that employees also serve more borrowers. Although the average loans amounts are much smaller in India, only about $150, the interest yields are much lower at around 24% instead of 28%. Despite this, Indian MFIs have a higher return on equity.

Why are Indian MFIs more efficient than global MFIs? Essentially, this is the result of the peculiarity of the Indian model which is based on Self-Help Group (SHG) and Joint Liability Group (JLG). It is estimated that 58% of Indian Microfinance outstanding loan portfolio is based on Bank-SHG linkage model and another 34% is based on NBFI lending, primarily to JLG. The balance 8% is with the not-for profits (trusts, societies) (Malegam 2011). In the Bank SHG linkage model developed by NABARD in 1992, 5 to 20 women get together. They pool their savings and give loans to each other. The banks supplement the credit available. This Bank-SHG model has about 65 million customers (70%).

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Indian MFIs, (with 27 million customers) operate primarily in the NBFI – JLG model which is similar. The considerable costs in developing SHGs is incurred by the government. If MFIs piggy-bank on this State subsidized SHGs, and create JLGs with the same women borrowers as in the SHG, they lower their transaction costs considerably. Moreover, since 75% of the financial needs of NBFI MFIs is provided by banks and financial institutions like SIDBI, this may also lower the total costs of MFIs. All these features make Indian MFI more cost-effective and more profitable than those in the rest of the world, even though yields are lower than global interest rates.

These yield figures correspond with statements in the press that the microfinance industry in India has been charging interest rates with a stated APR of between 25% and 30%. However, more detailed calculations by the Malegam Committee (Malegam 2011) incorporating compulsory deposits indicate that Indian MFIs are charging an average of 37% of the mean outstanding portfolio. Of these, 13% is the cost of borrowing, 8% is the cost of operating staff, other overheads were about 6% and loan loss provision was 2%, leaving a profit margin of about 11% (some rounding off differences seem to persist in their report).

In view of the furor created in the press, Indian MFIs have responded by reducing interest rates by one or two percentage points. For example, the largest Indian MFI, SKS, reduced its interest rates from 26.5% to 24.5% (Microfinance Focus (2010)). SKS has been in the news this year for its Initial Public Offering which was a big success but which invited criticism for its financial approach to microfinance. It is now also in the news for the high number of suicides by its borrowers in Andhra Pradesh. The question is whether a reduction in interest rate is enough to cage the beast leading to suicides.

In this paper, we go beyond the Indian question. We first look at the literature on suicides. Then, we analyze longitudinal and cross-sectional empirical data to check for relationship with suicides. Based on this, four related questions are put into context. First, do rapid growth and sustainability aims make MFIs forget the human angle? Second, is social pressure necessary to make people repay? Third, could these people be saved without Microfinance or would they die even earlier? Fourth, finally, what can authorities do, and, can different angles of action be proposed? We start with a brief background literature review of research on suicides.

The reader should keep in mind that MIX data for India and RBI terminology often limits microfinance on NBFI and NGOs. The Bank-SHG linkage model is considered apart. However, this Bank-SHG sector is 54% of total lending to the poor. Therefore, if suicides in India are increasing, it may be as much due to the public sector initiatives of the banks as due to the MFIs. We will revert to this remark in the discussion.

BACKGROUND ON SUICIDES

Suicide is defined as the act of purposefully killing oneself. Why do people suicide? The French sociologist Emile Durkheim (1858-1917) was the first to raise his pen to answer this question in 1897 in a three volume book called "Le Suicide" (Durkheim 1897). He categorized the causes as egoist, altruist, anomic and fatalistic. These could be considered as isolation from groups, not being able to meet group norms and targets, lack of social direction due to social upheaval, and oppression, respectively. Examples for each could be found in today’s world. For example, Belarus, the world leader in suicides and many former Soviet countries have a very high suicide rate and this could be considered anomic. Japan and South Korea are very high performing countries and the failure to meet these exacting standards may cause people to commit altruistic suicide. In general, Durkheim found higher suicide rates for males than for females, for single people than for couples, for parentless than for parents, for Protestants than Catholics or Jews, and for economically more active and urban communities than for rural communities. Thus, social solidarity, and not just economic solidarity keeps people happier. This also explains why richer people, more financially independent, have a higher propensity to commit suicide.
The major causes of suicides could be regrouped as mental disorders or afflicted problems. Mental disorders could be the result of a depression or other mood disorders, of alcoholism or other drug addiction, and of schizophrenia or other personality disorders (Nashold and Naor 1981). The main afflicted problems are financial difficulties, interpersonal conflicts like divorce, and unemployment. These are at least the most researched non-medical causes of suicide. Of course, some of these could be rather country specific. For example, in Ireland, of those who had attempted suicide 50% had a history of child abuse, 55% had a history of depression, and 67% had experienced learning difficulties (Birchard 2001). The suicide statistics from different countries highlight different variables.

There is high correlation between suicide and unemployment in the US (Yang and Lester 1992; Yang and Lester 1994; Yang and Lester 1995; Yang and Stack 1992), Japan (Koo and Cox 2008; McCurry 2006; Watanabe et al. 2006), and some other countries (Yang and Lester 1996). There is an inverse relation between suicides and female participation in the labor force (Yang and Stack 1992). It is also found that job losses double the suicide rate for both men as well as women and increases the deaths due to alcoholism (Eliason and Storrie 2009). In the US, suicides also increase with age (McKeown et al. 2006), perhaps because the cost of maintaining good health increases (Koo and Cox 2008). Also unemployment creates more impact on suicide rates for older people (Schapiro and Ahlburg 1982). Further on, some evidence indicates that higher IQ may be linked to higher suicides (Voracek 2005). On the contrary, it has been reported that married (and even unmarried people) have significantly lower suicide rates than divorced or widowed people (Smith et al. 1988).

Even in the absence of unemployment and no divorce, there would still be some “natural rate of suicide”, which differs from country to country. Certainly, this rate depends on the method used to calculate it. A recent study finds that the natural rate varies between 5.0 in Poland to 24.6 in Russia using regional data of 11 countries, while its range could be from 2.9 in Norway to 25.0 in Japan using time series data of 13 countries (Yang and Lester 2009).

Although poverty is not considered by itself a reason for suicide, it may render a person fragile and limit his capacity to cope with his mental fragility. In fact, the presence of several risk factors may increase the probability of suicide (Watanabe et al. 2006).

In Japan, a country with traditionally high suicide rates, there is a strong cultural relation between social stigma and suicides. There is a causal relationship between suicides and personal bankruptcy (Watanabe et al. 2006). Many of these suicides may be due to joint liability debt contracts taken by the self-employed (Chen et al. 2007).

China, India and Japan account for about 40% of the 1 million suicides in the world. Their joint population is about 35% of the world’s population. Putting this together, poor Indians may be fairly suicide prone to start with. Financial difficulties may push them across the threshold. To investigate if this is the case, we look at suicide rates.

Suicides rate vary from country to country. Belarus has the highest suicide rate followed by South Korea. Japan’s male suicide rate is double that of the US male suicide rate (Koo and Cox 2008). In terms of suicide rate, India is 43rd among 106 countries with an annual suicide rate of about 10 per 100,000 people, slightly higher for men and slightly lower (than the average) for women. Even within a country, suicide rates may vary. For example, US suicide rates in 2003 average 10.5, but it varies from 14.7 in the West to 8.6 in the North East (McKeown et al. 2006).

Longitudinal data indicates the overall suicide trends vary with periods and regions. In the US, death rates came down between 1950 to 1993 for young children largely due to better medicine but not for adolescents. But suicide rates increased, especially for minorities and poor people (Singh and Yu 1996a; Singh and Yu
1996b). This is a continuation of increasing suicide trend for younger people (below 35), while for older people, suicide rates decreased from 1940 to 1982 (Schapiro and Ahlburg 1982). In Ireland for example suicide rates quadrupled for young adults from 1980 to 2000 (Birchard 2001).

According to Jain (Jain 2009), suicides are growing in number in the rural countryside of India, with more than half the suicides in just five States: Maharashtra, Andhra Pradesh, Karnataka, Madhya Pradesh and Chhattisgarh. The causes include desertification of farms (because children go to the city leaving their parents without social networks), the vagaries of nature creating a high risk environment, and the global agricultural surplus with inelastic demand (creating economic hardships). Mechanization and the associate debt burden have added to the stress of farmers. In Durkheim’s terms, the suicides seem to be caused by anomie reasons (changing social structure) as well as egoistic reasons (increased autonomy).

Another study (Gruère et al. 2008) examines whether genetically modified cotton production is linked to farmer suicides using different data sets. The conclusion depends on the data set which is used. However, the study indicates that in Andhra Pradesh, moneylenders are the main source of debt (53.4% of loans taken). This indebtedness with high interest rates coupled with crop failure is the cause of stress. We know that ever since Emile Durkheim (1897), regulators have been conscious that an increase in economic activity leads to more stress and more suicide of the egoistic kind (i.e. people tend to become more independent). Nevertheless, if the vast majority of regulators with different ideologies across the world and across decades have gone in for development, it is because other kinds of satisfactions, including the lowering of other kinds of deaths, are possible with economic development. Thus, the debate on the GMO-suicide link is just a case in point. The same could be true of Microfinance.

Andhra Pradesh has a population of about 85 million people. Expected suicides of 8500 per year or 700 per month would be regarded as "normal". Andhra Pradesh is also a fairly saturated microfinance market. Therefore, 54 suicides in a month in Microfinance may not be significantly different from the rest.

SKS and Spandana, the two biggest Microfinance Institutions (MFIs) in India, jointly have over 10 million microfinance borrowers from all over India. There are about 6.7 million microfinance borrowers in Andhra Pradesh (Ratwatte 2010). With a suicide rate of 10 per 100 000, a 670 suicides per year would be within the expected statistical rate. This works out to 56 suicides a month. Thus, the 54 suicides in October 2010 seem to be about normal for India. Except the fact that suicide rates for women should be lower and microfinance should be affecting mainly women.

To put this in perspective, the French suicide rate is about 17 per 100,000. For a country of 60 million people, this works out to 10,200 per year or 830 per month. Thus, there are more suicides without microfinance in France than with microfinance in Andhra Pradesh8.

Thus, the mediatization of suicides by Microfinance borrowers is a pressure group phenomenon to get MFIs to accept legislation imposing caps on interest rates or to reduce interest rates?

This paper investigates the research gap on suicides. Are microfinance and suicides inversely correlated or are they positively correlated? How significant is this correlation? What can we say after controlling for unemployment and divorce rates? Can we look at cross-sectional data and longitudinal data for a few countries and come up with some preliminary conclusions.

The paper would then also cover a gap in the microfinance literature. Microfinance is hailed as a poverty alleviation device, but this impact cannot be proved and is debated (Roodman and Morduch 2009). Many

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8 In France too, the subject of suicides of suicides is subject to extended media coverage owing to a large number of suicides in France Telecom (Orange).
studies have been looking at its relationship with factors such as GDP per capita, unemployment, etc., but we have not found research on impact of microfinance and its relationship with suicides and other non-economic distress or happiness factors.

**RESEARCH METHODOLOGY**

Research suffers from limited data on suicides. We do not have time series data specifically for suicides in Andhra Pradesh. Also the data for suicides in India is limited. The World Health Organization provides data on male suicide rates and female suicide rates for some countries.

*Time series analysis for India*

In our research, we correlated data on suicides in India from the National Crime Records Bureau (NCRB) of India and data on Microfinance from MIX. Data for the years 1995 to 2009 is used for comparisons between microfinance penetration and suicide rates.

*Regional data for India*

Using data from the NCRB for suicides by state and data on state-wise penetration of Microfinance from Sa-Dhan for 2009-10, we run cross-sectional correlations. We further cross-check these correlations with state-wise data for Self-Help Groups obtained from NABARD (2010).

*Country-wise global data.*

We supplement our work with global cross-sectional data by taking the latest available data on suicides from the WHO for 105 countries (104 for males, 105 for females) and consider it being representative for the next years. This seems to be a reasonable assumption because our literature review indicates the suicide rates do not vary sharply from year to year, but evolve gradually with time.

Our first set of explicative variables and their definitions are indicated in appendix 1. The sources of the data and how we limited it to construct our regression model is discussed below.

Gonzales (2010) provides microfinance penetration rates and other date for 2008 for 117 countries. For this, he takes number of borrowers divided by population, as well as number of borrowers dived by poor borrowers. He provides many indices of poverty such as rural, urban, national poverty rates, and also percentage of people earning less than $1 a day and $2 a day. He then makes a decision to use a certain poverty rate (see Gonzales for rationale), usually the national rate. From his data, we took out national poverty rates since we decided to focus on details such as rural poverty, urban poverty, % poor earning less than $1 and % poor earning less than $2.

Finally, we added different indicators from the open data base of the World Bank. Data for 205 countries was available for 2008, the same year as the Gonzalez data for penetration rates. However, not all countries report data for all indicators. It would have been convenient for us if the countries with suicide data were a subset of Gonzales data and this were a subset of World Bank Data, but this was not the case. Very few

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9 [http://india-reports.in/shop/images/1285/]
overlaps result and the number of observations varied for each variable from 65 countries to 205 countries (see Appendix 2).

From the World Bank data, we found a strong negative correlation between literacy and mortality rates and a strong positive correlation with literacy and life expectancy. The correlation between life expectancy and mortality was less. As a result, we took out literacy from our regression analysis. This was also convenient because many countries do not provide literacy data.

Divorce rates were taken from the United Nations website. We obtained data for 85 countries, but for different years between 2002 and 2006. As a result, we made the same simplifying assumption as with suicides and took the latest data.

If we include unemployment rates, we had overlapping data for only ten countries. If we exclude it, we have data for many more countries. We therefore decided to exclude it.

The two variables which are our dependent variables are the male and female suicide rates expressed per 100,000 persons.

A correlation matrix checked for between these variables and then we chose the appropriate variables to check for regression. Appendix 2 provides the descriptive statistics for our data, including the correlation matrix.

Appendix 3 provides the list of 31 countries where adequate data was available to perform a regression, including India, the country of present focus. But the results of this part are global.

**FINDINGS**

1. **Based on Time Series Data for India**

The figure below show female and male suicide rates of India included in the longitudinal analysis. As can be seen, the male suicide rates show an almost uniform upward trend, with a small, almost exceptional, decline in 1996. Female suicide rates went up till 1999 but have been reducing since till 2005. Both male and female suicide rates seem to be stable over the last three years. The total suicide rates, which average out the male and female trends, seem to be stable over the last decade.

**Figure 1**

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As can be seen, the data for suicides in India is available from 1989-2009. However, the data for microfinance in India is available from MIX from 1995 onwards. As can be seen from figure 2, microfinance penetration in India has been increasing at an exponential rate. After having been introduced rather late in India, these rates have reached about 20% in 2009. In comparison, suicide rates in India are increasing slowly, but rather constantly over the years.

Figure 2

There are fifteen years of common data for the coefficient correlations (Pearson) between suicide rates in India and microfinance penetration. Table 3 indicates the coefficient of correlation between microfinance penetration rates and the different suicide rates. When looking at the male and female suicides separately, what we can see is that as microfinance develops, male suicides in India are going up, but female suicides are going down, but there is no significant relation between microfinance penetration and total suicide rates.
Table 3: Correlation between suicide rates and microfinance penetration rates

<table>
<thead>
<tr>
<th>Suicides</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correlation with MFI penetration rates</td>
<td>0.603</td>
<td>-0.397</td>
<td>0.377</td>
</tr>
<tr>
<td>p</td>
<td>0.017</td>
<td>0.143</td>
<td>0.166</td>
</tr>
</tbody>
</table>

The correlation between male suicide rates and the microfinance penetration is positive with \( r = 0.60 \) and a significance level of \( p = 0.02 \) which is clearly below the level of weak significance of 5% (95% that H0 is not true). For total suicides, the correlation level is also positive \( (r = 0.38) \) but this is not significant. Female suicide rates correlate negatively with the number of borrowers \( (r = -0.39) \), but again not significantly. Thus further data over a longer time horizon appears to be necessary to claim a relation between microfinance penetration and total suicide rates.

The main result from the different correlation coefficients concerns the gender dependent effect of microfinance. This might be the case because predominantly women are the clients of microfinance products. But many different questions could arise regarding the complex social impact of microfinance. Does the success of women borrowers leading to male suicides as social relations change? Or does increasing male suicide cause women to borrow?

The overall most prominent direction is an increase of suicide rates with time and, perhaps, with economic development. However, economic development does not explain why suicide rates of males went up since 1996 and those of women went down (or being stable). But in any case, these questions cannot be answered by correlation analysis alone since correlation does not imply causation.

2. Based on State-wise Cross-sectional Data for India

By correcting by State populations\(^{12}\), we obtained suicide rates and microfinance penetration rates. The correlations for these 25 Indian states are more meaningful. Since we did not have separate male and female suicide rates, the correlations are only for total suicide rates. We found that microfinance penetration, based on data from MFIs collected by Sa-Dhan for the year 2009 has a positive but only weakly significant correlation \( (r=0.27; \ p=0.137) \) with overall suicide rates.

Since we had the state-wise data for Bank lending through the self help group (SHG) model, we checked whether this sort of lending penetration correlates with suicide rates. The perhaps most surprising result is that, compared to MFIs, the correlation of SHG penetration to suicide rates is much higher with loans given during the year 2009-10 to SHGs \( (r=0.54; \ p<0.01) \) and only slightly lower for SHG loans outstanding \( (r=0.50; \ p<0.01) \). These are strongly significant with rejecting no relation between SHG and suicides with 98% and 95% confidence respectively. This is even more surprising as the general attitude in India is that the banks have explicit rules about how to treat borrowers.\(^{13}\)

\(^{12}\) In fact we found very high correlations between state-wise number of microfinance borrowers and total number of suicides, but this can be ignored. It is not correct to correlate number of suicides with number of microfinance borrowers using state-wise data because large states (in terms of populations) may have higher number of suicides than States with higher suicide rates/ Similarly, larger States may have more microfinance borrowers but low microfinance penetration.

\(^{13}\) If we take only data for States where there is some microfinance, and ignore the States where there is no microfinance, the results become significant for all three as can be seen in the bottom two rows of table 4. The correlations now are higher for MFIs \( (r=0.4) \) as well as for banks lending to SHGs for loans outstanding \( (r=0.6) \) and for lending during the year \( (r=0.66) \). All are significant at the 95% confidence level.
Of course, high correlations do not imply causation and it is as possible that banks lend more to states where suicides are high as suicides are high in states where microcredits are needed most. At the same time, such high significant correlations justify further research.

3. Based on Countrywise Global Cross-sectional Data

A. Insights from correlation Matrix

General Correlations

The correlation matrix of all investigated variables is available in Appendix 2. Here, we only discuss significantly high correlations (with p<.10).

The first general observation is that related indicators are usually highly correlated. For example, Total GNI has a significant high correlation of .90 with population and both are indicators of size of a country. It is also correlated with number of poor people. Unemployed women, unemployed men and total unemployed have strong positive correlations with each other. Female mortality is positively correlated (.97) with male mortality. All the literacy factors are correlated inter se (mostly above .9). All the life expectancy factors are also correlated inter se. Rural, urban and national poverty rates are highly correlated amongst themselves. National poverty rates are correlated with percentage of poor people living on less than $1 or $2 a day. The percentage of poor people living on less than $1 is correlated with those living on less than $2.

GNI per capita has significant high positive correlation with all the literacy variables as well as life expectancy variables. It has significant high negative correlation with female unemployment, with both male and female mortality, national poverty rate, percentage of poor people at less than $1 and percentage of poor people at less than $2. Therefore, it seems to be a good indicator of development along these lines.

Unemployed women have significant high negative correlation with all the life expectancy factors and with female labor participation. At the same time, Unemployed men have significant negative correlation with female labor force participation (women take the place of men?).

Total unemployment is positively correlated with mortality rates and, conversely, negatively with life expectancy. It is also negatively correlated with female labor participation.

Female mortality and male mortality are both negatively correlated with life expectation factors (all above .9) and with literacy (females more so than men). Both mortality rates are positively correlated with female labor participation and rural poverty, national poverty and percentage of poor people earning less than $1 or $2 a day.

All the literacy factors are having strong positive correlations with all the life expectancy factors. All the literacy factors have a negative correlation with male labor force participation rates, but only youth male literacy has a strong negative correlation with female labor force participation rates. All the literacy factors have a strong negative correlation with percentage of people living on less than $1 or $2 a day and with the national poverty rates.

All the life expectancy factors have strong negative correlations with male labor participation rates and rural poverty, national poverty and percentage of poor people earning less than $1 or $2 a day.
The divorce rate has a negative correlation with male labor force participation, with percentage of poor living on less than $1 and $2 a day and with the number of poor people. As found in the literature, it has high positive correlation with suicides.

Male and female labor force participation are both positively correlated with percentage of poor people living on less than $1 and $2 a day.

Population is highly correlated with number of poor people.

**Correlations with Microfinance**

The two microfinance penetration rates (borrowers as a percentage of total population or as a percentage of poor people) are highly correlated.

The number of Microfinance Institutions are positively correlated with number of microcredit borrowers, with total population, with number of poor people as well as microfinance penetration as a percentage of total population.

The number of microcredit borrowers is positively correlated with number of poor people as well as microfinance penetration as a percentage of total population.

**Correlation with suicide**

The table 4 below shows the correlations with female as well as male suicide rates. The divorce rate (DivR) is highly correlated with male (.62) and female suicide rates (p=.0001). This therefore validates previous research.

Male labor participation (LabMale) is fairly highly negatively correlated with male (-.37) and to some extent with female (-.18) suicide rates with p=.0002 and p=.073 respectively. Female labor participation (LabFem) is not related with suicides (slightly positive to female suicides though; r=.16; p=.10).

This is more surprising and would say that labor pressure on men would increase male as well as female suicide rates. Another significant correlation is that male suicides go down with female unemployment. Male and female suicide rates go up with male mortality rates. Female suicides also go up with female mortality rates. And furthermore female suicide rate goes up with GNI per capita.

National poverty rates and the poverty rates used by Gonzales both reduce male suicides; thus supporting the assumption that high poverty creates social security mechanisms to lower suicides.

**Table 4: Coefficients of correlation with Male and Female Suicide Rates**

<table>
<thead>
<tr>
<th></th>
<th>SuiMale</th>
<th>SuiFem</th>
<th>SuiMale</th>
<th>SuiFem</th>
</tr>
</thead>
<tbody>
<tr>
<td>GNIpCap</td>
<td>0.12</td>
<td>0.21**</td>
<td>0.63***</td>
<td>0.46***</td>
</tr>
<tr>
<td>GNIppp</td>
<td>0.07</td>
<td>0.10</td>
<td>-0.37***</td>
<td>-0.18*</td>
</tr>
<tr>
<td>UnemplFem</td>
<td>-0.23*</td>
<td>-0.21</td>
<td>0.12</td>
<td>0.17</td>
</tr>
<tr>
<td>UnemplMale</td>
<td>-0.09</td>
<td>-0.09</td>
<td>-0.16</td>
<td>0.01</td>
</tr>
<tr>
<td>Unempl</td>
<td>-0.16</td>
<td>-0.18</td>
<td>-0.10</td>
<td>0.11</td>
</tr>
<tr>
<td>MortFem</td>
<td>0.09</td>
<td>0.22*</td>
<td>-0.02</td>
<td>0.14</td>
</tr>
<tr>
<td>MortMale</td>
<td>0.25**</td>
<td>0.28**</td>
<td>-0.25</td>
<td>-0.28</td>
</tr>
<tr>
<td>LitFem</td>
<td>0.11</td>
<td>-0.17</td>
<td>-0.11</td>
<td>-0.25</td>
</tr>
<tr>
<td>LitMale</td>
<td>0.12</td>
<td>-0.10</td>
<td>-0.32**</td>
<td>-0.21</td>
</tr>
<tr>
<td>Lit</td>
<td>0.12</td>
<td>-0.14</td>
<td>-0.16</td>
<td>0.19</td>
</tr>
</tbody>
</table>
B. Regression analysis

Based on the high correlations between many of the variables, we were able to reduce the number of explicative variables. The following equation provides the regression results. When we include the divorce rates the number of countries providing all this data is reduced to 14, which is by far not enough for 17 variables in a regression. By dropping divorce rate, we have 31 countries. The regression results are available in Appendix 4 and can be summarized in the following formulae

\[
\begin{align*}
\text{SuiMale} & = -32.7 + 0.001 \times \text{GNIpCap} - 0.017 \times \text{MortFem} + 0.131 \times \text{MortMale} + 1.216 \times \text{LEFem} - 0.848 \times \text{LEMale} \\
& - 0.393 \times \text{LabMale} + 0.0695 \times \text{LabFem} - 0.115 \times \text{MFIs} + 0.0028 \times \text{Borr} - 0.0155 \times \text{Pop} + 0.188 \times \text{PovR} \\
& - 0.393 \times \text{LabMale} - 0.0375 \times \text{LabFem} - 0.028 \times \text{MFIs} + 0.001 \times \text{Borr} + 0.001 \times \text{Pop} - 0.021 \times \text{PovR} - 0.081 \times \text{PovU} + 0.106 \times \text{Pov1} \\
& - 0.030 \times \text{Pov2} - 3.218 \times \text{BorrPop} + 23.94 \times \text{BorrPoor} \\
\text{SuiFem} & = 7.587 + 0.048 \times \text{MortFem} - 0.0035 \times \text{MortMale} + 1.0237 \times \text{LEFem} - 1.018 \times \text{LEMale} - 0.163 \times \text{LabMale} \\
& - 0.0375 \times \text{LabFem} - 0.028 \times \text{MFIs} + 0.001 \times \text{Borr} + 0.001 \times \text{Pop} - 0.021 \times \text{PovR} - 0.081 \times \text{PovU} + 0.106 \times \text{Pov1} \\
& - 0.030 \times \text{Pov2} - 3.218 \times \text{BorrPop} + 23.94 \times \text{BorrPoor} 
\end{align*}
\]

The only explanatory factor with a 90% significance is microfinance penetration as a percentage of poor people which seems to cause male suicide.

DISCUSSION

These preliminary findings reinforce the need to discuss some basic questions often raised in the microfinance debate. Although microfinance seems to be having little to do with divorce, it is possible that with the development of mobile banking, urbanized males send money back to their rural spouses by phone (instead of travelling) and this may break down marriages (Morawczynski and Pickens 2009). Thus, any pressure on divorce created by microfinance could pave the way for suicide. This pressure may also come from the changing role of women and men, creating stress for men as their traditional privileges are taken away, since microfinance loans are mainly to women.

An interesting finding in our regression equation indicates that suicides go up with microfinance penetration as a percentage of poor people but not as a percentage of total population. This makes sense. The rich people should not, a priori, be affected by microfinance. Thus microfinance penetration should create an impact on measuring saturation level of its market, which is the poor. The more saturated the market, the more the sales pressures exerted on poor people to take multiple loans. The more the indebtedness, the greater is the inability to pay, creating psychological burdens to difficult to support by some of the more fragile people.

1. Is the drive for fast growth and financial sustainability making MFIs forget the human angle?

A. At what point does an MFI lead to alienation from the top?
The problem is that microfinance is driven by relentless pressures for the MFI to grow creating over indebtedness in saturated regions such as Andhra Pradesh.

At the same time, for MFIs, there is always a drive to reduce the defaults. Interestingly, and contrary to popular belief, a MFI can actually sustain about a 4-5% PAR. Richard Rosenberg of CGAP points out that at 95% recovery rate the MFI actually could loses up to 40% of its portfolio annually (Rosenberg 2009), in the case of short term loans. Therefore in the long run the MFI could not be sustainable. Beyond these rates, from experience, unless you have really good managers the operation is in trouble. People stop repaying and there is a viral effect whereby this behavior spreads and borrowers stop paying in masses.

This could explain (and possibly justifies from the MFI’s perspective) why there is such a pressure from top managers towards low defaults and high recovery rates. Standard banks do not have the same problem since they have collaterals which they can use to recover the unpaid balance. Therefore, banks can survive higher default rates than MFIs. In fact, below a collection rate of 95%, most MFIs are unsustainable (Rosenberg 2009).

B. When is the mission lost in the vertical hierarchy?

It is often felt that smaller focused NGOs are more in contact with the people and actually have the time to devote to each entrepreneur. The entrepreneur requires this sort of hand holding to succeed. At the same time, for sustainability, the NGO needs to replicate a successful model in many different villages. The initial social entrepreneur no longer has the time to devote to each customer and needs to empower local agents to carry out his work. Although he may choose these local agents, and make them managers as the MFI grows, with time, he cannot prolong the supportive aspect. Thus, in growing organizations somewhere along the line the mission of helping the micro-entrepreneur succeed to eradicate his poverty is lost and only the mission of giving and recovering loans is retained. The pressures of financial sustainability ensure, in fact, that the economic bottom line takes precedence over the social bottom line.

These pressures of sustainability translate for the loan officer into a mission to recover. The loan officers are told to be gentle (not use physical force) – but at the same time there is a huge pressure on each loan officers to recover loans. Failure to recover reflects on the loan officer’s performance. So while the official policy is to be moderate, in reality under pressure the loan officers are bound not to be nice.

C. Is there a deontological code in MFIs on how the loan officers should behave?

One area for future research could be the study of MFIs to see if there is a written deontological code for loan officers. Field experience of one of the authors indicates that they are asked to behave polite and humanely, not use violence or force, etc. From personal experience, this co-author found, two loan officers were suspended and put though disciplinary actions when they got physical with clients. Scream and shout all you want, but you cannot touch them or their property was the idea. Evidently, the behavior which is acceptable is determined by cultural norms of the country in question.

2. Without social pressure would people repay?

In microfinance operations today, two scenarios are present – either the client is part of a group lending scheme or she is an individual borrower (along the lines of formal banking instructions).

A. Social pressure is one of the foundations of microfinance group lending
By the very nature of their business, MFIs operate in the same risky environment as all financial institutions – including banks and lending institutions. But unlike their counterparts, MFIs do not and often cannot, adopt the same risk mitigation mechanisms.

For any formal financial institution, the first step of risk mitigation, which some may argue is the most effective step, is to ensure that a client can pledge enough collateral to provide a degree of comfort towards providing the loan. This simple step however goes against the basic nature of microfinance loans which are primarily described as collateral free small loans made to the poor, because they have no collateral to offer in any case. MFIs therefore adopt alternate mechanisms to ensure that the clients do not default on the repayment obligations. These include stringent verifications of client’s identities, their residence, their standing in society and almost always utilize some form of peer pressure leveraged through social network to ensure that the client pays back what is owed.

The Grameen Bank Model for microfinance operations, and most other South Asian models, relies heavily on social networks to ensure credit repayment behavior amongst its clients. The model calls for clients to form groups of a specific size, anywhere between 5 and 30 clients, the groups then meet at a given frequency to pay their installments and any other dues to the MFI. The meetings could be held daily, weekly, monthly or at any frequency determined by the MFI and its clients. Since the repayment is public, non-repayment leads to social pressure.

Whilst most microfinance practitioner only quote anecdotal evidence as the basis for saying that peer group based microfinance lending models are effective and is one of the major contributors towards South Asian MFIs having such high repayment rates, a recent study (Feigenberg et al. 2010) seems to validate this issue. The study finds that not only are social networks, such as peer groups, effective in ensuring repayment behavior in microfinance client but that increased interaction between clients and a MFI encourages individuals in those groups to sustain reciprocal economic ties. In practice this often means that groups that meet more frequently (i.e., weekly) are more likely to repay their loans than those who meet less frequently (i.e., monthly).

The group lending scheme is usually selected to overcome the adverse selection problem, the ex ante moral hazard and the ex post moral hazard (Armendáriz and Morduch 2005). By adverse selection, we mean that the fact that people are willing to include a person in a group means that he is not a risk. And for ex ante moral hazard (or the capacity to make the project work), group monitoring ensures that the person actually employs the capital into productive use and does not consume it. Ex post moral hazard, or the willingness to reimburse, again group pressure ensures that the person repays.

When the social network becomes just an extension or an agent of the MFI the solidarity and social fabric which tied them together initially weakens and begins to break down. Therefore, it is possible that the group pressure is felt more on enforcing the payment and less on business building.

B. Individual lending

Social networks and peer pressure fail when the borrower is on an individual loan basis and the only incentive for paying back is to get a larger loan, the so-called dynamic incentives (Armendáriz and Morduch 2005). In the individual loan scheme, the person is alone to implement her project. Therefore, the ex ante moral hazard returns and the person may lack the capacity to reimburse if she does not have the courage to continue her business alone.

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14 More about Grameen Bank’s operating methodology can be found at their site at [http://www.grameen-info.org/index.php?option=com_content&task=view&id=24&Itemid=127](http://www.grameen-info.org/index.php?option=com_content&task=view&id=24&Itemid=127) [last accessed on 30 October 2010].
So if she takes bigger loans to repay, she is only postponing the day of reckoning. On the other hand, the MFI suddenly finds itself faced with a large loan to a client who does not have a capacity to pay, and without a group to exert peer pressure. Therefore, a responsible MFI is forced to use threats and verbal abuses to embarrass the client’s standing in society. (Sometimes this is done out of sheer frustration of the credit agent who wants to show an impeccable collection record.)

C. Does capacity to pay relate to capacity to survive?

In either lending methodology group lending or individual lending one question is, how a manager of a MFI can know which potential borrower is vulnerable psychologically and would respond to either group pressure or to collection agent by resorting to suicide?

For this, we must step a back and look at the broader picture of ensuring repayments and perhaps at the ethics of microfinance lending and repayment pressures.

Speaking from the viewpoint of providing access to finance and institutional sustainability, MFIs that mitigate their loan recovery risk provide a twofold service – credit to those who have no access to formal credit institutions and they breed sustainable intuitions that can continue to cater to them. But looking from the viewpoint of the poor, how much financing can they truly afford? What is the limit? What happens when MFIs cross this limit?

Borrowing money and repaying sustainably is an issue that everyone grapples with, not only the poor. In modern society almost every individual consumer is constantly bombarded with offers of ‘free’ credit cards and ‘low cost’ refinancing schemes for mortgages; in such a media saturated market, even the moderately financially savvy feel lost. If the consumers are not fully aware of what they are stepping into, it’s easy to quickly find themselves with ‘maxxed’ out credit cards and loan repayments that eat into family budgets. Now imagine the poor, who are not educated and are moderately financially savvy when it comes to money management. When offered access to credit, often by competing MFIs, they are much less experienced and tempted to borrow from multiple MFIs (Simbaqueba and Bumacov 2009).

Multiple borrowing by microfinance clients could be for many reasons and is often driven by the need for more funds. For example, the amount offered by one MFI might not be sufficient for the business needs of the clients hence she resorts to multiple loans; she could be borrowing at a lower rate from a competing MFI; she could be borrowing to meet an emergency cash need for the family; or, in some cases, she could be borrowing from one MFI to pay off another.

Whatever the case may be, in engaging in multiple borrowings, microfinance clients run a serious risk of becoming over-indebted. This is the situation where the income of a client is not sufficient to meet the installment payments due to one MFI or multiple MFIs. In order to meet her obligations to the MFIs, a client might have to forego other critical needs of the family – this could potentially cut down on the family’s nutrition budget, force children to drop out of school, defer healthcare or force them to sell whatever little asset they might have which further reduces the scope for generating income from assets.

This inability to repay then subjects the client to often extreme social pressure from peer groups to repay. An article of the Wall Street Journal (Gokhale 2009) reports that women in rural India are afraid of losing their standing in their community if they default on their loan obligations. This fear of social castigation is so intense, that some ponder suicide as a mechanism to avoid harassment – both from their social network and from the MFI agents.
Thus, the adverse selection problem not only requires separating people who are capable of building businesses and willing to repay, but also identifying that if they fail – either in their business or in repaying back their loans - they will not commit suicide.

All this is reinforced by our finding that male labor participation is fairly highly negatively correlated with male (-.37) and to some extent with female (-.18) suicide rates. Female labor participation is not related with suicides (slightly positive to female suicides though; r=.16); This means that as people lose jobs in times of crisis, the participation level of the country’s males in the labor force comes down. As a result, we should see an increased propensity to suicide.

If these people than take microfinance loans, either for immediate consumption or for business, without the resources to pay back, the psychological pressure on them increases, and they may become more vulnerable to suicides.

In short, in additional the economic creditworthiness of the borrower, the loan officer needs to take into account the psychological profile of the borrower

D. Should psychologically weak people be excluded?

It is difficult to define psychologically weak people. The poor are inherently physiologically battered and are often intimidated by educated ‘officers’ working for a ‘big bank’ that come to give them loans and ask them to repay in time.

However, our review of the suicide literature suggests that women are less likely to commit suicide across cultures. This reinforces the reasons enumerated in the literature to provide preference to give credit to women.

Moreover, our literature review suggests that social networks, such as marriage, can absorb the shock of economic downturns. Therefore, it may be preferable to give loans to married women. But without properly researching the profile of microfinance suicide cases, this conclusion cannot be maintained categorically. An alternative to withholding loans is to provide correspondingly targeted support.

3. Without Microfinance would the marginalized borrowers die anyway, and if so, even earlier?

A. To what extent is microfinance for consumption?

Probably, it varies across socio-economic strata and in the nature of the people. The poorest will probably use more for consumption than investment, and the marginally poor will probably use it all for supporting their family. Sadly, this behavior makes the poorest of the poor a higher risk group to lend to; thus microfinance is often given to the upper and mid echelon of the poor rather than the poorest of the poor.

Also, as mentioned above, there are always unforeseen circumstances that force borrowers to consume rather than invest – healthcare emergency, a wedding in the family, unexpected food crisis, etc.

B. Can consumption based loans be repaid?

The repayment of consumption based loans depends on the reason for consumption and the external economic climate. If the consumption was emergency based and the cash flow of the client remains the same, she can probably pay it back. If there is an emergency that debilitating the cash flow of a family – such as the death of an earning member – it would be difficult to recover from this which would make a repayment unlikely.
If however, the consumption of the loan is for regular needs, it is clear that without an unexpected increase in regular income, the loan could not be repaid.

The problem is that money is fungible and it is impossible to monitor which part of a person’s inflow (loan or income) financed which expense.

C. Is Microfinance about solidarity?

The microfinance movement was a step up from donations because it was felt that it provides responsibility for people to repay. Donations were a form of economic solidarity, especially important in poor countries. With microfinance, is this economic solidarity lost?

However, our research seems to indicate that even more important than economic solidarity is human solidarity, that is security support networks created by institutions such as marriages and customs. As marriages break down, suicides increase. If males participate less in society, it seems to drive up suicides.

Male suicides go down when female unemployment goes up. Is this because males are not accepting the change in customs where women work and have more equal roles? Or is this because, unemployed women have the time to provide the psychological support that the male has? We don’t know. But if it is the latter, and if microfinance is keeping women too busy to support their men, then it could create these transitional problems of accepting social change.

Suicide rates are lower in poor countries. This is probably due to the existence of family as a social security fabric, both economic and human.

POLICY RECOMMENDATIONS: What can the authorities do to avoid suicides?

What can be done to limit or even avoid suicides? The US suicide rate came down in the 1990s with economic prosperity. Thus, also in developing countries governments can try to create economic prosperity and promote the use of effective anti-depressants (McKeown et al. 2006) as well as counseling (McCurry 2006). Other methods to reduce suicides would be to mitigate the depreciation of human capital during unemployment by providing retraining and by increasing temporary employment (Koo and Cox 2008). Also a higher legal drinking age can lead to lower suicides (Jones et al. 1992).

However, for the purpose of our paper, we focus on what can be done to limit suicides in relation to microfinance in the areas of interest rates, loan sizes, loan profitability, the consumption of loans, and savings.

A. Limit interest rates?

The history of microfinance indicates that usury ceilings have been debated and placed from times immemorial in different contexts (Attuel-Mendes and Ashta 2008). These usury ceilings are often removed in sustained economic downturns. Today, many countries have usury ceilings and many do not. Even within one country (i.e., USA), some states do have usury ceilings and others do not. The prime argument for usury ceilings is that higher interest rates are undeserved and parasitical. The prime argument for removal of caps is that caps lead to credit rationing away from poorer (and therefore riskier) clients.
A further question is, if one decides to limit interest rates, how high should be this limit. This is, again, a controversial subject – governments usually prefer low interest rates (which are often subsidized and unsustainable), which they set resulting from their own experience of providing microfinance or just because of political popularity. MFIs argue that the rates set by the government are too low and cannot sustain high operations costs. It is difficult to determine a scientifically based objective rate – market forces seem to take over after a period of time and rates settle. Interest rates in Bangladesh hover between 12.5 and 15%. In other countries, as in West Africa, rates freely vary in the countries not belonging to the West African Economic and Monetary Union. For the latter there is a cap at 27%, similar to the cap being proposed for Bangladesh. In Andhra Pradesh, in contrast, the cap is at 100% or higher depending on what we interpret as the effective interest rate.

But MFIs, like any other financial institutions, could behave like pseudo cartels. Once a rate is set, everyone charges that or a few basis points around it – everyone is encouraged not to undercut the market to do a volume business.

B. Avoid for-profit microfinance?

The next question, if we want to avoid the relentless pressure on the financial bottom line to result in suicides, is to examine what sustainability is all about. What are the ethical considerations involved in marketing to the poor? Should these ethics be different than those for marketing to the rich? In short, instead of capping interest rates should we cap profits?

One suggestion in this direction is the concept of social business (Yunus 2007) with two models. In one model, anyone can hold shares but no dividend is distributed. However, the cap is not on profits, but on the distribution of dividends. In the other model, only the poor can hold shares and get dividends. However, there is no ceiling to the level of dividends.

Therefore, if profits are to be limited, perhaps we need to revert to the not-for-profit model. However, this would imply reverting to unsustainable government or donor funded MFIs. Donor run MFIs often disappear after a few years. This reduces the desire of the borrower to repay and it makes the poor financially unscrupulous too. Government run institutions can waive off loans if the poor vote for a corrupt politician, making the poor also politically unscrupulous.

C. Limit overall loan size

Scale in microfinance creates economies as well as diseconomies. There is evidence of economies of scale in microfinance. Scale in microfinance refers to portfolio and is a function of outreach and average loan sizes. Therefore, these scale economies can be broken down in two parts: cost economies from providing larger loans per head and cost economies from the growth of MFIs in outreach numbers (de Crombrugghe et al. 2008). The question remains whether there are scale diseconomies.

A major financial innovation in microfinance is to increase the loan size for clients who have repaid successfully and developed positive credit histories. This loan size is often accompanied by an increase in the term structure, allowing a longer term loan (Von Pischke 2002). Other research has found a U-shaped relationship implying that a small loan has high relative operating costs but that these decrease at a decreasing rate and then increase (Cull et al. 2007; de Crombrugghe et al. 2008). Thus, there would be an optimal loan size, but the optimal amount may depend on the delivery model (group or individual loan). It is also possible that even if larger loan sizes reduce operational costs, they may increase credit risks (Gregoire and Tuya 2006). This a reason for limiting loan sizes – on a broad level this could be set as a function of the Per Capital Gross National Income (GNI). For example the regulator could restrict microfinance loans not to
exceed 2.5 times GNI per capita for individual loans and 1.5 times GNI per capita for group loans adjusted for group size (based on Cull et al. 2007 results).

In fact, the MiX considers that "Microfinance services – as opposed to financial services in general – are retail financial services that are relatively small in relation to the income of a typical individual. Specifically, the average outstanding balance of microfinance products is no greater than 250% of the average income per person (GNI per capita)"15. The exact limit could also vary with the level of poverty and the limit may be much lower in India and Bangladesh where the average loan size is only 0.2 times GNI. In fact, if the poor are earning less than $2 a year or $730 per year, and if they have no wealth, it is difficult to understand how they can pay back loans with a term life of a year or less, of amounts greater than their income unless the loan helps them to triple their income!!! Perhaps, half the GNI for the period would seem a more rational limit to loan sizes, from all the MFIs put together.

Regarding overall outreach, there is evidence that economy of scale matter. One study of MFIs in the USA finds that institutional costs increase at a slower rate than the rate at which the loan portfolio grows, so that the overhead allocation declines as an MFI achieves scale(Pollinger et al. 2007). A study of Indian MFIs reports that increasing the outreach (number of borrowers) is more important to economies in operating costs than increasing scale (total portfolio size) (de Crombrugghe et al. 2008). A Peruvian study also indicates that the largest MFIs are the most efficient (Gregoire and Tuya 2006). However, it is also observed that small informal institutions with more contact and higher trust require minimal procedures and records whereas larger institutions require more record keeping (Sriram 2005). Is it possible that larger MFIs create an alienation process and perhaps MFIs should be limited to a certain outreach?

MFIs themselves could be more responsible and carry out accurate cashflow evaluations of households instead of the guesstimate they do now. A longer term evaluation of the household income and expenditure will give a more accurate picture of what that household can sustainably borrow. The issue here is that even though you are lending to individual women, you are often actually lending to households and all cash inflows as well as outflows from that household affect the creditworthiness of the borrower.

D. Limit consumption loans

This cannot be done realistically. No one will admit that a loan is for consumption. Everyone knows that they have to say that the loan is ‘for business.’ Therefore it is difficult, and often counter-productive, to track the actual spending of the loan amount – not to mention the time needed for supervision and the associated costs.

E. Increase savings

An alternative to target loans only is to include savings products in microfinance. Saving can first serve as a means for building up wealth and it also can teach financial responsibility. Savings is not only a possibility to secure for unpredicted hard ships, but it also can provide means for investment. Once individual security is sustained, possibilities for investment might arise, which could lead to fundamental development. These participation opportunities could increase the social attachment and social integration. Saving also provides a positive commitment to a region which might oppose suicide tendencies. Further on, the relationship between the credit officer and the client is positively altered as a depositor is not only the demanding borrower but also the fund provider.

Besides the change in relationship between actors, the experience of Credit and Savings cooperative in Togo shows that these organizational forms reduce the risk of international politics and enforced political isolation (Ashta et al. 2010). Moreover, the experience of savings based MFIs in Bali, Indonesia, the Lembaga

15 http://www.themix.org/about/microfinance
Perkreditan Desa (LPD), indicates that the global crisis has had no effect on their growth of outreach and performance (Seibel and Nurcahya 2009).

F. Good Management of the Economy

One of the key messages of the empirical study is that increasing male labor participation rates should be accompanied by reducing male suicides. Female suicides are less correlated but are equally affected by males of female participation coming down. Thus, sound management of the economy is important to ensure that people, especially males, are allowed to participate in the economy.

However, if female suicides go up with GNI per capita, reflecting the fact that there are more suicides in richer countries, the question to be posed is whether economic growth is sought or whether economic development requires some other sustainability angles than just a focus on environment.

G. Improve Human Solidarity

In poor countries, economic solidarity by social security systems works through the families. If these break down, without the government providing an alternative system, it is difficult for people to survive. Therefore, the pressures of urbanization may be partly responsible for suicides. Creating social security systems is part of the government’s responsibility.

However, urbanization also destroys the human solidarity in terms of psychological support from the spouse who is now distant. NGOs need to be encouraged to provide this support. Fortunately, in India, the formation of SHGs and JLGs indicate that there is a social fabric for women to take care of their reactions to the change in their status.

However, as microfinance develops, and as the roles of women change, even if at a rather slow pace, it is perhaps important to remind the male that he too will be taken care of. So far, there seems to be little work done to provide SHGs to men who are not borrowers.

H. Other measures

In Sri Lanka, it has been found that the availability of agro insecticides / weedicides in households ‘within easy reach’, has led to temptation to attempt suicide by drinking these products by farmers faced with a crisis. Labeling the product appropriately with skull and cross bones and instructions to store under lock and key have helped to reduce easy access. Moreover, the increased use of three wheeled auto rickshaws, in rural areas, has caused a revolution in rural transportation, on narrow rural dirt tracks, and has resulted in persons who attempt suicide by drinking poison being transported to hospital in time to have a stomach pump and the life is saved.

CONCLUSIONS

In this paper, we have seen that the recent scandal in Andhra Pradesh has some basis. However, to some extent, suicides increase with development. This would be true if development accompanies Microfinance. However, the statistical links are not clearly established.

We have noted that the interest rate ceilings imposed by the Andhra Pradesh government are so high that few MFIs should be impacted. We have shown that such interest rates seeming to be 100% are actually an
APR of 158% and an Effective annual rate of 353%. With these ceilings, MFIs should not have a problem. The 24% effective interest rate ceiling suggested by the Malegam committee report (Malegam 2011), in addition to a 1% up front servicing fee seem to be more serious limitations for the sector. The committee however has been careful in not indicating how the 24% is calculated (APR or EAR). Even if it is 24% APR, along with the recommendation that compulsory deposits have to be stopped, this may lead to some serious limits to the profitability of the microfinance sector and its growth rates.

Second, we have shown that the suicides in Microfinance in Andhra Pradesh do not seem to be any greater than the average suicide rate in India. However, if microfinance borrowers are mostly women, women suicides in Andhra Pradesh by microfinance borrowers are higher than the average female suicide rates.

Third, the time series data that exists on Indian suicide rates points to a reduction in female suicide rates and an increase in male suicide rates accompanying the development of microfinance in India. Thus measures need to be taken to provide support for men.

Fourth, the cross-sectional state-wise data in India also seems to suggest a strong link between suicides and microfinance and an even stronger link between the bank SHG model and suicide rates. Thus, the measures to protect people apply as much to banks as to MFIs.

Fifth, the global cross-sectional correlation analysis undertaken for this paper validates previous research indicating strong significant correlation between suicides and divorce. However, we do not find, contrary to previous research, strong relation between suicides and unemployment. We find there is some fairly high correlation between male suicides and male participation in the labor force. We also find strong significant fairly high negative correlation between male suicide rates and poverty rates.

Sixth, the most important result from the regression analysis is that if we do not include divorce data and replace unemployment with employment participation rates, microfinance penetration among the poor comes out as a causal factor for male suicides, at a 90% confidence level. This points towards an egoistic-anomic view of suicides, indicating that men are not comfortable with the change in economic or social relations. Again, measures need to be taken to provide support for men.

Seventh, we have extensively discussed issues such as limiting growth rates to avoid alienation, the need for social pressure, and the possible benefits of microfinance in relation to postponing suicides.

Eighth, we have come up with some policy recommendations including interest rate caps and loan size caps to better regulate the sector. Other recommendations are for regulating this sector to avoid MFIs getting carried away with the idea of high profits. Giving permission to NGOs to take deposits from its customers would also help to create a better balance of power between the MFI and the local people from the region.

Above all, we suggest the need for keeping the human angle at the centre of the focus of MFIs, the social security system and the regulators.

Future research could search for better data to validate our findings. It could also then look focus on individual countries and study time series data to see the causes of suicides and their link with economic development. Specifically, in relation to India, perhaps a qualitative case study is warranted about the particularity of the Indian communities and the major changes that took place (along with microfinance) over the last two decades. These could then explain the hypothesized causality of microfinance to suicides. More generally, a comparative question needs to be addressed in questioning the attitude of the oppressed borrowers: why do abusive practices in Latin America lead to objections against MFIs from the grass-roots while in India it led to suicides to the extent that the government itself intervened and ask borrowers to stop paying?
Suicides may perhaps be just the tip of the iceberg. Debt produces stress which could also lead to other diseases and, in the absence of availability of appropriate medicines at prices affordable by the poor, may lead to deaths which are not labeled as suicides. This research avenue may also lead to further need for micro-insurance and for social security measures.
Appendix 1: The explicative variables

GNIpCap is the GNI per capita.
GNIppp is the total GNI of the country and helps us control for size
UnemplFem is the female unemployment rate in percentage
UnemplMale is the male unemployment rate
Unempl is the average unemployment rate
MortFem is the mortality rate for women per 1000 women
MortMale is the mortality rate for men
LitFem is the percentage of adult literate women above 15 years
LitMale is the percentage of adult literate men above 15 years
Lit is the overall percentage of adult literate people above 15 years
LitFemY is the percentage of youth literate women between the ages of 15 and 24 years
LitMaleY is the percentage of youth literate men between the ages of 15 and 24 years
LitY is the percentage of literate youth between the ages of 15 and 24 years
LEFem is the Life Expectancy at birth of females
LEMale is the Life Expectancy at birth of males
LE is the overall life expectancy
DivR is the divorce rate
LabMale is the labor participation rate for men
LabFem is the labor participation rate for women
MFIs is the number of Microfinance Institutions in the country and is a proxy for microfinance saturation
Borr is the number of borrowers in the country and represents total microfinance outreach
Pop is the population of the country
PovR is the rural poverty rate in the country
PovU is the urban poverty rate in the country
PovN is the national poverty rate
Pov1 is the percentage of people living on less than $1 a day
Pov2 is the percentage of people living on less than $2 a day
Poor is the number of poor people
PovRate is the poverty rate used by Adrian Gonzales in his study, usually the national poverty rate
BorrPop is the penetration of microfinance as proportion of borrowers to total population
BorrPoor is the penetration of microfinance as proportion of borrowers to poor people
### Appendix 3: Remaining countries in the regression analysis (#31)

- Albania
- Armenia
- Azerbaijan
- Brazil
- Burkina Faso
- Burundi
- Cambodia
- Cameroon
- Colombia
- Costa Rica
- Dominican Republic
- Ecuador
- Egypt, Arab Rep.
- El Salvador
- Georgia
- Guatemala
- Guatemala
- India
- Jamaica
- Kazakhstan
- Kyrgyz Republic
- Mexico
- Moldova
- Nicaragua
- Panama
- Paraguay
- Peru
- Philippines
- Romania
- Sri Lanka
- Trinidad and Tobago
- Uzbekistan

### Appendix 4: Regression results

<table>
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<tr>
<th>Model Variables</th>
<th>Male Suicide Rate (SuiMale)</th>
<th>Female Suicide Rate (SuiFem)</th>
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</table>
BIBLIOGRAPHY


Microfinance Focus, October 23., 2010. "Microfinance: Choose schematic regulation now, or face sporadic regulation."


