*

Loan Repayment Behaviour of Farmers: Analysing Indian Households*

Tanika Chakraborty†

Aarti Gupta‡

Abstract

This paper uses the 2004-2005 round of the India Human Development Survey (IHDS) to analyse the nature and extent of indebtedness of Indian households. It studies utilisation of loans taken from formal versus informal sector and the subsequent loan repayment behaviour of these households.By analysing repayment patterns we identify the characteristics of individuals who are defaulting. We study the source and purpose of borrowing, consumption and production patterns of households taking loan from di erent sources to gain insight towards the existence of moral hazard problem. We nd that people who borrow from formal sources tend to have higher consumption, higher social spending and lower investment as opposed to people who borrow from informal sources. Higher spending, as opposed to investment, in turn has a negative impact on loan repayment. Our ndings point towards the di erential treatment of formal versus informalthevb28(ymr)tifya28ae def2ulting.informal

Introduction

Debt plays an essential role in the lives of the rural households in developing countries in a number of ways. It is an important instrument for smoothing consumption, in a context where incomes typically experience large seasonal uctuations. [Ghosh et al., 2000] However, credit markets in developing nations especially in rural households do not behave completely like competitive markets. They are dual structured, where formal and informal nancial systems operate side by side. Due to the lack of availability of a properly structured debt market in the rural areas of the country, majority of the households borrow from informal sources of nance which charge high interest rates and often lead to informal agents usurping the assets of the households. To provide easier access to credit we often nd governments intervening in the workings of the credit market in multiple ways. In Thailand increased participation in formal nancial institutions increased economic growth between 1976 and 1990 [Townsend and Ueda, 2003].

India was also no di erent. Under the 1949 Banking Regulation Act, all banks required to obtain a banking licence from the Reserve Bank of India, which is the Indian Central Bank prior to opening of a new branch. In 1975, the Narsimham committee conceptualised the creation of Regional Rural Banks (RRB(a)-358oamal

have adequately permeated vast segments of our society [Hoda and Terway, 2015].

Indian households primarily borrow from two sources, the formal and informal sources. The formal sector constitutes of all institutional credit agencies like co-operative banks, commercial banks, government lending agencies, regional rural banks, insurance etc. On the other hand the informal sector comprises of the non institutional credit agencies like landlords, agricultural moneylenders, professional money lenders, traders and commission agents, relatives and friends. Prior to the First Plan in 1951, all the nancial requirements for the rural sector for agricultural purposes were met by traditional/informal sources of nance, primarily the moneylender. The share of provision of credit by commercial banks or cooperative societies was barely 4% by June 1951 [Pradhan, 2013]. With the government pushing its credit agencies to expand its credit facilities with special emphasis on providing it to the rural agricultural sector, the access and availability of formal credit has vastly increased. However, one cannot deny that both formal and informal sector still form an important aspect of the lending scenario in Indian agricultural households. Banerjee and Du o [2007] show that a vast majority of people in Hyderabad that have a per capita income of below two dollars borrow from non institutional sources even though they have access to formal loans. Madestam [2014] developed a model in which they model how informal nance complements the banks by permitting for

the cost of default, including legal costs. Further, agents need to weigh the bene ts of default against the consequences of autarky. Je rey Sachs rst introduced the concept of debt relief for countries [Sachs, 1989]. Paul Krugman formalised the actual derivation of the debt relief curve and the underlying logic behind it [Krugman, 1988]. Krugman's paper examines the tradeo s facing creditors of a country whose debt is large enough that the country cannot attract voluntary new lending. According to Krugman if a creditor country was trying to a ect the adjustment e orts of a debtor country, the more debt relief it would give, larger would be the adjustment e ort by the debtor country to service the debt. If the debt were too large then the debtor country would have no incentive to put in any e ort to pay o the debt.

Background

Exclusion from the banking sector has huge welfare costs, especially for the poor. One of the major problems with informal sector lending is the high interest rate and the usurping of assets from the rural household in the event of a default. Informal nance is often thought to be anti-developmental, exploitative, and prone to consumption

provides some evidence that loan waivers alter the borrowing behaviour of farmers. Kanz [2012] suggests in his paper analysing the 2008 national debt waiver scheme, that such economic stimulus programs may distort borrower incentives and give rise to moral hazard. To get a further insight into this and explore why this happens we need to understand how farmers utilise loans taken from various sources.

Typically there are a number of sources from where an Indian household can borrow. But loan waivers from government are primarily given to loans taken for agricultural purposes from formal sources, particularly nationalised rural banks. One of the main arguments in favour of expanding access to formal credit at low rates of return was to protect poor farmers from steep informal interest rates.Lower interest rates on formal sources should drive productivity. However easier availability could also increase unproductive spending which could lead towards non repayment. This paper analyses the borrowing behaviour of households. It studies how investment and

borrowing behaviour of households in urban and rural regions. 32.75% of households borrow from formal sources like banks, NGOs and employers, while 67.25% borrow from informal sources like moneylenders, relatives and friends. Almost half, 47.3% of the formal loans are agricultural or business loans, in contrast to 16.67% of informal loans. However, when we restrict the sample to just rural households the percentage of households who borrow from informal sources for the purpose of agriculture is higher.

Table 1: Summary: Household

	Formal Source		Informal Source	
No of households	5536	32.75%	11,369	67.25%
Borrowed for the purpose of agriculture	2619	47.31%	1895	16.67%
Mean Income	75367		33024	
Social Spending	4719.64		3353.43	
Monthly Consumption Per Capita	1239.55		786.31	

Source: IHDS 2004{2005, own calculations.
Notes:

behave di erently when borrowing from a formal source like banks as opposed to an informal source like money lenders. For instance, if monitoring is stricter for loans taken from relatives and moneylenders then the defaults would be lower on informal loans [Banerjee and Du o, 2007].

Table 2: Analysing Repayment Rates of Households by Purpose of Borrowing

	Frequency	Non Repayment		
			RURAL	URBAN
Total Households	16934	12284	71%	29%
HH borrowed for the purpose of agriculture	5196	3635	83%	17%
HH borrowed for the purpose of marriage	2604	1980	71%	29%
HH borrowed for the purpose of buying a house	2758	1948	59%	41%
HH borrowed for the purpose of consumption	2078	1569	67%	33%
HH borrowed for medical purposes	2393	1833	70%	30%
HH borrowed for the purpose of education	409	306	44%	56%
HH borrowed for the purpose of buying land	171	121	65%	35%

Source: IHDS 2004{2005, own calculations.
Notes: Repayment Rates: Table giving details about repayment rate of households and segregating them according to the purpose of borrowing.

We start by investigating whether two households with the same amount of outstanding loan and with the same overall income di er in their consumption behaviour depending on the source from which they borrowed. To do this we estimate the following model in a liner probability framework.

$$COPC_{iv} = {}_1 + {}_2 LF_i + {}_3 logI_{iv} + \sum_{i=4} {}_i X_{iv} + E_{iv} \quad (1)$$

where COPC is monthly consumption per capita of household i in village v. In IHDS data this re ects the primary sampling unit, roughly the size of an average Indian village. The IHDS survey asked a series of 47 questions about household consumption designed to estimate total household consumption expenditures. COPC is calculated as a sum total of the expenditures on these 47 consumption items. LF is an indicator re ecting whether household i took a loan from a formal source. $LogI$ is log of total household income. X_i is an additional set of covariates such as household size, caste and religion. E_i represents PSU level xed e ects capturing idiosyncratic shocks that are speci c to a village. For instance it captures village speci c weather shocks that might a ect consumption in a village and also a ect availability of formal loans

if more drought prone villages are better covered by government banks. Our primary parameter of interest is $_2$ which captures any di erence in consumption behaviour of households caused by the di erence in their source of borrowing.

In our next section we analyse the relationship between a household's level of social spending, which is the amount of money a household spends on social functions like festivals, birth, death etc and its source of borrowing.

Source of Borrowing and Household Social Spending.

Utilisation of loans borrowed for agricultural purposes have interested researchers for a long time. Tiwari [2012] suggests that 40% of the loan amount borrowed by farmers for agricultural purposes is used on non agricultural purposes such as marriages, education, and health etc. Similarly Banerjee and Du o document how people spend a considerable portion of their income on festivals and other social functions despite scraping through for bare necessities like food, clothing and housing. They nd that in Udaipur the extremely poor spend 14% of their budget on festival [Banerjee and Du o, 2007].

Khamis et al. [2012] also nd evidence supporting the consumption of visible goods by socially disadvantaged groups. They suggest that these consumption patterns can be partly explained as a result of the status signalling nature of the consumption items. To the extent that formal loans are less monitored, households are more likely to undertake unproductive expenditures from these formal loans. Accordingly we investigate the e ect of borrowing from a formal source on social spending and the e ect of social spending on loan repayment. Social spending in the IHDS, records the amount of money spent by a household on social functions like marriages, festivals, birth death etc. Table 3 shows that the average social spending of all the households in our dataset is Rs 2922. Households who have not repaid their loan have a mean social spending of Rs 4221 as opposed to the mean social spending of Rs 3045 for households who have repaid their loan. One could argue that income could be a determining factor in deciding how much a household spends on social functions. But we notice that the average income of households who have repaid their loan is higher, while their social spending is lower compared to the households who have

income borrow from di erent sources. Investment pattern of agricultural households is analysed using the investment ratio variable which is a ratio of the number of farm equipments a household owns from the total basket of farm equipments like tractor, electric pumps etc. Empirically we investigate this e ect using the following linear probability model.

$$Pr(HI)_{iv} = {}_1 + {}_2LF_i + {}_3LogInc_{iv} + sum_{i=4}^{k} {}_iX_{iv} + E_{iv} \quad (3)$$

Where HI is High Investment Ratio and all other variables are same as previously de ned in Equation 2. High Investment is de ned as a binary variable, 0 if the household's investment ratio, (i.e. the ratio of the number of investment equipment he owns from the given list in the Appendix, Table ??) is below the sample mean and 1 if the household's investment ratio of farm equipment is above the sample mean. As mentioned previously, majority of the loans borrowed from formal sources are for agricultural purposes. This equation measures whether the probability of a household to have invested in farm equipment is high or low. we restrict my sample size to only those households who have borrowed for the purpose of agriculture from formal and informal sources.

Loan Repayment, Consumption and Investment.

To understand why repayment behaviour varies by the source of borrowing we explored whether consumption and investment patterns of households varies by the source of borrowing and in turn drives repayment behaviour. Table 3 shows that the average investment ratio is lower for households who have not repaid their loans as opposed to those who have repaid their loans. Not many have tried to explore the e ect of low investment or high unproductive consumption on the incidence of repayment. To understand the way loans taken from various sources of borrowing are utilised by the households, we analyse how their investment and consumption patterns have an e ect on their repayment behaviour.

$$Pr(LR)_{iv} = {}_1 + {}_2Pr(HSS)_{iv} + {}_3Pr(HI)_{iv} \; {}_4logInc_{iv} + {}_5Ir_{iv} + sum_{i=6}^{k} {}_iX_{iv} + E_i \quad (4)$$

where LR is Loan Repayment, HSS is High Social Spending, HI is High Investment ratio, Ir is the monthly rate of interest payable by the household on the loan borrowed, INC is log of income, X_i is a set of other covariates, such as, number of loans taken by the household, largest amount of loan taken, household size, caste and religion. Loan repayment, the dependent variable is a binary variable, 0 being if the household has repaid its largest loan and 1 being if the household has not repaid its largest loan. The $_2$ coe cient records the increase in probability of loan repayment with every percentage point increase in the probability to spend more on social functions than the average.The $_3$ coe cient records the increase in probability of loan repayment with every percentage point increase in the probability to own more investment equipment than the average.

Interest Rates

As mentioned before one of the objectives behind the introduction of formal banking institutions in the rural areas by the government was to provide easy and cheap access to credit. In the process the aim was to reduce dependence on money lenders who charge high interest rates. However, the creation of institutional alternatives has failed to drive the traditional money lender out of the market and the informal interest rates remain high [Ho and Stiglitz, 1990]. This raises the question as to how interest rates play a role in the repayment behaviour of borrowers. Lower interest rates can have important consequences on factors such as indebtedness, utilisation of loan and repayment. The theoretical insight is that households can be induced to take loan for income generating purposes, which in turn, can scale down debt burden and enhance repayment when interest rate is low. An alternate possibility is that, a high interest rate coupled with stricter monitoring of informal loans could push the households towards defaulting less on the informal loans and as a consequence default more on formal loans. To investigate these alternative possibilities we explore how the behaviour of households di er when a high rate of interest is likely to alter household's ability to repay formal vs informal loans. we investigate this by looking at the e ect interest rates have on loan repayment when households borrow from formal sources like banks as opposed to their e ect on loan repayment when borrowed from informal sources like money lenders.

The linear probability model below analyses how interest rates a ect loan repayment behaviour in general and do interest rates play a di erent role when households borrow from formal sources of nance as opposed to informal sources.

$$Pr(LR)_i = {}_1 + {}_2 SS_i + {}_3 Inc_i + {}_4 Ir_i + {}_5 Bank_i + {}_6 MI_i + sum_{i=7}^{k} {}_i X_i + E_i + x_i \quad (5)$$

$$Pr(LR)_i = {}_1 + {}_2 SS_i + {}_3 INC_i + {}_4 Ir_i + {}_5 Bank_i + {}_6 Bank \quad Ir_i + sum_{i=7}^{k} {}_i X_i + E_i + q_i \quad (6)$$

$$Pr(LR)_i = {}_1 + {}_2 SS_i + {}_3 INC_i + {}_4 Ir_i + {}_5 MI_i + {}_6 MI \quad Ir_i + sum_{i=7}^{k} {}_i X_i + E_i + o_i \quad (7)$$

where LR is Loan Repayment, Bank is a dummy variable taking the value of 1, if a household has borrowed the loan from a bank, and 0 otherwise. MI is a dummy for Money Lender, taking the value of 1, if a household has borrowed from a moneylender and 0 otherwise. The $_6$ coe cient in equation 7 is the interaction term of the dummy variable Bank and monthly interest rate. It records the e ect of monthly interest rate on loan repayment when households borrow from Banks. Similarly $_6$ coe cient in equation 8 is the interaction term of the dummy variable moneylender and monthly interest rate, which records the e ect of monthly interest rate on loan repayment when households borrow from moneylenders.

The next section looks at the results of these equations.

Results

Consumption

I start by investigating whether households with otherwise similar characteristics, consume di erently when borrowing the same amount of loan from formal vis-a-vis informal sources. Consumption is measured as the monthly consumption per capita for a household. It is calculated as a sum of total expenditures on 47 consumption items on a monthly basis. For further details on the items included refer Table ?? in the Appendix. The results from the estimation of equation 1 are reported in Table 4. Column-[1] reports the baseline estimates for $_2$ after controlling only for household income. Since richer households are more likely to have greater access to formal nancial sector, and at the same time have higher consumption, hence it is imperative that we control for income even in the very sparse speci cation. The estimate suggests that, for similar level of total household income, if a household has taken a loan from a formal source as opposed to an informal source then it is likely to have a higher monthly consumption per capita by approximately Rs. 307 on average.

Column [2] additionally controls for household size, religion and caste. Previous ndings suggest that households from di erent socio economic background tend to indulge more in consumption goods as a signalling mechanism [Khamis et al., 2012].consu8(thlls)ngli

sources still have a higher level of consumption compared to households borrowing from informal sources. However the di erence is now approximately Rs 148.

Other control variables also have a signi cant e ect. Loan size has a positive e ect on monthly per capita consumption. The results also suggest that Hindus have a higher consumption as compared to other religions. OBC, ST and SC have lower consumption as compared to households that belong to the General category of caste. Column [4] estimates the same speci cation as Column [3] but we restrict the sample to only those households who have borrowed for agricultural purposes. These households have borrowed from either a formal source or an informal source, speci cally for the purpose of agricultural investment. The ndings are similar in spirit for these households. Speci cally households which have borrowed for agricultural investment purposes from a formal source as opposed to an informal source spend Rs. 89 more per person in the house on consumption on a monthly basis, indicating a higher monthly per capita consumption when a loan is taken from a formal source as opposed to an informal source. Overall we nd a signi cant di erence in consumption behaviour of households depending on the source from which they borrowed their loans.

Social Spending

One reason for a higher per capita consumption could be that easier terms of formal loans allow otherwise constrained households to spend on necessary and productive consumption goods like food, education or health. This might lead to higher future productivity of the households through human capital development. However, a more worrisome possibility, from a policy perspective, is a higher extent of unproductive spending that the households might indulge in when borrowing from formal sources.

To understand this further we look deeper into the composition of consumption. As discussed earlier, households in India often consume goods that signal social status even at the cost of nutrition and education. Hence in what follows we study whether households tend to nance their expenditure on certain types of consumption by taking advantage of the easier terms of formal loans. Speci cally we focus here

Table 4: E ect of Borrowing Source on Monthly Consumption Per Capita

Dependent Variable - Monthly Per Capita Consumption (COPC)				
	All Loans	All Loans	All Loans	Agricultural Loans
	1	2	3	4
Loan Formal	306.395***	267.396***	147.154***	89.419***
	-17.738	-17.654	-19.562	-29.029
Income	289.327***	268.878***	160.109***	134.035***
	-8.216	-8.205	-9.334	-14.119
Brahmin		48.571	-5.819	-32.375
		-42.528	-47.27	-82.179
OBC		-280.543***	-195.806***	-145.047***
		-21.593	-26.384	-42.709
ST		-532.291***	-356.027***	-282.952***
		-35.485	-46.581	-75.844
SC		-403.117***	-352.852***	-344.349***
		-25.324	-29.478	-52.936
Hindu		119.051***	96.313***	114.116**
		-23.311	-31.209	-54.11
Constant	404.325***	594.988***	756.326***	678.375***
	-14.638	-27.313	-33.462	-57.153
PSU Fixed E ects	No	No	Yes	Yes
Observations	16,785	16,785	16,785	5,149
R-squared	0.103	0.125	0.362	0.571

Notes. This table explores the impact of borrowing from formal source on monthly consumption per capita of the household.The dependent variable COPC is the per capita expenditure of a household on the list of 47 consumption items calculated for a monthly period. Column [1] controls only for source of borrowing and income. In Column [2] further control variables are added. Column[3] which is our preferred speci cation controls for village level xed e ects in addition to the control variables in Column [2].Column [4] explores the impact only on those households who have borrowed for the purpose of agriculture. Data on all variables is taken from the IHDS 2009-10. Asterisks denote signi cance: * p < :10, ** p < :05, *** p < :01. Standard errors are in brackets. Source: IHDS 2004-05; Own Calculations.

on expenditure that are conspicuous in nature. Conspicuous consumption is easily visible to others and hence more likely to help households in signalling their social status.

Table 5: E ect of Borrowing Source on Social Spending

Dependent Variable: Pr(High Social Spending)				
	All Loans	All Loans	All Loans	Agricultural Loans
	1	2	3	4
Loan Formal	0.046***	0.038***	0.021***	0.043***
	-0.006	-0.006	-0.007	-0.012
Income	0.054***	0.045***	0.052***	0.048***
	-0.003	-0.003	-0.003	-0.006
HH Size		0.012***	0.010***	0.012***
		-0.001	-0.001	-0.002
Brahmin		0.054***	0.033**	-0.006
		-0.014	-0.016	-0.035
OBC		-0.033***	-0.043***	-0.076***
		-0.007	-0.009	-0.018
ST		-0.063***	-0.065***	-0.062*
		-0.012	-0.016	-0.032
SC		-0.062***	-0.074***	-0.134***
		-0.008	-0.01	-0.023
Hindu		0.017**	0.014	0.026
		-0.008	-0.011	-0.023
Constant	0.050***	0.016	0.032***	0.031
	-0.005	-0.01	-0.012	-0.026

Investment Ratio

Credit has always been looked at as a facilitator for modernising agriculture. At a basic level credit serves as a means to remove nancial constraint. But the bigger role of credit in agriculture is to help farmers create assets that can help generate output by adopting modern means of technology. Thus it is very important for households

This is the expected sign of investment ratio and borrowing from formal source indicating no moral hazard. However the interesting analysis comes in Column[4], which estimates the same speci cation as Column[3] but with a restricted sample size to only those households which have a high social spending. Here we notice that households which spend high amounts on social events and borrow from formal sources have a 13.6% lower probability of having a high investment ratio. This is indicative of a presence of moral hazard in the utilisation of loans from formal sources taken for agricultural purposes suggesting that households divert the funds borrowed for investment purposes towards unproductive purposes.

Table 6: E ect of Borrowing Source on Investment Ratio

Dependent Variable: Pr (High Investment Ratio)				
	All Loans	All Loans	All Loans	Agricultural Loans
	1	2	3	4
Loan Formal	0.052***	0.044***	0.070***	-0.132*
	-0.017	-0.017	-0.02	-0.068
Income	0.088***	0.063***	0.055***	0.03
	-0.008	-0.008	-0.01	-0.03
HH Size		0.022***	0.023***	0.015
		-0.003	-0.003	-0.009
Brahmin		-0.103**	-0.028	0.005
		-0.046	-0.062	-0.195

Loan Repayment

Utilisation of loans plays a very important role in the repayment of loans. If a loan is used for income generating purposes then it generates income and increases the overall sustainability of the household. On the other hand if the loan is used for unproductive purposes then the loan becomes a burden on the household as is likely to create a vicious debt trap. Hence in what follows we investigate whether low investment ratio and/or high social spending impacts loan repayment of households. The results from the estimation of equation 4 are reported in Table 2.7. Loan Repayment is a binary variable which takes the value 1 when a household has repaid its loan and 0, otherwise.

Column [1] reports the baseline estimates for $_2$ in equation 4, after controlling household income, monthly interest rate, loan size, household size, caste and religion dummies and the number of loans taken in the last 5 years. In addition it controls for village level xed e ects. The estimate suggests that for similar level of total household income and loan size if a household has high social spending then its probability to default will increase by 1.7%.

Column [2] uses the same speci cation as column [1], but the sample size is restricted to only agricultural loans. In this speci cation, we see a drastic increase in default rate to 5.3% when a household has a higher social spending as opposed to one having a low social spending. Column [3] reports the baseline estimates for $_3$, after controlling household income, monthly interest rate, loan size, household size, caste and religion dummies and the number of loans taken in the last 5 years. In this speci cation, after controlling for the unobserved di erences at the village level, households which have a high investment ratio have a 3.2% lower probability of default although the coe cient is signi cant only at 16% con dence level.

Since the household is likely to be faced by a resource constraint a higher level of social spending might crowd out investment spending, instead of reducing other forms of consumption expenditure. To investigate the possibility Column [4] includes both social spending and investment spending in the same speci cation. The results

Conclusion

References

Abhijit V Banerjee and Esther Du o. The economic lives of the poor. *The journal of economic perspectives*, 21(1):141{167, 2007.

Timothy Besley. Savings, credit and insurance. *Handbook of development economics*, 3:2123{2207, 1995.

Manojit Bhattacharjee. *Indebtedness in the household sector. A study of selected states in India*. PhD thesis, 2014.

Robin Burgess and Rohini Pande. Can rural banks reduce poverty? evidence from the indian social banking experiment. *American Economic Review*, 2004.

Robin Burgess, Rohini Pande, and Grace Wong. Banking for the poor: Evidence from india. *Journal of the European Economic Association*, 3(2-3):268{278, 2005.

Erica Field and Rohini Pande. Repayment frequency and default in micro nance: evidence from india. *Journal of the European Economic Association*, 6(2-3): 501{509, 2008.

Parikshit Ghosh, Dilip Mookherjee, and Debraj Ray. Credit rationing in developing countries: an overview of the theory. *Readings in the theory of economic development*, pages 383{401, 2000.

Xavier Gine, Karuna Krishnaswamy, and Alejandro Ponce. Strategic default in joint liability groups: Evidence from a natural experiment in india. 2013.

Anwarul Hoda and Prerna Terway. Credit policy for agriculture in india-an evaluation. *Indian Council For Research On International Economic Relations*, 2015.

Karla Ho and Joseph E Stiglitz. Introduction: Imperfect information and rural credit markets: Puzzles and policy perspectives. *The world bank economic review*, pages 235{250, 1990.

Martin Kanz. What does debt relief do for development? evidence from india's bailout program for highly-indebted rural households. *Evidence from India's Bailout Program for Highly-Indebted Rural Households (November 1, 2012). World Bank Policy Research Working Paper*, (6258), 2012.

Melanie Khamis, Nishith Prakash, and Zahra Siddique. Consumption and social identity: Evidence from india. *Journal of Economic Behavior & Organization*, 83 (3):353{371, 2012.

Paul Krugman. Financing vs. forgiving a debt overhang. *Journal of development Economics*, 29(3):253{268, 1988.

Andreas Madestam. Informal nance: A theory of moneylenders. *Journal of Development Economics*, 107:157{174, 2014.

Srijit Mishra. Farmers' suicides in maharashtra. *Economic and Political Weekly*, pages 1538{1545, 2006.

Biswa Swarup Misra et al. The performance of regional rural banks (rrbs) in india: Has past anything to suggest for future. *Reserve bank of India occasional papers*, 27(1):89{118, 2006.

K Nagaraj. *Farmers' suicides in India: Magnitudes, trends and spatial patterns*. Bharathi Puthakalayam, 2008.

what-was-agricultural-debt-waiver-and.html, 2012. [Online; accessed 1-april-2014].

Robert M Townsend and Kenichi Ueda. *Financial deepening, inequality, and growth: A model-based quantitative evaluation*. Number 3-193. International Monetary Fund, 2003.

John D Von Pischke, Dale W Adams, and Gordon Donald. *Rural nancial markets in developing countries*. Johns Hopkins, 1983.