

Commercialization and the decline of joint liability microcredit<sup>☆</sup>Jonathan de Quidt<sup>a,\*</sup>, Thiemo Fetzer<sup>b</sup>, Maitreesh Ghatak<sup>c</sup><sup>a</sup> Institute for International Economic Studies and CESifo, Stockholm University, 106 91 Stockholm, Sweden<sup>b</sup> University of Warwick, Department of Economics, Coventry CV4 7AL, United Kingdom<sup>c</sup> Department of Economics, London School of Economics and Political Science, London WC2A 2AE, United Kingdom

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## ABSTRACT

Numerous authors point to a decline in joint liability microcredit, and rise in individual liability lending. But empirical evidence is lacking, and there have been no rigorous analyses of possible causes. We first show using the well-known MIX Market dataset that there is evidence for a decline. Second, we show theoretically that *commercialization*—an increase in competition and a shift from non-profit to for-profit lending (both of which are present in the data)—drives lenders to reduce their use of joint liability loan contracts. Third, we test the model's key predictions, and find support for them in the data.

## 1. Introduction

Microfinance Institutions (MFIs), and in particular Muhammad Yunus' Grameen Bank, have long attracted the interest of economists for their success in lending to poor borrowers written off as uncredit-worthy by traditional lenders. A large literature analyzes the innovative contractual tools used by MFIs to achieve this, of which the best known is joint liability lending (JL), whereby the borrower and one or more group members assume liability for one another's debts. Joint liability has been shown to be able to overcome problems of adverse selection, moral hazard and limited enforcement, leveraging social collateral that can substitute for the conventional collateral that the poor, by definition, lack.<sup>1</sup>

In the recent literature it has become common to see claims of a wide-spread decline in the use of JL.<sup>2</sup> Yet such claims are anecdotal, typically pointing to high-profile examples such as Grameen, BancoSol, and ASA who initially pioneered the use of joint liability credit yet have since moved to an individual liability (IL) lending model. Moreover, we are aware of no satisfactory account of what has changed about the

lending environment to reverse the initial success of JL.

We make two contributions. First, we show empirically that there has indeed been a trend away from JL in recent years. To do this we use an MFI-level panel from the well-known data collected by the MIX Market, covering the years 2008–2014. This data source is unique in containing the crucial lending methodology information needed for our analysis.

Second, we argue theoretically and empirically that the trend can be explained, at least in part, by commercialization. By commercialization, we refer to two forces: increases in for-profit lending, and increased competition. First, as we document, the microcredit industry has shifted from being largely made up of non-profit and NGO lenders to an increasingly for-profit marketplace. In our model, non-profits and for-profits target different objective functions, and thus behave differently in equilibrium. Second, competition among lenders for borrowers has increased, leading to an expansion of the sector. In our model, competition improves borrowers' outside options in case of default, by

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<sup>1</sup> For a detailed review of both the theory and history of JL, see Ghatak and Guinnane (1999) and Armendáriz de Aghion and Morduch (2010).

<sup>2</sup> E.g. Hermes and Lensink (2007), Armendáriz de Aghion and Morduch (2010), Giné et al. (2011), Breza (2013), Feigenberg et al. (2013), Carpena et al. (2013), Giné and Karlan (2014).

making it easier to find another lender.<sup>3</sup>

We present a simple model that makes three empirical predictions. First, for-profit lenders are less likely to use JL than non-profits. Second, competition induces non-profits to switch from JL to IL. Third, in contrast to the broad trend, competition induces for-profits to switch from IL to JL. While the three effects are not all in the same direction, the net effect is such that beginning from an uncompetitive, largely non-profit market, increasing competition and increasing the for-profit share in the market both lead to increases in the use of IL.

Intuitively, the main driving force in our model is that JL involves tighter incentive constraints than IL, since in some states of the world, it involves not only repaying one's own loan, but also helping a group member repay her loan. At the same time, the advantage of JL is, because any given loan gets repaid with greater probability, the borrower gets to maintain access to credit from the lender, and depending on the market structure, the interest rate could go down. Non-profits choose whatever lending arrangement has higher borrower welfare, subject to the incentive constraints and a break-even constraint. The theory implies that JL maximizes borrower welfare, so non-profits offer JL whenever they can break even while doing so. Competition tends to reduce their use of JL as it improves the borrower's outside option, namely the possibility of obtaining a new loan if she defaults at her current lender. This reduces the cost of losing her existing contract and thus tightening the more demanding incentive constraint, namely, that under JL. The for-profit also requires JL to break even, but additionally it must be more profitable than IL. Since this is a stricter condition, the for-profit ends up offering JL to fewer borrowers. Finally, as competition increases, for-profits tend to use JL more (unlike non-profits) as revenue under JL is less sensitive to the borrower's outside option than under IL. We show that the qualitative conclusions of the theory are robust to other effects of competition, such as imposing constraints on lenders' ability to charge high interest rates at the loan offer stage.

We then test the implications of the model empirically, exploiting within-region, within-country and within-MFI variation in lenders' for-profit status and lending methodology. We lack direct measures of the level of competition in the microcredit market, so instead we use proxy measures that try to capture access to and depth of financial markets in the country in general, rather than microcredit in particular. Our identifying assumption is that these measures are valid proxies for borrowers' outside options in the microcredit sector, either because the formal sector competes with the microcredit sector or because the proxies reflect underlying developments that make it easier for borrowers to access alternative forms of finance. We find that for-profit lenders indeed tend to use JL less than non-profits. We find strong support for the prediction that JL usage by for-profits is increasing in our competition proxy. Although the data are more supportive of no response than the predicted overall negative effect, we do find robustly that non-profits do *not* increase JL usage when competition increases, i.e. they respond qualitatively differently to for-profits in the predicted direction.

With the data available we cannot perfectly resolve the issue of identification, but we perform a number of robustness checks. Our findings are robust to two panel definitions (strongly balanced and weakly balanced), to the inclusion of a broad range of controls, interactions and fixed effects. They also hold up when we replace our long panel with a shorter one containing more MFIs and countries, which also contains alternative measures of IL and JL usage intensity.<sup>4</sup> We take further com-

fort from the fact that the model's prediction for for-profits' response to changes in competition—which is strongly supported in the data—is in the opposite direction to overall trends and therefore we think provides a strong test of the theory.

Our theory fits into a branch of the literature that highlights the leverage of *social capital*, especially through JL lending, as a key feature of microcredit.<sup>5</sup> Our model explains changes in the use of JL via changes in the level of social capital required for an MFI to be willing to offer JL. Since we cannot observe social capital, our main identifying assumption is that changes in the unobservable social environment are uncorrelated with changes in the market structure and competitive environment, conditional on our various controls and fixed effects. At least in the short run, we believe that this is a plausible assumption.

We are not in fact the first to note an *association* between commercialization and the decline of JL. Karlan and Zinman (2009a) write<sup>6</sup>:

[T]he industrial organization of microcredit is trending toward something that looks more like the cash loan market: for-profit, more competitive delivery of untargeted, individual liability loans ... This evolution is happening from both the bottom-up (non-profits converting to for-profits) and the top-down (for-profits expanding into subprime and consumer segments).

However to our knowledge we are the first to outline the theoretical and empirical case for a *causal* relationship from the former to the latter.

In related work, Cull et al. (2009) use an early version of the MIX Market data to provide a descriptive overview of the microcredit industry. Notably, they observe that non-profits are more likely than for-profits to use JL lending methods, as our model predicts and as we also observe in our chronologically later and larger sample. McIntosh et al. (2005) show empirically that increasing competition between lenders in Uganda harmed repayment performance, in line with the mechanism proposed in our paper (they put more weight on a multiple borrowing interpretation than weakened repayment incentives, though the latter naturally goes hand in hand with the former; our model features only the second channel). Baquero et al. (forthcoming), use proprietary rating agency data on microfinance institutions to study the effect of market concentration on interest rates in sector, finding that non-profits are insensitive to concentration while for-profits charge lower interest rates in less concentrated markets. This is consistent with our conceptualization of the differing motivations for for-profit lenders (who charge the highest incentive compatible rate) and non-profit lenders (who charge break-even interest rates). McIntosh and Wydick (2005) study theoretically the effects of competition on lenders' ability to cross-subsidize between clients who vary in their wealth. Baland et al. (2013) also study the choice between JL and IL contracts, focusing on the relationship with borrower wealth and arguing that wealthier borrowers are better served by JL. Our conceptualization of competition closely relates to Shapiro and Stiglitz (1984) and Hoff and Stiglitz (1997).

We do not claim great theoretical novelty for the basic workhorse model in this paper, which we have used in earlier work and which takes its lead from Besley and Coate (1995). The focus of this paper is two *positive* questions. First, is the anecdotal trend away from joint liability observable in the data? Second, how does it relate to commercialization of the sector? In two prior papers we have used variants of the same model to study different questions. In de Quidt et al. (2016) we abstract completely from market structure, studying an environment with a single non-profit lender, and analyze theoretically when individual liability can mimic features of joint liability.<sup>7</sup>

<sup>3</sup> We also show in an extension that our qualitative predictions hold under alternative notions of competition.

<sup>4</sup> Our main dataset uses data provided to us by Christian Ahlin, who uses it in Ahlin and Suandi (2018), a paper we discuss below. These data are preferred because of their long coverage, from 2008 to 2014, but they only contain measures of IL usage by number of loans, not by value. Our alternative dataset is a shorter panel, also from the MIX, covering 2008–2011, and is the dataset used in prior circulated versions of this paper. It is valuable for robustness checking because it contains more MFIs as well as data on IL lending by value.

<sup>5</sup> E.g. Besley and Coate (1995), Ghatak and Guinnane (1999), Karlan (2005), Karlan (2007), Ahlin and Townsend (2007), Cassar and Wydick (2010), de Quidt et al. (2016), de Quidt et al. (in press).

<sup>6</sup> See also Karlan and Zinman (2009b).

<sup>7</sup> Allen (2016) works with a very similar model, studying structurally the optimal extent of “partial” joint liability.

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