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# Endogenous scope economies in microfinance institutions☆

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ABSTRACT

Scope economies resulting from the joint offering of loans and savings accounts (as opposed to loans only) are customarily invoked to promote the transformation of credit-only microfinance institutions (MFIs) into integrated loans-and-savings entities. To ensure robust inference, we estimate scope economies for the microfinance industry using a novel approach which, among its other advantages, accommodates inherent heterogeneity across loans-only and loans-and-savings MFIs as well as controls for endogenous self-selection of institutions into the either type. For analysis, we use a large 2004–2014 Mixmarket dataset. Unlike earlier studies, we do *not* find prevalent scope economies in the microfinance industry. We find that the median degree of scope economies is statistically indistinguishable from zero and that scope economies are significantly positive for less than a half of loans-and-savings MFIs. For a non-trivial 14% of institutions, the empirical evidence suggests the existence of significantly negative *dis*economies of scope indicating that the separate production of loans and savings accounts actually has the potential to reduce an MFI's costs. We also find that the failure to account for endogenous selectivity dramatically overestimates the degree of scope economies resulting in the failure to detect scope diseconomies among MFIs. Thus, our findings call for caution when invoking scope economies as a blanket justification for universal expansion of the scope of financial operations by MFIs. Instead, promoting integrated loans-and-savings MFIs may be justifiable as a means to meeting the needs of the poor rather than as a way for the industry to save costs.



## 1. Introduction

The microfinance industry consists of diverse entities offering small-scale financial products to the poor who lack access to standard banking services. In the past two decades, a major trend in the industry has been for typical loans-only microfinance institutions (MFIs) engaged solely in lending activities to transform into loans-and-saving MFIs that also offer saving products to their customers. While a decade ago no more than a third of MFIs (including credit unions) offered voluntary savings accounts, by 2014 (last year in our dataset) the share of such loans-and-savings MFIs had increased dramatically to about 54%. Policymakers, donors and socially oriented investors have provided incentives for MFIs to get licensed to collect savings deposits or have preferred to fund mainly loans-and-savings MFIs in part to respond to the evidence that the poor demand more than just loans (Collins et al., 2009). The main objective however has been to promote MFIs' self-sustainability, to improve their access to commercial funds and thereby to decrease their subsidy-dependence. The promotion of integrated loans-and-savings MFIs has been justified on the grounds of their potential performance improvements of which there are two commonly invoked sources. First, a license to collect savings deposits from customers is usually associated with the ability of MFIs to overcome size barriers to entry and thus to capitalize on scale economies associated with larger size. Second and more importantly, improvements in MFIs' performance have been expected to emerge from scope economies stemming from the *joint* delivery of (micro)loans and (micro)savings.

Since significant resources are used to promote organizational transformation of MFIs as well as because preferential funding to loans-and-savings MFIs leaves loans-only MFIs with less resources available, it is imperative that the claims about existing scope economies be substantiated with robust empirical findings. Anecdotal evidence or stakeholders' believes are hardly sufficient to inform the choice of an industry serving over 170 million poor clients worldwide (Microfinance Information Exchange, 2015). Furthermore, providing financial services to the poor remains challenging and, in the absence of substantial scope and/or scale economies, loans-and-savings MFIs may end up with a "mission

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drift" away from serving their target customers. For instance, while the financial sustainability of Grameen Bank, a flagship MFI, had improved materially after it changed its business model to start offering microsavings, these improvements also coincided with a simultaneous abandonment of its poorest clients (Hulme, 2008).[1] Once licensed to collect savings deposits, loans-and-savings MFIs become subject to banking regulations, and there is substantial evidence that the new, more stringent supervisory environment entices profit-oriented MFIs to curtail outreach to women and, more generally, to costly-to-reach-customers (Cull et al., 2011). While scope economies have been studied for commercial banks engaged in the traditional financial intermediation (e.g., Berger et al., 1987; 1999; Saunders, 2000) as well as for those with more diversified activities (Elsas et al., 2010), the results from these bank-centered studies cannot be easily extended to MFIs owing to their specific outreach mission. This warrants a rigorous stand-alone measurement of scope economies in the microfinance industry based on recent data reflective of changes that the industry has gone through. In the absence of such scope economies, the simultaneous satisfaction of outreach and sustainability may remain a challenge.

In this paper, we seek to provide robust empirical evidence on the existence, magnitude and the distribution of scope economies (if any) in the microfinance industry worldwide during a more recent time period (2004–2014) relative to the existing work based on the data prior to 2006. Our contribution to the literature is as follows. First, when assessing the extent of scope economies in MFIs, we allow loans-only and loans-and-savings MFIs to have *heterogeneous* production technologies, which is starkly different from the approach pursued in virtually all prior studies of scope economies in the industry that estimate a single microfinance cost structure *a priori* presumed to be common to all MFIs with no regard to their heterogeneous mixes of financial services offered to customers. Second, our methodology explicitly recognizes that the above technological heterogeneity is an outcome of endogenous *self-selection* by institutions whereby offering deposit accounts as an additional financial service (and consequently adopting the appropriate production technology to keep costs at minimum) is the endogenous decision of MFIs. Hence, it would be econometrically inappropriate to treat the observed type of an MFI—loans-only versus loans-and-savings—as being exogenously/randomly assigned, likely resulting in inconsistent and potentially misleading estimates of scope economies. To our knowledge, no prior study has entertained this likely possibility. Third, we employ Kyriazidou's (1997) *semiparametric* kernel estimator to estimate microfinance technologies with selectivity, which allows for unobserved heterogeneity across MFIs and does *not* require distributional assumption or parametrization of the dependence between the outcome and selection equations. By using this model, we are able to strike a balance between mitigating potential misspecification (e.g., by avoiding a restrictive and potentially incorrect bivariate normality assumption in the popular Heckman's selection model) and alleviating the curse-of-dimensionality problem immanent in nonparametric methods.[2] Fourth, building on Malikov et al.'s (2017) work, in contrast to popular alternatives employed in the microfinance literature, our measurement of scope economies does *not* rely on a rather unrealistic assumption whereby specialized loans-only MFIs share the same technology with and incur the same fixed costs as do the integrated loans-and-savings MFIs. The latter substantially decreases the reliance of our scope economies estimates on counterfactuals thereby minimizing the "excessive extrapolation" problem (Evans and Heckman, 1984) that most studies of scope economies inherently suffer from. Lastly but not least importantly, we use more recent data on MFIs from around the world during the 2004–2014 period which describes an industry much different from that analyzed in earlier work. Altogether, we are therefore able to offer policy-makers and stakeholders a fresher and more robust perspective on benefits and costs of promoting integrated loans-and-savings MFIs on grounds of the cost saving potential due to scope economies.

To briefly preview the results, we find that the microfinance industry largely exhibits invariance to scope of outputs produced, with the median degree of scope economies estimated at statistically insignificant −0.06. After controlling for endogenous self-selection, scope economies are significantly positive for 46% of loans-and-savings MFIs only. Perhaps more importantly, for a non-trivial 14% of institutions, the empirical evidence suggests the existence of significantly negative *dis*economies of scope indicating that the *separate* production of loans and savings accounts actually has the potential to reduce an MFI's costs. The mean degree of scope diseconomies for these multi-output MFIs is estimated at a sizable −0.21 implying, on average, the potential for a 21% cost saving if the joint production of loans and savings is replaced with two single-output MFIs. However, note that the presence of such scope diseconomies in no way implies cost inefficiency or sub-optimality on the part of these loans-and-savings MFIs. Neither does it say that these MFIs may not reduce their costs by scaling up their operations to capitalize on (universally) significant scale economies. It does however suggest that it may be ill-advised to invoke scope economies as a blanket justification for *universal* expansion of the scope of financial operations by MFIs. After all, scope economies are significantly positive only for 46% of MFIs, with the average value estimated at a non-negligible 0.23. (The analysis of temporal dynamics in these scope economies shows that their magnitude as well as the prevalence in the industry have been steadily declining, especially in the aftermath of the global financial crisis.) For 50% of institutions, the costs exhibit scope invariance as indicated by statistically insignificant estimates of the degree of scope economies.

Among prior studies, Hartarska et al. (2011) and Delgado et al. (2015), who also estimate the degree of scope economies in microfinance, are perhaps the most closely related to our paper.[3] However, both of these studies estimate a single cost function for all MFIs regardless of financial services they offer (or do not offer) and consequently do not correct for MFIs' endogenous self-selection into the loans-and-savings type.[4] Also, these papers study the period before the financial crisis [Delgado et al. (2015) use data up to 2006, and Hartarska et al.'s (2011) data stop in 2008] when the loans-and-savings institutions comprised only about a fifth of the microfinance industry, whereas such MFIs are the majority in our 2004–2014 data. In contrast to our results, whereby the median degree of scope economies estimate is statistically indistinguishable from zero, Delgado et al. (2015) report significantly positive scope economies of about 10% at the median. As a matter of fact, they find that as many as 65% of MFIs in their sample exhibit statistically significant scope economies leading them to conclude that "in general MFIs realize positive and significant reductions in costs from offering both loans

[1] Similar results have also been found for other transformed MFIs worldwide; e.g., see Woller et al. (1999) and Wagenaar (2012).

[2] The problem refers to the phenomenon whereby the convergence rate of a nonparametric estimator worsens with an increase in the number of continuous covariates in the model. We circumvent this problem by imposing some parametric structure on the outcome equation; hence, we have a "semiparametric" model.

[3] Two other studies of scope economies use the same methods but focus on differences attributable to alternative measures of output quantities (Hartarska et al., 2010) and on linking scope economies to the MFI governance attributes (Hartarska et al., 2013a).

[4] In contrast, we find that the data consistently reject the null of common technology shared by loans-only and loans-and-savings MFIs and that the selection between the two in not exogenous/ignorable.