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Measuring the Impact of Microfinance on Child Health Outcomes in Indonesia

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Summary. — Microfinance has become a staple of modern development policy as a means to facilitate anything from gender equality to growth. It can facilitate the sharing of health-related information among parents, promote the bargaining power of women in the household, aid in the development of important health-related infrastructure, and help households smooth consumption in the wake of unexpected economic shocks. Using data from the Indonesian Family Life Survey (1993–2000), we find that the presence of microfinance institutions in communities significantly improves the health of children.

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1. INTRODUCTION

A large body of literature exists on the determinants of child health,¹ but because much of the early work was limited to cross-sectional data, research on the intertemporal determinants of child health is still developing. Over time, children's health can be disrupted in numerous ways. Household idiosyncratic shocks like prime-age adult mortality or illness lead to significant changes to household income and wealth.² If households are unable to smooth consumption in the wake of such shocks, the negative effects on child health may be substantial. Similarly, non-idiosyncratic shocks such as drought or financial crisis can also be detrimental to children's health.

The impact of these non-idiosyncratic, macroeconomic shocks on child health outcomes is just now beginning to be understood. Hoddinott and Kinsey (2001) find that the 1994–95 droughts in Zimbabwe significantly lowered annual growth rates for children, with the effects still present 4 years after the drought. Similarly, Yamano, Alderman, and Christaensen (2005) find that the drought in Ethiopia from 1996 to 1997 resulted in increased rates of child stunting. Paxson and Schady (2005) report an increase of 2.5% points in the infant mortality rate for children born during the economic crisis in Peru in the late 1980s. Using panel data from Russia during its recent economic transition, Fedorov and Sahn (2005) conclude that time-varying economic determinants related to household income and macroeconomic indicators like food prices account for a relatively large amount of the variation in child growth, far more than had been previously found in studies using cross-sectional data. One implication of these studies is that macroeconomic policy has a potentially important role in determining child health outcomes.

One such policy that offers great promise is microfinance. Microfinance has become a staple of modern development policy as a means to facilitate anything from gender equality to poverty reduction (Khandker, 2005). One way that microcredit has been hypothesized to influence child health outcomes is

through the development of parents' social capital. In a recent study, Nobles and Frankenberg (2009) find that children from households with lower levels of wealth and human capital fare better when their mothers are more active participants in community organizations. The reason participation is thought to influence child health is that these informal networks provide a way for parents to circulate information about such things as nutrition and communicable diseases. In this sense, social capital in developing communities plays a similar role in the improvement of child health as formal maternal education does in more developed communities (Nobles & Frankenberg, 2009).

Another related mechanism for affecting child health is through the empowerment of women. Historically, microfinance has often been aimed specifically at increasing women's access to credit. As Miller and Rodgers (2009) argue, anything that improves the economic well-being of women will affect household bargaining power. With greater power, women are in a better position to bargain for a greater share of household resources to be allocated toward expenditures that improve the health and well-being of children.

In addition to expanding the social capital of parents and the economic power of women, the presence of microfinance institutions in a community is likely to affect child health through more traditional mechanisms. For example, the availability of credit for entrepreneurs is likely to lead to economic diversification and wealth creation throughout the community. This increase in wealth will eventually support the development of health-related infrastructure such as sanitation and medical facilities.

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Credit also provides an important tool for smoothing household consumption in the wake of unexpected shocks. In a recent article, Gertler, Levine, and Moretti (2009) investigate the importance of access to microfinance institutions in the wake of heterogeneous shocks. They find that access to credit significantly improves consumption smoothing in the wake of adult illness. Of course, credit can also help households respond to macroeconomic shocks. For example, Foster (1995) found that, compared to those without access to credit, households in Bangladesh with such access were better able to smooth household consumption following the floods of 1988. He speculates that small-scale lending programs such as microcredit may even be able to positively affect child health outcomes in the face of these kinds of macroeconomic shocks. To date, however, we know of no other research that has attempted to quantify such an effect.

The purpose of this paper is to determine whether the presence of microfinance institutions within a community affects child health outcomes. This study uses data from the Indonesian Family Life Survey (IFLS) 1993–2000. The IFLS not only collects anthropometric data on children, but it also has detailed information at the community level regarding the types of financial institutions available as well as other key infrastructure that typically come with development. In addition, because the survey itself spans the years of the Asian financial crisis and its aftermath, it provides an interesting case in which to examine the effects of changes in the presence of microfinance institutions on child health. Between 1993 and 1997, Indonesia experienced significant growth immediately preceding the crisis that started in late 1997. From 1997 through the eventual recovery, communities not only experienced large variations in income and wealth, but also in the presence of factories, sanitation, health facilities and, of course, microfinance.³ The idea is to exploit this shock-induced variation to distinguish the effects on child health due to changes in the presence of microfinance and those due to changes in other indicators associated with community development.

The organization of the paper is as follows: (1) a brief history of microfinance institutions in Indonesia is provided, including a taxonomic discussion of modern institutions and their defining characteristics; (2) the econometric model is presented with specific attention to how we address the issue of identification; (3) the data are defined and descriptive statistics for the sample are discussed; (4) results for the models are presented; and (5) relevant implications are discussed.

2. MICROFINANCE IN INDONESIA

Indonesia's microfinance industry is one of the oldest and most commercialized in the world. In this section, we provide a brief overview of the development of Indonesia's financial system as it pertains to our focus on the types of microfinance institutions available throughout Indonesia during our sample period.⁴ Of particular interest are the financial reforms that have enabled the spread of these financial institutions throughout the country as well as the key differences that exist among the major institutions.

According to the World Bank (Ravicz, 1998), starting a century ago *Badan Kredit Desas* (BKDs) were the first village-owned institutions to offer credit in Indonesia. In 1970, *Bank Dagang Bali* (BDB), a private bank in Bali, became the first Indonesian bank to offer microfinance commercially. Within the next decade, Indonesia's government, recognizing the value of access to credit in reducing poverty, made improved credit access for the poor a primary strategy for poverty reduc-

tion. The government even established subsidized credit programs to encourage and promote microfinance. Despite the programs, expansion remained restricted as a result of limited banking licenses and the central bank's (*Bank Indonesia*) firm control over interest rates and refinancing targets.

Charitonenko and Afwan (2003) discuss the impact of more recent reforms. A combination of reforms in 1983 (liberalized interest rates, abolished credit ceilings) and the deregulation package PATKO in 1988 (new banking licenses, relaxed regulations on bank branching and deposits) encouraged the expansion of rural banks, including the largest microfinance institution (MFI) in Indonesia, *Bank Rakyat Indonesia* Units (BRI Units). After the major reforms of the banking sector in the 1980s, microfinance continued to expand through a country-wide shift in focus and increased supervision and regulation of the microfinance industry. In 1990, the government essentially abandoned its subsidized credit approach by terminating thirty of 34 major programs providing subsidized credit. While the government removed its largely unsuccessful programs, BRI Units provided a model for other MFIs looking to expand and improve their services by providing non-subsidized credit through savings mobilization and improved loan recovery.

Increased supervision and regulation came in the form of several banking acts and ministerial decrees throughout the 1990s, further mobilizing capital for the microfinance industry (Charitonenko & Afwan, 2003). The Banking Act of 1992 recognized *Bank Perkreditan Rakyat*s (BPRs) as secondary banks subject to regulations and ratings similar to primary banks, making them more attractive to potential investors. With more investors, BPRs were able to increase their capital, expand, and provide more loans. In 1998, Ministerial Decree No. 352 encouraged the establishment and improved performance of *Koperasi Simpan Pinjams* (KSPs) and *Unit Simpan Pinjams* (USPs) (the two cooperatives permitted under Government Regulation No. 9 of 1995). The expansion of MFIs resulting from increased supervision and focus on performance resulted in more rural dwellers gaining access to credit.

MFIs in Indonesia continued to expand during the 1990s. In 1996, the government launched the ambitious "Prosperous Family Program" operated by the National Family Planning Coordinating Board (BKKBN), with nearly 10 million Indonesian families participating in just 12 months (Conroy, 2003). According to Charitonenko and Afwan (2003), as of 2001, state-owned BRI served nearly 30 million clients (2.8 million borrowers) through its 3,823 BRI Units (sub-branches) and 240 branches. By 2001, BRI accounted for 43.5% of the total value in outstanding loans in Indonesia. As of June 2000, there were approximately 4,566 BKDs located primarily in rural Java.

Based largely on the degree of commercialization, Charitonenko and Afwan (2003) classify Indonesian microfinance institutions as formal or informal⁵ (see Table 1). While formal, commercialized MFIs dominate the industry, semiformal institutions, such as nonbank financial institutions, credit unions, and cooperatives play a particularly important role at the village level. Unlike their larger and more commercialized counterparts, the smaller, semiformal MFIs cater to poorer citizens. Smaller MFIs typically charge higher interest rates and make much smaller loans. According to data from the IFLS 2000 survey, the average loan in 2000 from private commercial banks was just over Rp 2.7 million. In contrast, at the smaller, cooperative banks the typical loan was just under Rp 930,000.

Two examples further highlight these differences. The largest MFI in Indonesia, *Bank Rakyat Indonesia* Units (BRI Units),

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