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## Impact of Pension Privatization on Foreign Direct Investment

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Summary. — We explore the causal effect of market-oriented pension reform on net foreign direct investment (FDI) inflows in Latin America and among the transitional economies of Eastern Europe and Central Asia, both of which have experienced waves of pension privatization and FDI over the last two decades. With our balanced panel of 42 countries over the 1991–2006 period, we implement fixed effects models, controlling for the decision to enact full or partial privatization of the public pension system and several other covariates whose choice is informed by the rich empirical literature on FDI. Our econometric results indicate that pension privatization triggers a significant increase in net FDI inflows and that the effect does not wane over time. We estimate that full privatization increases FDI as a percentage of GDP by about 57%, ceteris paribus.

Key words — pension privatization, foreign direct investment, Latin America, transitional economies

#### 1. INTRODUCTION

In 1981, the military dictatorship of Augusto Pinochet unveiled the centerpiece of its dramatic neoliberal agenda: the privatization of Chile's national pension system. With this globally unprecedented act, the public system was closed to new workers, who instead began making mandated payroll contributions to individualized, privately-managed retirement accounts. In the subsequent decade, Chile experienced high growth rates while most Latin American countries stagnated. Moreover, solvency of the public pension system was seriously jeopardized in several countries due to a continual decline in the workers to pensioners' ratio, increasing longevity, costof-living adjustments, high evasion rates spurred by high payroll taxes, and built-in weaknesses of the public system, among other factors (Kay, 2000). Together, the apparent success of the Chilean privatization initiative and the looming bankruptcy of several public pension programs provided a strong impetus for reform. Peru implemented a partial privatization scheme in 1993, followed in 1994 by Argentina and Colombia. <sup>2</sup> In 1994, the World Bank launched an international campaign in support of a market-oriented "three-pillar model" for pension reform. <sup>3</sup> By 2009, at least 30 governments worldwide had adopted some form of pension privatization (Holzmann, Mackellar, & Repansek, 2009).

Chile's pioneering experiment and the World Bank's advocacy for similar reform have spurred an active debate among scholars about the macroeconomic effects of pension privatization (Arza, 2008; Catalan, 2004; Catalan, Impavido, & Musalem, 2001; Feldstein, 1997; Kay, 2000; Mesa-Lago, 2002; Orszag & Stiglitz, 2001). For example, some economists argue that by increasing savings and generating demand for financial instruments, privatization can develop capital markets, attract foreign capital (Kay, 2000; Madrid, 1999) and stimulate growth (Catalan, 2004; Feldstein, 1997).

In this paper, we concern ourselves with an important facet of this debate, which pertains to the relationship between privatization and Foreign Direct Investment (FDI). The literature on the determinants and effects of FDI is one of the most active in International Economics. Of particular interest to us, a number of empirical papers find evidence of salutary effects of FDI on growth (Alfaro, Chanda, Kalemli-Ozcan, & Sayek, 2004a; Blomstrom & Kokko, 2003; Borensztein, De Gregorio, & Lee, 1998; Hermes & Lensink, 2003) and productivity (Alfaro, Kalemli-Ozcan, & Sayek, 2009; Xu, 2000; survey by Lipsey (2004)) for host countries, contingent on adequate human capital and financial development.

We confine our empirical analysis to two regions where both pension privatization and FDI inflows have been intense over the last two decades: Latin America and transitional economies of Eastern Europe and Central Asia. Of the 30 countries that adopted pension privatization between 1981 and 2009, nine are in Latin America<sup>4</sup> and 13 are in Eastern Europe and Central Asia<sup>5</sup> (Holzmann *et al.*, 2009). Over the same period, the average annual FDI flows into Latin American and Caribbean countries grew over 10-fold, from \$6.04 billion (0.78% of GDP) in the 1980s to \$62.71 billion (2.90% of GDP) in the 2000s. Similarly, average annual FDI flows to Eastern European and Central Asian countries increased over 15-fold, from approximately \$2.31 billion (.08% of GDP) in the 1980s to \$35.65 Billion (3.12% of GDP) in the 2000s.

Academics have advanced a number of arguments suggestive of a positive causal effect of pension privatization on FDI flows. Three distinct mechanisms stand out. First, privatization may function as a favorable signal to investors by indicating a state's commitment to long-term fiscal responsibility and macroeconomic stability (Kay, 2000; Madrid, 1999;

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Maxfield, 1997). Second, in many cases, privatization was accompanied by reductions in payroll tax rates (Brooks, 2007a; Dion, 2009; Madrid, 1999), potentially lowering wage costs. Third, privatization may attract FDI indirectly through its promotion of domestic financial development. For example, Catalan *et al.* (2001) find that the development of pension funds correlates positively with the development of financial markets. Financial development could in turn spur additional FDI (Albuquerque, Loayza, & Servén, 2005).

On the other hand, privatization has a significant transition cost in the short to medium terms, since the state must continue to fund existing pensioners while forfeiting revenues that were previously used for this purpose (Brooks, 2007a; Cuevas, Gonzalez, Lombardo, & Lopez-Marmolejo, 2008). The state may choose to finance this transition cost in part through tax increases and benefit reductions, as was the case in Chile, the Dominican Republic, and El Salvador (Holzmann and Hinz, 2005). However, these actions carry high political costs, and thus, some combination of debt and inflation may also be necessary. This may in turn spur capital flight as leery international investors divest. This argument suggests a negative link between pension privatization and FDI flows.

The purpose of this research is to test the empirical validity of these competing theories. Among the countries that chose to privatize, was privatization associated with less FDI thanks to the hefty transition costs? Or, did foreign investors respond favorably to the policy change, seeing beyond the transition costs and recognizing it as a favorable signal? To answer these questions, we gather a balanced panel of 42 Eastern European, Central Asian, and Latin American countries from 1991 to 2006 and implement panel data econometric methods, controlling for the effects of privatization and other relevant covariates from the literature. We use two variables to control for the effects of pension reform on FDI flows. The first is a dummy variable that captures the decision to privatize. The second is a continuous variable that measures the intensity of privatization. This measure of intensity is desirable due to substantial variation among countries that chose to enact privatization; some countries dismantled the public pension system altogether, while others left a substantial public component in place. In our model, intensity is measured as the percentage of pension income that is derived from an average pensioner's private account following the enactment of reform. For this measurement, we use a simulation carried out by Brooks (2009) that weighs an average worker's projected public benefits against her projected payments from her private account.<sup>8</sup> In countries where full privatization is enacted and the public system is dismantled entirely, the intensity measure is 100%, as pensioners must rely exclusively on private accounts. 9 In countries where the public system remains open to either compete with or supplement the private system, or where the private system is dominant but the state continues to make small payments from the public purse, <sup>10</sup> the intensity measure takes on a range of values. To account for the endogeneity of privatization, we use country-invariant effects as well as instrumental variables.

Our study reveals that pension privatization spurs a statistically and economically significant boost to FDI inflows; we also find that this impact does not vanish over time. From a policy standpoint, the link between pension privatization and increased FDI is important, given the empirical evidence that FDI inflows positively impact growth and productivity.

The paper is structured as follows. In Section 2, we provide a brief literature review of pension privatization and discuss its potential effects on FDI inflows. In Section 3, we discuss descriptive statistics of our data. In Section 4 we present the

econometric model. In Section 5 we discuss the empirical results; Section 6 concludes.

## 2. BACKGROUND AND CAUSAL MECHANISMS OF PENSION PRIVATIZATION

### (a) Background

The PAYGO model remains the prevailing form of public pension provision across the globe, and thus, the object of market-oriented pension reform. Under the PAYGO system, current workers make regular payroll contributions to a public pension fund, managed by the government, which is used to support current retirees. Despite cross-country variation in market-oriented reform programs, two common features define all privatization schemes: (1) the (full or partial) placement of pension funds under private management and (2) the establishment of mandated savings programs and individualized accounts, whereby some element of financial risk and savings responsibility is transferred from the state to the individual (Brooks, 2007b).

According to the World Bank (1994) and other advocates (see e.g., Orszag & Stiglitz, 2001; Singh, 1996 for a review), privatization offers three types of potential advantages over the PAYGO system. First, privatization may improve the financial performance of pension schemes and the reliability of old-age benefits. Performance may be improved in two respects: administrative costs are reduced and private portfolio accounts yield potentially higher earnings (Palacios & Whitehouse, 1998). Reliability is improved by removing the fiscal challenges associated with demographic flux as the pensioner-to-worker ratio increases. Furthermore, mandatory savings programs, along with incentives to contribute beyond mandated levels, generate new retirement savings and encourage long-term planning (World Bank, 1994).

Second, by linking each individual's contributions to the benefits she will receive, the World Bank (1994) claims that privatization eliminates the "perverse redistributions"—both intragenerational and intergenerational—of the PAYGO model. Intergenerational redistributions become problematic when demographic flux forces a relatively small number of workers to support a relatively large number of pensioners; intragenerational redistributions can cause labor-market distortions, such as an increased demand for jobs in the informal sector, where payroll taxes may be avoided. In contrast, privatization reduces incentives for evasion, resulting in expanded coverage and increased savings.

Third, proponents argue that pension privatization may spur economic growth. By redirecting the flow of retirement savings into local securities markets, pension reform stimulates financial innovation at the local level, leading to increases in both the aggregate supply of capital and the efficiency of its use (Gill, Packard, & Yermo, 2005). According to advocates for privatization, these conditions facilitate growth (Feldstein, 1997; World Bank, 1994) as an empirical link between capital market development and economic expansion is well-established in the literature (see, e.g., Beck & Levine, 2001; Levine & Zervos, 1998). Indeed, empirical evidence suggests that pension privatization can stimulate financial innovation as well as financial deepening: for example, Holzmann (1997) finds that the implementation of the Chilean reform correlated positively with several indicators of financial market development, such as the market capitalization to GDP and financial liabilities to GDP ratios, as well as with the emergence of increasingly sophisticated financial instruments. Furthermore, Catalan

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