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Institutions and information flows, and their effect on capital flows

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ABSTRACT

We examine the empirical role of information flows and institutional quality in explaining the capital flows per capita across countries, and their role in explaining the so-called Lucas paradox -low levels of capital flows to poor countries. The findings of this paper suggest that countries with better institutions and high information flows receive high capital flows, and information flows also provides a partial explanation to the Lucas Paradox. The latter result is significant even after controlling for institutional quality, financial openness and human capital differences across countries, and using instrumental variable for information flows. This paper also examines the indirect effects of institutional quality on capital flows per capita through its impact on information flows and finds that countries with better institutional quality have higher levels of information flow. Accounting this indirect effect is economically important and papers that do not account for this indirect effect of institutions on capital flows per capita would underestimate the effect of institutions on capital flows per capita. Findings of this paper suggest that relatively poorer countries should improve their institutional quality and increase their access to worldwide information and promote investments in communications infrastructure to attract long-term capital flows.

1. Introduction

The seminal paper of Lucas (1990) questioned why capital does not flow from rich to poor economies even though the neoclassical theory suggests that relatively higher marginal rates of returns in poor countries should attract higher capital flows to these countries. Among many other explanations, differences in institutional quality and political risk are put forward and strongly emphasized. In a seminal paper, Alfaro et al. (2008), AKV hereafter, found that differences in institutional quality across countries is the leading explanation for the Lucas Paradox. This result (institutional quality being the major factor explaining the Lucas paradox) is weakened by Azemar and Desbordes (2013), when they use a natural logarithm of capital flows per capita as the dependent variable rather than the level of capital flows per capita. On the other hand, Slesman et al. (2015), by using a threshold regression model, show a partial explanation for the Lucas paradox. They find that capital flows have positive effects on economic growth if and only if countries have high quality of institutional settings. In other words, their work finds that countries require a threshold level of institutional quality by which capital flows have a positive effect on economic growth.[1]

Beyond the factors mentioned above, a number of papers studied the relationship between information flows and the foreign direct investment (FDI), in general terms capital flows (see e.g., Portes et al., 2001; Choi et al., 2014; Blonigen and Piger, 2014). In particular, it has been argued that the communication and information tools provide a better access to information and minimize the negative effects of asymmetric information. Portes et al. (2001) suggest that information flows (by using telephone traffic as a proxy for information flows) could mitigate the information asymmetry and could lead to an increased financial trade. Reynolds et al. (2004) also find a positive relationship between the level of telecommunications infrastructure and FDI suggesting that such investment on infrastructure increases the returns to FDI. Similarly, Francois and Manchin (2013) find that low institutional quality and infrastructure in the south limits their trade levels. In a recent paper, Blonigen and Piger (2014) analyze

[1] There are extensive set of papers analysing the factors that explain the capital flows across countries and some of those factors found to be important are the differences in human capital (Caselli and Feyrer, 2007), financial openness (Reinhardt et al., 2013) and domestic fundamentals (Mody et al., 2001), level of moral hazard (Gertler and Rogoff, 1990; Sarno and Taylor, 1999), serial default levels (Reinhart and Rogoff, 2004), and information frictions (Portes and Rey, 2005), among many other factors.

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an extensive list of potential determinants of FDI and find that the host country's communication infrastructure (measured by the number of phone subscribers, internet users and computers) affects FDI decisions. Recently, Choi et al. (2014) find that the internet use mitigates the information asymmetry between countries and increases the volume of cross-border portfolio flows between the United States and other countries. All of the above mentioned papers conclude that information flows increase FDI (capital flows) through increasing productivity and mitigating the asymmetric information. However, to the best of our knowledge, neither the aforementioned papers nor the related literature examine whether the levels of communications infrastructure and information flows might explain the Lucas Paradox or not. This paper is, therefore, a contribution to the literature in this respect.

It has been long established that the infrastructural development levels of countries also play a significant and positive role in their economic growth (see, e.g., Easterly and Levine, 1997). However, development processes of countries through infrastructure growth are shaped by their political and institutional settings (see e.g., Henisz, 2002; Esfahani and Ramirez, 2003) where the economic returns to infrastructure investments are relatively higher in countries with better institutions (see e.g., Straub, 2011 for an extensive review of the mediating effects of political and institutional settings of countries on the economic returns to infrastructure). Even though there exists a theoretical and empirical literature examining the link between infrastructural development and economic growth (see e.g., Calderon and Serven, 2004 for a review of theoretical and empirical links between infrastructural development and economic growth), the mechanisms through which infrastructure shapes aggregate economic performance has not been examined. In this paper, we examine some of these potential links. Firstly, we examine the relevance of information flows for the cross-country variation in capital flows per capita. Secondly, we also test the impact of institutional quality on information flows (e.g., Gillanders, 2014 finds that countries with better institutional quality have higher infrastructural development), and its indirect effect on capital flows per capita through its impact on information flows. This latter channel might also provide an additional mechanism for the institutions' effect on long-term economic development (see e.g., seminal papers of Acemoglu et al., 2001; Rodrik et al., 2004). Hence, this paper will also contribute to the literature to uncover some of the mechanisms through which both institutions and information flows affect capital flows and economic growth.

To test the role of communications infrastructure and information flows, we consider the information flows component from the KOF Index of Globalization. We find that the countries with high levels of information flows, which measures the level of country's openness to global information and communications infrastructure level, attract higher capital flows. Furthermore, we also find that the information flows provide a partial explanation to the Lucas Paradox. This result is significant even after we control for institutional quality proxies, human capital, capital flow restrictions, and asymmetric information and with the use of different sample sizes. In addition to this, we also consider the possibility that the information flows may be endogenous and we used the instrumental variable estimation techniques, and the results are remained to be significant after controlling for the potential endogeneity of the information flows variable. We also find that the institutional quality and financial openness are the other determinants that are found to be significant in most of the specifications where countries with better institutional quality and the ones that are financially more open attract higher capital flows. Finally, we find that the institutions have an indirect effect on capital flows per capita through their effect on information flows. This indirect effect of institutions on capital flows per capita is roughly equal to its direct effect highlighting the economic relevance of this indirect link. To put it differently, if the empirical specifications do not account for this indirect effect of institutions on capital flows per capita through their effect on information flows, they would underestimate the effect of institutions on capital flows per capita and therefore its effect on long-term economic development and growth.

The remainder of the paper is as follows. In Section 2, we provide the dataset used in our analysis and relevant literature. Section 3 offers the empirical strategy. Section 4 provides empirical results with different specifications and robustness analysis. Finally, Section 5 concludes.

2. Data and literature review

Our dependent variable is the average inflows of portfolio equity and direct investment per capita in 2005 U.S. prices. Similar to the AKV paper, we use the average inflows to capture the long-run effects of the various explanations of the Lucas Paradox. Our period of analysis is between 1982 and 2011. Before averaging the data over the study period, levels of capital inflows are calculated by first-differencing the updated stocks of portfolio equity and direct investment variables from Lane and Milesi-Ferretti (2007). Then the levels of capital flows are divided by population and deflated by the U.S. consumer price index (CPI) levels to bring the values into per capita in 2005 U.S. prices. The population data is obtained from the World Bank's World Development Indicators.[2]

We consider the information flows component from the KOF Index of Globalization (Dreher, 2006 and Dreher et al., 2008). KOF Index of Globalization has been used extensively in the literature to examine the impact of globalization on health outcomes (see e.g., Bergh and Nilsson, 2010a), inequality (see e.g., Dreher and Gaston, 2008; Bergh and Nilsson, 2010b) and economic growth (see e.g., Gurgul and Lach, 2014), and in this paper, we use the information flows component to examine its impact on the FDI. This component is measured in terms of access to the internet, TV and foreign press products. In particular, it is calculated by using the data on the number of internet users (per 100 people), the share of households with a television set, and the sum of exports and imports in newspapers and periodicals (as a percentage of GDP). This component measures the potential flow of ideas and images across the countries, hence serves as a proxy for country's openness to global information and also its investment to telecommunications infrastructure.

We use the natural logarithm of initial income per capita for countries, which is obtained by taking the natural logarithm of the Purchasing Power Parity (PPP) GDP per capita in 1982 from the Penn World Table 8.1 (Feenstra et al., 2015). One of the parameters of interest for this analysis is the coefficient obtained for the initial income per capita. A positive and significant coefficient on initial income per capita implies none of the variables considered in our analysis is able to explain the Lucas Paradox as there is relatively higher capital flows to rich countries. An insignificant coefficient on initial per capita implies that some of the variables provide a partial explanation to the Lucas Paradox since there is no significant relationship between capital flows and initial income per capita after controlling for these factors. Finally, a negative coefficient on initial income per capita after the inclusion of some factors would suggest that these variables are able to provide a full explanation to the Lucas Paradox since capital now flows to poorer countries after the inclusion of factors into the analysis.

We also use various control variables in our analysis. Institutional setting of countries has been one of the main determinants

[2] World Development Indicators data set does not provide data for Taiwan, hence the population figure for Taiwan is obtained from the World Economic Outlook.

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