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Foreign ownership wage premium:
Does financial health matter?

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TABLE OF CONTENTS

| | |
|--|----|
| Non-technical summary | 3 |
| Abstract | 3 |
| Résumé non technique | 5 |
| Résumé court | 6 |
| 1. Introduction | 7 |
| 2. Structural reforms in Romania | 10 |
| 2.1. Foreign Direct Investment policies | 10 |
| 2.2. Financial sector reform | 11 |
| 3. Data and Identification strategy | 12 |
| 3.1. Data description | 12 |
| 3.2. Identification strategy | 13 |
| 4. Estimation strategy | 14 |
| 4.1. Foreign ownership, financial access and wages | 14 |
| 4.2. Does the nationality of the foreign affiliate matters? | 16 |
| 5. Robustness checks | 17 |
| 5.1. Controlling for trade liberalization | 17 |
| 5.2. Industry-trends | 18 |
| 5.3. Alternative weights | 18 |
| 5.4. Foreign firms, financial access and other firm outcomes | 19 |
| 6. Conclusions | 20 |
| 7. References | 21 |
| 8. Appendix | 24 |



FOREIGN OWNERSHIP WAGE PREMIUM: DOES FINANCIAL HEALTH MATTER?

Maria Bas

NON-TECHNICAL SUMMARY

The empirical literature on the role played by multinational companies has found robust evidence on the foreign-wage premium. Average wages paid by foreign affiliates are higher than those paid by domestic-owned firms within the same industry. Nevertheless, there is little evidence on the channels that could explain why foreign affiliates pay higher wages on average than their domestic counterparts.

The aim of this paper is to investigate one of the possible determinants of the foreign-wage premium: the differential access to financial resources of foreign affiliates relative to domestic counterparts. Under imperfect financial markets, foreign affiliates have a greater access to funds to finance high-technological investments that increase their profits and allow them to pay higher wages. The empirical analysis investigates this relationship between financial factors and foreign-ownership wage premium using firm-level data from Romania over the 1998-2006 period. Romania represents an interesting setting to study this relationship since it experienced a substantial reform in the financial sector and foreign direct investment (FDI) in the late 1990s. The identification strategy exploits this financial sector reform. I have constructed a proxy of financial sector reform at the industry level based on the IMF financial reform index and the proportion of banking services used in each manufacturing industry using Input-Output tables. I exploit the exogenous change in access to finance, due to the reform of the financial sector, across manufacturing industries depending on the type of firm ownership to analyze the determinants of the differential wages paid by foreign firms.

The results provide new evidence on the mechanisms through which multinational firms affect wages in developing countries. Our results imply that an increase in the financial reform index increases firms' wages by 7 percent for domestic firms and 11.2 percent for foreign affiliates. One possible reason that explains why foreign firms might have improved their financial access relative to domestic firms is that they have benefited from the expansion of foreign banks during the financial sector reform period. Since foreign affiliates might have stronger linkages with foreign banks, we should expect that the differential effect of financial access on wages to be only significant for foreign affiliates from developed countries that actually benefit from the interaction with foreign banks from those countries. I show that this is the case for foreign firms located in Romania. These findings are stable and robust to several sensitivity tests.

ABSTRACT

Microeconomic studies have shown that foreign-owned firms pay a wage premium in developing countries. This paper investigates one of the possible channels that explain why foreign firms pay higher wages than their domestic counterparts in developing economies. Under imperfect financial markets, foreign affiliates have a greater access to funds to finance high-technology investments and to compensate their workers. The empirical analysis relies on firm-level data from Romania during the 1998-2006 period. The identification strategy exploits the financial sector reform in Romania during this period as a proxy of an exogenous shock of improvement of financial resources. Changes in the IMF financial reform index across manufacturing industries are related to the ownership status of the firm to investigate how the differential access to finance of foreign firms shapes wages. The findings suggest that a one-standard-deviation increase in the financial reform index increases firms' wages by 7 percent for domestic firms and 11.2 percent for foreign affiliates. These results are mainly driven by foreign firms from developed countries that might benefit from connections with foreign-owned banks. These findings are stable and robust to different sensitivity tests related to the financial reform indicator, other reforms and industry trends.

JEL Classification: O10, O12

Keywords: Foreign-wage premium, financial reform, developing countries, firm level data



LES CONDITIONS DE FINANCEMENT SONT-ELLES UNE DES EXPLICATIONS DES SALAIRES PLUS ÉLEVÉS DANS LES MULTINATIONALES ?

Maria Bas

RÉSUMÉ NON TECHNIQUE

La littérature empirique sur les entreprises multinationales a montré l'existence d'une prime salariale : dans une même industrie, le salaire moyen payé par les entreprises étrangères est plus élevé que celui payé par les entreprises domestiques. Néanmoins, les mécanismes à l'origine de cet écart de salaire ont été peu explorés.

L'objectif de ce papier est d'examiner le rôle que pourrait jouer à cet égard l'accès inégal des entreprises étrangères et domestiques aux sources de financement. Le marché financier étant imparfait, il se peut que les filiales des entreprises étrangères aient un accès plus facile aux ressources financières ; elles pourraient alors, davantage que les entreprises domestiques plus contraintes financièrement, investir dans des technologies permettant d'augmenter les profits et les salaires. Notre analyse empirique teste cette hypothèse sur des données portant sur les entreprises roumaines sur la période 1998-2006. La Roumanie présente un cas d'étude particulièrement intéressant puisque, à la fin des années 1990, ce pays a engagé une réforme de son système financier et s'est ouvert aux investissements étrangers. A partir de l'indicateur de réforme financière du FMI et des ressources financières utilisées par chaque secteur manufacturier fournies par les tableaux input-output, nous construisons un indicateur de changement dans l'accès aux ressources financières pour chacun des secteurs manufacturiers. Le différentiel de salaire est alors expliqué par le statut de l'entreprise - domestique ou étrangère - en contrôlant pour les caractéristiques des firmes et des secteurs et pour les réformes intervenues dans d'autres domaines.

Les résultats, robustes à différentes spécifications de l'indicateur d'accès aux financements, suggèrent que la réforme financière a augmenté de 7% les salaires moyens des entreprises domestiques et de 11,2% ceux des entreprises étrangères. L'écart provient essentiellement des filiales roumaines des entreprises des pays développés, ce que l'on peut interpréter comme le résultat de leurs connexions étroites avec les filiales des banques étrangères. Cette étude apporte ainsi des résultats nouveaux sur l'un des mécanismes à travers lesquels la présence d'entreprises multinationales affecte les salaires dans les pays en développement.

RÉSUMÉ COURT

Plusieurs travaux micro-économétriques ont démontré que dans les pays en développement les filiales des entreprises multinationales paient un salaire moyen plus élevé que les entreprises domestiques. Cette étude vise à comprendre l'un des déterminants de cet écart. L'hypothèse est que, dans le cadre d'un marché financier imparfait, les filiales des entreprises étrangères peuvent avoir un accès plus facile à des ressources financières qui leur permettent de réaliser des investissements technologiques et de payer des salaires plus élevés. L'analyse empirique est basée sur des données portant sur les entreprises roumaines sur la période 1998-2006 au cours de laquelle la Roumanie a réformé son secteur financier. Des changements exogènes de l'indicateur de réforme financière du FMI, différencié selon le recours des différents secteurs manufacturiers aux financements, sont reliés à un indicateur de propriété de l'entreprise pour tester l'hypothèse. Les résultats suggèrent que la réforme financière a augmenté les salaires moyens de 7% dans les entreprises domestiques et de 11,2% dans les entreprises étrangères. Ces résultats sont principalement expliqués par les filiales roumaines des entreprises des pays développés qui peuvent bénéficier de connexions avec les filiales des banques étrangères. Ces résultats sont robustes aux différents tests de sensibilité portant sur l'indicateur de la réforme financière, des autres réformes et des trends sectoriels.

Classification JEL : O10, O12

Mots clés : entreprises multinationales, salaires, réforme financière, pays en développement, données des entreprises .

**FOREIGN OWNERSHIP WAGE PREMIUM:
DOES FINANCIAL HEALTH MATTER?¹**

Maria Bas *

1. INTRODUCTION

It is well established that average wages paid by foreign affiliates are higher than those paid by domestic-owned firms within the same industry (Aitken et al., 1996, Bernard and Jensen (1995), Lipsey and Sjöholm 2004, and Morrissey and Te Velde, 2003).² This foreign-wage premium persists after taking into account observable and unobservable differences in firm characteristics (Lipsey and Sjöholm, 2006, Girma and Görg, 2007, Andrews et al., 2007, and Arnold and Javorcik, 2009)³. However, there is little evidence on the mechanisms that are at stake. The presence of frictions in the financial market might explain why multinational firms pay a wage premium to workers with similar characteristics.

The aim of this paper is to explore one of the possible determinants of the foreign-wage premium: the differential access to financial resources of foreign affiliates relative to domestic counterparts. Under imperfect financial markets, foreign affiliates have a greater access to funds to finance more profitable investments and to compensate their workers. Empirical evidence suggests that foreign-owned firms in developing countries have greater collateral and financial resources than domestic companies that are subject to greater credit constraints (Lizal and Svejnar, 2002, Kornai et al., 2003; Bartel and Harrison, 2005, Poncet et al., 2010, and Bas and Berthou, 2012a). Moreover, foreign-owned firms are less risky and thereby, banks are more prone to lend them relative to domestic firms.⁴ In that case, foreign affiliates are less subject to credit constraints and are thereby able to invest in more profitable projects relative to domestic

¹I have benefited from discussions with Antoine Berthou, Benjamin Carton, Cristina Terra, Gianluca Orefice and Sandra Poncet. I'm responsible for any remaining errors.

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²Aitken et al. (1996), for Mexico and Venezuela, show that foreign affiliates pay 30% higher wages. Lipsey and Sjöholm (2004), for Indonesia, and Morrissey and Te Velde (2003), for Sub-Saharan African countries, find that the foreign wage premium persists after taking into account differences in the workforce composition. They show that this wage differential is attributable to foreign ownership status rather than to firm characteristics.

³One exception is Almeida (2007) using matched employer-employee data from Portugal, finds that foreign acquisition has small effects on firms' wages and human capital.

⁴Harrison and McMillan (2003) show evidence of crowding out of domestic firms by foreign affiliates in the financial market for the Ivory Coast. This finding is in contrast, however, with the results presented by Harrison et al. (2004) using a cross-country firm-level panel and with Poncet et al. (2010) for China.

companies. A number of works have found a positive relationship between a firm's financial health and its investments for developed countries (Fazzari et al., 1988; Whited, 1992; Bond and Meghir, 1994; Bond et al., 2003). Similar evidence is found for developing countries by Harrison and McMillan, (2003), for Ivory Coast, and Haramillo et al., (1996) for the Ecuador, showing that wealthier firms, with a higher liquidity ratio, invest more.

Alternative theories could explain why better financial health of foreign affiliates translates into higher average wages. If there are complementarities between workers' ability and technology as in Yeaple (2005), foreign affiliates that have a greater access to financial funds can adopt the high-technology, increasing their skilled labor demand and the average wages. On the other hand, in a context of imperfect labor markets wages are set through a bargaining process depending among others on firms' revenues. Since foreign affiliates are able to raise more financial resources to carry out profitable investments, they will get higher revenues and pay a higher average wage due to the rent sharing process.

I investigate the relationship between financial factors and foreign-ownership wage premium using firm-level data from Romania over the 1998-2006 period.⁵ Romania represents an interesting setting to study this relationship since it experienced a substantial reform in the financial sector and foreign direct investment (FDI) in the late 1990s. One concern that arises when addressing this question is how to deal with the potential reverse causality between access to finance and firm performance. Since foreign affiliates are bigger than domestic firms, and larger firms have a greater financial access and tend to pay higher wages, firm level indicators such as firms' liquidity or leverage might induce biased results. To investigate a causal relationship between firms' ownership, financial access and wages, the identification strategy relies on the financial sector reform that took place in Romania at the end of the nineties. This reform has been characterized by the privatization of state-owned banks and the removal of entry barriers for foreign banks. These policies increase competition among banks, creating incentives for banks to lend to less risky and more profitable firms as suggested by Petersen and Rajan (1995).⁶

Following the literature on the effects of services reforms in upstream industries on the performance of firms producing in downstream manufacturing industries (Conway and Nicoletti, 2006; Barone and Cingano, 2011; Bourles et al. 2010 and Arnold et al., 2010, 2011), I have constructed a proxy of financial sector reform at the industry level based on the IMF financial reform index and the proportion of banking services used in each manufacturing industry using Input-Output tables.⁷ The identification strategy of this upstream-downstream approach consists in exploiting the variation in the magnitude of a given reform across manufacturing industries, depending on the extent to which the reform affects their inputs. I exploit the exoge-

⁵The dataset comes from the Amadeus database collected by the Bureau Van Dijk. Section 4.1. describes this dataset.

⁶Section 3.2. describes the characteristics of the financial sector reform.

⁷The IMF financial reform index is from Abiad et al.(2008) and the Input-Output tables of Romania are from Eurostat. See section 4.2. for a detailed description of the dataset.

nous change in access to finance, due to the reform of the financial sector, across manufacturing industries depending on the type of firm ownership to analyze the determinants of the differential wages paid by foreign firms.

The results provide new evidence on the mechanisms through which multinational firms affect wages in developing countries. The main findings are as follows. The effect of financial reform on firm wages is stronger for foreign affiliates. The estimated coefficients imply that a one-standard-deviation increase in the financial reform index increases firms' wages by 7 percent for domestic firms and 11.2 percent for foreign affiliates. These findings are robust to specifications which control for industry characteristics that could be related to financial reform and might change over time such as size, capital intensity and the market structure. Moreover, observable firm characteristics varying over time that could be picking up the effect of foreign firms on wages are also taken into account. The findings are robust and stable to the inclusion of firm age, productivity, size and capital intensity.

One possible reason that explains why foreign firms might have improved their financial access relative to domestic firms is that they have benefited from the expansion of foreign banks during the financial sector reform period. Since foreign affiliates might have stronger linkages with foreign banks, we should expect that the differential effect of financial access on wages to be only significant for foreign affiliates from developed countries that actually benefit from the interaction with foreign banks from those countries. I show that this is the case for foreign firms located in Romania.⁸

These findings are stable and robust to several sensitivity tests. First, I provide similar evidence using an alternative set of weights for the financial reform index based on US input-output tables. Second, I show that financial reform is not picking up the effects of other reforms that took place during the same period as trade liberalization. Third, I allow for the possibility that other industry-time unobservable characteristics affecting industries over time drive the results introducing specific industry trends. Finally, I explore the possible channels through which financial access might have boosted wages of foreign firms relative to domestic ones. I show that the differential effect of financial reform for foreign firms affects not only firm wages, but also other firm outcomes such as firm total factor productivity gains and value added.

This paper contributes to the literature on the determinants of the foreign-wage premium. Several channels have been highlighted to explain why multinational firms pay higher wages than domestic-owned companies. One possible mechanism studied by Budd and Slaughter (2000) and Budd et al. (2005) is related to international profits and rent sharing across borders. Other channel emphasized by Fosfuri et al., (2001) is that foreign affiliates might pay a wage premium to limit the turnover of their workforce and thereby, minimize the potential risk of know-how and productivity spillovers. Foreign affiliates might also pay higher wages to compensate their workers for a higher probability of shutting down (Bernard and Sjöholm, 2003), for a higher

⁸Most of the foreign banks located in Romania are from developed countries in Europe or United States. See Section 3.2. for a detailed explanation of the financial sector reform in Romania.

labor demand volatility (Fabri et al., 2003) or due to job training (Gorg et al. 2007). This study complements this literature by exploring other possible explanation of the foreign-wage premium determinants related to imperfections in the financial markets and the superior financial access of foreign-owned firms relative to domestic firms.

My findings also complement recent work on the effects of financial development on firm performance depending on firms' ownership in developing countries. Using firm level data for India, Bas and Berthou (2012b) find that financial development through banking reforms has a positive impact on firms' value added growth and capital stock. They show that this effect is greater for foreign and private-owned companies. Arnold et al. (2010) also find for the case of India that banking reforms have a stronger effect on firm productivity growth for foreign affiliates relative to domestic companies. Manova et al. (2011) and Jarreau and Poncet (2011) relying on the Rajan and Zingales methodology demonstrate that foreign-owned firms in China have an advantage in export performance relative to private domestic firms and this effect is greater in sectors that are financially vulnerable.

The remainder of this paper is organized as follows. Section 2 describes the structural reforms on FDI and the financial sector that took place in Romania in the late 90s. Section 3 describes the datasets and presents the identification strategy. Section 4 presents the estimation strategy and the baseline results. Section 5 explores the robustness of these results to several sensitivity tests. Section 6 concludes.

2. STRUCTURAL REFORMS IN ROMANIA

The main feature of financial reforms concerning foreign direct investment and the deregulation of the financial sector in Romania was the substantial financial integration process of the late 1990s. In this section I describe the different policy-instruments that were applied to attract foreign capitals and to open-up the banking sector.

2.1. Foreign Direct Investment policies

FDI attraction policies were implemented in Romania in the late 90s. In 1997 the government shifted to market-oriented policies and launched a vast privatization process affecting all economic sectors.

The privatization policy came along with a new legislation affecting foreign firms. The main measures to attract foreign investors were the removal of all entry barriers for foreign companies and tax-incentives. The aim of these policies was to provide new investment opportunities for foreign companies.

During the period under analysis (1998-2006), all sectors of the economy were open to foreign direct investment. At the end of the period the volume of FDI inflows over GDP was twelve times larger than at the beginning. Figure 1 (Appendix) depicts the evolution of FDI over GDP

of several Central and Eastern European countries from 1996 to 2007. This figure clearly shows the leading role of Romania as a destination of FDI in this period compared to other destinations. It should be taken into account that most of the other Eastern European countries experienced privatization and FDI reforms at the early 1990s.

Although, most foreign companies came from developed countries from Western Europe and the US, in the last years a non negligible percentage of foreign investors came from developing economies like Turkey and China.

2.2. Financial sector reform

Until 1997, the Romanian financial system was dominated by state-owned banks. These banks granted loans mainly to state-owned companies. Parallel to the privatization process and the FDI attraction policies implemented in 1997, the government launched a reform of the financial system. Several measures were introduced at the end of the 1990s that consisted in deregulation of the banking and financial sector. These measures aimed at improving transparency and efficiency in credit allocation.

Progress in financial sector reform has been achieved through the privatisation, restructuring or liquidation of large state-owned banks (OECD, 2002). The main financial deregulation measures adopted were privatization of state-owned banks and the reduction of entry barriers for foreign banks. In 1999, the government carried out the privatizations of major Romanian banks to foreign strategic investors.

Following the financial sector reform, most credit institutions in Romania were of foreign origin: 29 foreign banks from a total of 38 financial institutions and 60% of bank assets are owned by foreigners. Foreign-owned credit institutions account for 65% of non government credit. Foreign banks located in Romania are mainly from developed economies such as France, Germany, US, UK, Austria, Netherlands, Italy and Greece. Among the most important foreign-owned banks are the Romanian Development Bank (owned by the French "Société Générale" bank), Raiffeisen Bank, ABN Amro Bank, ING Bank Bucharest, Banc Post, Alpha Bank Romania, Citibank Romania, Bank Austria Creditanstalt/HVB Bank, and UniCredit Romania (Barisitz, 2005).

The strong predominance of foreign banks has stimulated an expansion of private credit in the late 90s. The key role of foreign-owned banks in Romania after the financial sector reform suggests greater competition among banks. Banking competition could have induced financial institutions to provide more loans to less risky and profitable firms such as big domestic and multinational companies relative to small and medium size domestic firms. This argument is in line with Petersen and Rajan (1995).

In the empirical analysis, financial access is captured by the IMF financial index developed by Abiad et al. (2008). This index is composed of eight sub-indices that reflect the financial instruments adopted during the financial reform: credit controls and reserve requirements, aggre-

gate credit ceilings, interest rate liberalization, entry barriers to banking sector, capital account transaction, banking privatization, security markets and banking sector supervision. Figure 2 (Appendix) shows the evolution of this index. An increase in the index indicates a higher degree of financial development and greater access to finance for firms.

3. DATA AND IDENTIFICATION STRATEGY

3.1. Data description

The empirical analysis relies on a panel of Romanian manufacturing firms for 1998-2006. This dataset comes from the Amadeus database collected by the Bureau Van Dijk. Previous studies rely on this dataset to investigate FDI spillovers in Romania (Javorcik and Spatareanu 2009 and Merlevede et al. 2011).

The dataset provides, for each firm, detailed information on wage-bill, foreign-ownership, employment, value-added, capital stock, materials and the year of incorporation of the firm. As standard in the literature, foreign-owned firms are defined as those that have more than 10 percent of foreign capital.⁹ A unique feature of this dataset is that the country of origin of foreign capital is reported. Unfortunately, there is no information available on the skill content of the employees. Nevertheless, since firms' skill intensity is positively correlated with capital intensity and firm productivity, the empirical analysis includes those variables. Firm total factor productivity is measured using the semi-parametrical estimator developed by Levinshon and Petrin (2003). Sector-specific deflators (Nace rev. 1.1. 2-digit level) are applied to value-added, wage-bill, materials and capital stock.

The main empirical analysis is conducted on an unbalanced panel of about 3,000 firms by year with non-missing information on any of the firm level variables used in the empirical analysis. This leaves us with 26,346 firm-year observations.

Table 1 in the Appendix summarizes the main firm variables used in the empirical analysis. We split firms into their ownership status. Foreign owned firms display higher size in terms of employment, wages and TFP relative to domestic firms. Moreover, foreign affiliates from developed countries display an even greater performance relative to domestic firms and also to foreign affiliates from less developed economies.¹⁰

Several studies (e.g., Aitken, Harrison and Lipsey, 1996, Morrissey and Te Velde, 2003, and Lipsey and Sjöholm, 2004) investigating firms' foreign wage premium have shown that foreign affiliates have different characteristics than domestic firms in developing countries. Table 2 (Appendix) presents preliminary evidence confirming these findings in the case of Romania. Each specification estimates the TFP and wage foreign-premia by an OLS with 2-digit industry

⁹Similar results hold when defining foreign firms as those with more than 50 percent of foreign capital.

¹⁰Less developed countries correspond to non high-income countries, defined by the World Bank as countries with 2007 per-capita GNIs under 11,456 computed in U.S. dollars using the Atlas conversion factor.

and year fixed effects. The estimates show the impact of being a foreign affiliate on firms' total factor productivity and wages. There are substantial differences between domestic and foreign affiliates in terms of performance. The latter are on average 66 percent more productive and pay 48 percent higher wages. Splitting the sample by the country of origin of foreign affiliates reveals that foreign firms from developed countries are 72 percent more productive and the wages paid are 53 percent higher than domestic firms, while the foreign premia for foreign affiliates from LDC is much lower.

3.2. Identification strategy

Investigating the relationship between firms' foreign status, financial access and wages is not free of potential reverse causality concerns between access to finance and firm performance. Relying on firm level indicators of financial access such as firms' liquidity or leverage may introduce a bias in the estimates since foreign firms are larger and more productive than domestic ones, and bigger firms have a better financial health and tend to pay higher wages.

To identify a causal link between firms' ownership, financial access and wages, I rely on the literature on the effects of upstream reforms on firm performance in downstream manufacturing industries (Conway and Nicoletti, 2006; Barone and Cingano, 2011; Bourles et al. 2010 and Arnold et al., 2010, 2011). The analysis is based on the financial reform that affected the banking sector and took place in Romania at the end of the nineties. The upstream-downstream identification strategy exploits the exogenous variation of the reform of the upstream banking system across downstream manufacturing industries based on the proportion of banking services used in each manufacturing industry. To capture the differential effect of financial reform for foreign and domestic firms, I interact the financial reform proxy at the industry level with the ownership status of the firm. The idea is that foreign firms producing in manufacturing industries that were more affected by the financial reform might have increased their access to finance relative to domestic firms. One reason could be linked to the expansion of foreign-owned banks which have stronger linkages with multinational firms. Another possible explanation is that the financial reform has increased bank competition by the entry of new private and foreign banks, inducing banks to lend to less risky and more profitable foreign firms relative to domestic ones.

The financial reform index at the industry level is constructed using the aggregated IMF financial index and the proportion of banking services used in each manufacturing industry. Using Input-Output tables of Romania from Eurostat in 2000 for 20 manufacturing industries, I have constructed the proportion of financial and banking services over total inputs used by each manufacturing sector. Robustness tests are carried out using US Input-Output tables to compute these weights at the same industry disaggregation level. The weighted financial reform index for each industry s and year t is given by:

$$\text{Financial reform}_{s,t} = \alpha_s \text{ IMF financial reform index}_t$$

where α_s is the value share of financial and banking resources used in the production of the goods of 2-digit manufacturing industry s . An increase in this index value signals deepening financial liberalization. Figure 3 shows changes in the IMF financial reform index across sectors between 1998 and 2006. This Figure shows that the effect of financial reform is heterogeneous across manufacturing industries depending on the initial proportion of financial resources used in each industry.¹¹

4. ESTIMATION STRATEGY

4.1. Foreign ownership, financial access and wages

One possible explanation of why foreign firms pay higher wages in developing countries is that foreign affiliates have greater financial resources to afford high-technology investment projects and to compensate their workers for their efforts paying higher wages relative to domestic-owned firms. Using exogenous variations on financial access across industries combined with firms' ownership status, I now investigate the relationship between multinational firms, access to finance and firms' wages.

To identify changes in financial resources across firms with different ownership status, the financial access index described in the previous section is interacted with an indicator variable of firms' ownership status (foreign vs. domestic). I estimate the following model:

$$Wages_{ist} = \gamma_1 \text{Financial reform}_{s(t-1)} + \gamma_2 \text{Financial reform}_{s(t-1)} \times \text{Foreign}_i + \gamma_3 X_{i(t-1)} + \gamma_3 Z_{s(t-1)} + \nu_t + \mu_i + \varepsilon_{ist} \quad (\text{I})$$

Here $Wages_{ist}$ is measured as the logarithm of the wage-bill over total workers employed in firm i producing in 2-digit industry s in year t . $\text{Financial reform}_{s(t-1)}$ is the IMF financial reform index weighted by the proportion of financial services used by each manufacturing industry s in year $t - 1$. Foreign_i is equal to one if the firm has more than 10 percent of foreign capital.¹² $\text{Financial reform}_{s(t-1)} \times \text{Foreign}_i$ captures the interaction term between financial reform index and foreign status.

The analysis of foreign wage premium is related to two potential selection issues. First, workers select into firms. The nature of the firm level dataset does not allow me to deal with the selection of workers into firms. The results should be taken with caution since this potential selection

¹¹An alternative methodology to the upstream-downstream approach is the one developed by Rajan and Zingales (1998). This methodology relies on sectors' financial vulnerability and external dependence measures that reflect technological characteristics of each sector inherent to the nature of the manufacturing process. The external dependence measure is constructed as the share of capital expenditures not financed with cash flows from operations by each manufacturing industry.

¹²In alternative estimations available upon request, foreign status is defined as more firms with more than 50 percent of foreign capital. The results are robust to this definition of foreign status.

issue is not addressed. The second selection issue is that firms select into multinational status. I address this issue in two ways. The dataset allows us to identify whether the firm is a foreign affiliate depending on the capital structure. Given that the date of creation of the foreign affiliate is not reported in the dataset, I rely on a time-invariant foreign status variable. The advantage is that the time-invariant foreign status allows to partially address the selection of firms into multinationals. Moreover, to further account for this potential selection issue, I include in all specifications firm fixed effects controlling for unobserved time-invariant firm characteristics (μ_i). Since foreign ownership is time-invariant, the firm fixed effects capture the ownership status. That is the reason why foreign status variable is only introduced in the interaction term in equation (I). I also control for observable firm level characteristics varying over time, $X_{i(t-1)}$, that also partially address the selection of most performing firms into foreign status. Finally, the specification also includes year fixed effects to control for other macroeconomic shocks experienced during the period (v_t). Since the variable of interest varies at the industry level over time, standard errors are clustered at the industry-year level.

Estimates also control for industry characteristics that vary over time. Since the variable of interest, the financial reform index, varies at the industry level and over time, a set of industry level variables $Z_{s(t-1)}$ are introduced that control for observable industry characteristics that might also affect firms' wages. First, I introduce the median employment of the industry s in year $t - 1$ to take into account differences across industries in size. Second, I also include the median capital intensity of the industry measured by total capital stock over employees. Finally, I control for competition in the domestic market using a Herfindahl index at the industry level that measures the concentration of sales.

Table 3 shows the estimation results for equation (I) using a within estimator. Column (1) introduces the financial reform index. The coefficient is positive and significant, indicating that the expansion of financial resources induced by the reform of the financial system between 1998 and 2006 increased the wages paid by the average firm. Next, the interaction term between financial reform index and foreign status is introduced in column (2). This estimation shows the differential effect of financial access on firms' wages (1998-2006) depending on the ownership status of the firm. The coefficient of the interaction is positive and significant, suggesting that the effect of the reform on firm wages is stronger for foreign affiliates.

I next include industry level variables to control for changes in observable industry characteristics that vary over time and which could be related to deepening financial access. The estimated coefficient of the effect of financial reform on foreign firms' is robust to the inclusion of the median size of the industry (column (3)). This implies that changes in financial access are not picking up the effect of changes in industry size. I also introduce the median capital intensity of the industry. Firms producing in industries that rely more on capital in the production process pay on average higher wages. The result is robust to the inclusion of capital intensity variations at the industry level. Finally, column (3) also includes the Herfindahl index as a proxy of the inverse of domestic competition in the industry. The higher this index the more concentrated

are sales at the industry level and the lower the competition. The coefficient of interest remains stable and robust after controlling for differences in market structure.

The previous results might suffer from omitted variable bias since observable firm characteristics are not taken into account. I explore whether the previous findings are robust when I explicitly include changes in observable firm characteristics that could be correlated with foreign status and affect firms' wages. Using micro-level data, empirical works have shown that foreign firms are bigger, more efficient and capital intensive than domestic firms (Doms and Jensen, 1998 and Criscuolo, Haskel and Slaughter, 2004). Arnold and Javorcik (2009), using propensity score matching techniques, show that foreign ownership boosts firm productivity, investment, employment and wages in Indonesia. I therefore expect that foreign firms which experienced significant growth in productivity, size or capital intensity in the period increase their wages. The positive and significant coefficient on the financial access interaction with foreign status might then simply be picking up the effects of changing firm performance over this period.

Columns (4) to (6) introduce firm-level controls such as the age, firms' total factor productivity, size and capital intensity into the specification presented in equation (I). All firm level variables are expressed in logarithmic terms. Unfortunately, there is no information available on the skill content of the workforce in the Amadeus dataset. However, skill intensive firms tend to be more productive and capital intensive. A way to address this issue is by controlling for changes in total factor productivity and capital intensity. Firm total factor productivity is measured using the Levinshon and Petrin (2003) methodology. Firms' size measure is based on total employment. Firms are classified in three categories of size: small, medium and large. The omitted category is small firms.

The age has a negative effect on the wage paid by the average firm (column 4). As expected more productive and larger firms pay higher wages (column 5). Finally, I introduce firm capital intensity in column (6). The coefficient on capital intensity is positive but not significant. The reason is that the growth rates of productivity, size and capital are highly correlated, and productivity and employment growth are picking up the effects of capital growth on wages. The coefficient of interest on financial reform depending on foreign ownership remains positive, significant and stable, however. It is very similar in size to those in previous estimations with only industry-level controls shown in column (1). The estimated coefficients presented in column 6 imply that a one-standard-deviation increase in the financial reform index increases firms' wages by 7 percent for domestic firms and 11.2 percent for foreign affiliates.

4.2. Does the nationality of the foreign affiliate matters?

The previous estimation results suggest that the effect of an increase in financial access on firms' wages is stronger for foreign firms. Foreign affiliates might have a better financial access because they benefit from specific linkages with foreign-owned banks. We explore further this idea in this section by distinguishing the country of origin of foreign affiliates between devel-

oped (DC) and less developed countries (LDC). Since Romania's financial reform was mainly characterized by an expansion of foreign banks from developed countries as described in Section 3.2, we expect that the differential effect of financial reform on firms' wages to be only significant for foreign affiliates from developed countries.

The baseline specification is extended to take into account the nationality of foreign affiliates. This is a unique feature of the dataset that allows us to disentangle the country of origin of foreign-owned firms located in Romania. The financial reform index is now interacted with two different dummy variables indicating the country of origin of the foreign affiliate: Financial reform(s) (t-1) \times Foreign DC (i) and Financial reform(s) (t-1) \times Foreign LDC (i).

Table 4 reports the estimation results of equation (I) including these interaction terms. The estimated coefficients show that the effect of financial reform is indeed stronger for foreign affiliates from developed countries relative to domestic firms (column 1). The coefficient of the interaction term of the IMF index with foreign affiliates from less developed countries is not significant (column 1). These results remain robust and stable to the inclusion of industry level controls (column 2) and firm level controls (columns 3 to 6). These findings suggest that the results presented in the previous sections were mainly driven by foreign firms from developed countries that may actually benefit from connections with the new foreign banks after the financial reform.

5. ROBUSTNESS CHECKS

In this section, I present a series of robustness tests for the previous results. First, I explore whether the previous findings were picking up the effects of trade reform. I then allow for the possibility that other industry-time unobservable characteristics affecting industries over time drive the results. Third, I use an alternative set of weights for the financial reform index. Finally, I explore how access to finance affects other firm performance measures depending on the foreign ownership status.

5.1. Controlling for trade liberalization

In this section, I investigate if the effect of financial reform on firms' wages is affected by the trade liberalization. Output tariff cuts increase foreign competition, and the effect on firms' wages might depend on the type of firms. Amiti and Davis (2011) show that trade liberalization in Indonesia has a different impact on firms' wages depending on firms' trade orientation. They find that a fall in tariffs reduces wages at import-competing firms, but boosts wages at exporting firms.

Financial reform might be correlated with trade liberalization and in that case, our results might just be picking up the effects of that reform. To take into account changes in tariffs across manufacturing industries, I include in the previous specification tariffs at the 4-digit NACE classification. I rely on effectively applied import tariffs at the HS6 product level from World Bank

(WITS).¹³ Since tariff data is available for the period 1999-2006, I first present the baseline estimation for this period as a benchmark estimation.

Table 5 reports these results. Column (1) presents the benchmark estimation over the period 1999-2006. Column (2) introduces the tariff(s)(t-1) measure in the baseline specification. The effect of import tariff on the average firms' wages is positive indicating that tariff cuts might reduce wages for the average firm. However, the coefficient on tariffs is not statistically significant. Next, I control for a differential effect of tariff on wages by foreign-ownership status in column (3). The estimates indicate that tariff cuts might have boosted wages at foreign-owned firms, but the effect is also not significant. Comparing the results presented in columns (1) to (3) reveals that our coefficient of interest, the interaction term between financial reform and foreign ownership, is not affected by the introduction of tariff changes across industries. Columns (4) to (6) show that the previous results that disentangle the country of origin of foreign affiliates are also robust and stable to the inclusion of tariff measures. As can be noticed, only the interaction term between financial reform index and foreign firms from developed countries is positive and significant.

5.2. Industry-trends

This section addresses other potential concerns related to the variable used as a proxy of financial access. The IMF financial reform index might increase monotonically over time. If this is the case, the identification strategy might just be picking up industrial trends. The potential bias can be resumed as follows: if manufacturing industries that have a greater initial proportion of financial and banking inputs experienced wage growth that is not related to financial access improvement, the previous findings could be just reflecting an industry trend.

One way of dealing with this issue is to include industry-specific time trends instead of year fixed effects. Industry-year fixed effects take into account all changes and reforms that took place in that period affecting industries over time. Table 6 presents the results. Since the industry-trend is defined at the same industry level than the financial access index, the specification only includes the interaction term between financial reform and firms' ownership status. The previous findings remain robust to the inclusion of industry-time trends. Moreover, comparing the magnitude of the coefficient of interest of the interaction term between foreign status and financial access index with those presented in Table 3 reveals that the results are not only robust but also stable to the inclusion of industry trends.

5.3. Alternative weights

Although the financial access proxy does not rely on firm level measures, there could be still a potential source of endogeneity concern related to the construction of this proxy.

¹³This dataset is available at <http://wits.worldbank.org/wits/>.

The IMF financial reform indicator is weighted by the reliance of each manufacturing industry on inputs from the banking sector using domestic input-output tables. The average industry wages might be correlated with the input weights and in that case, the financial access proxy might be endogenous. For example, more productive industries might pay higher wages due to higher skill intensity, and rely more on financial resources. Therefore the change in the financial reform index across industries might reflect the change on productivity and wages across industries inducing a bias in the estimates.

One way of dealing with this issue is to use an alternative set of weights based on US input-output matrices to construct the proportion of financial and banking services of each manufacturing industry that is not-correlated with Romanian wages growth. I use US input-output matrices with the same industry-classification than the domestic input-output table used in the previous regressions. Columns (1) of Table 7 presents the baseline estimation results and column (2) controls for unobservable industry characteristics varying over time including industry-year fixed effects. In this case the effect of financial reform on firms' wages is only significant for foreign affiliates relative to domestic firms. Columns (3) and (4) show the results distinguishing the country of origin of foreign affiliates. The previous finding is explained by foreign affiliates from developed countries. These results confirm that foreign firms from developed countries might benefit more from the entry of foreign banks increasing their financial resources to develop their investment projects and to hire more productive workers and pay them higher wages.

As an alternative sensitivity tests to address the potential endogeneity issue concerning the financial input weights, I rely on the methodology developed by Rajan and Zingales (1998). I use three measures of dependence on external financial resources at the sectoral level (external dependence, liquidity needs and asset tangibility), proposed Rajan and Zingales (1998) and updated by Braun (2002) and Braun and Larrain (2005), to identify an exogenous effect of financial dependence across different industries. These measures are computed using Compustat data for the United States at the 2-digit industry level and are independent of countries' characteristics. The main idea is that technical differences across industries lead to different financial resources requirements. I then interact each of these sectoral measures with the IMF financial reform index and the foreign ownership status. The coefficient on this interaction term is therefore expected to be unaffected by Romanian firms and industry characteristics. The Rajan and Zingales framework assumes that the financial reform will have a greater effect in those industries that rely more on external financial resources. Table ?? presents the results. The previous findings are robust to this alternative econometric specification.

5.4. Foreign firms, financial access and other firm outcomes

I now explore the channels through which the differential access to finance of foreign affiliates relative to domestic-owned firms may affect firms' wages. One possible mechanism through which external financial resources might increase firms' revenues is through technology upgrading and thereby, firm productivity improvement. If access to finance is a factor resulting

in greater efficiency, it should also affect other firm outcomes besides the ability of firms to employ more efficient workers and pay higher wages.

Following Bas and Berthou (2012b), I explore the relationship between financial reform by type of firm ownership and the growth in firms' value added. I also investigate the differential effect of financial access of foreign and domestic firms on firm total factor productivity. I estimate equation (I) with these firm performance variables as the dependent variables.

The ensuing estimation results are presented in Table 9 and Table 10. I first regress firms' value added on the financial reform index interacted with the foreign status variable in column (1). Column (2) introduces firm level variables and column (3) includes industry-year fixed effects. Columns (4) to (6) distinguish the nationality of foreign affiliates. The estimates show that deepening financial access did indeed also have a positive effect on firms' value added growth for foreign firms from developed countries. This empirical evidence is consistent with previous work. Bas and Berthou (2012b) using firm level data for India show that banking reforms have a positive effect on firms' value added growth and the impact is stronger for private and foreign firms.

Next, I investigate whether foreign firms' financial access improves their productivity gains. Table 10 presents the results. I also find here that an improvement of financial access is associated with increased in firm total factor productivity for foreign firms (columns (1) to (3)) and mainly with foreign affiliates from developed countries (columns (4) to (6)). This finding confirms previous results found by Arnold et al. (2010) for India. They explore the effects of services reforms, including banking sector reform, on firm productivity and find that foreign firms located in India benefit more than domestic firms from services liberalization.

6. CONCLUSIONS

This paper contributes to the recent literature exploring the microeconomic effects of globalization on domestic labor markets in developing economies. This work sheds new light in one of the possible channels explaining why foreign-owned companies pay higher wages than their domestic counterparts in developing economies. I explore how the differential financial access of domestic and foreign firms affects the wages they paid.

The empirical analysis presents evidence supporting this mechanism for Romania during the period where FDI and financial sector reforms were implemented. I exploited the financial sector reform as an exogenous shock that increases financial resources. Taking into account differences in observable firm level characteristics, the empirical findings suggest that a one-standard-deviation increase in financial reform index increases firms' wages by 7 percent for domestic firms and 11.2 percent for foreign affiliates. These results are mainly driven by foreign firms from developed countries that might benefit from specific links with foreign banks. These findings are robust to several sensitivity tests concerning the financial access indicator variable, other reforms that took place in the period and industry trends.

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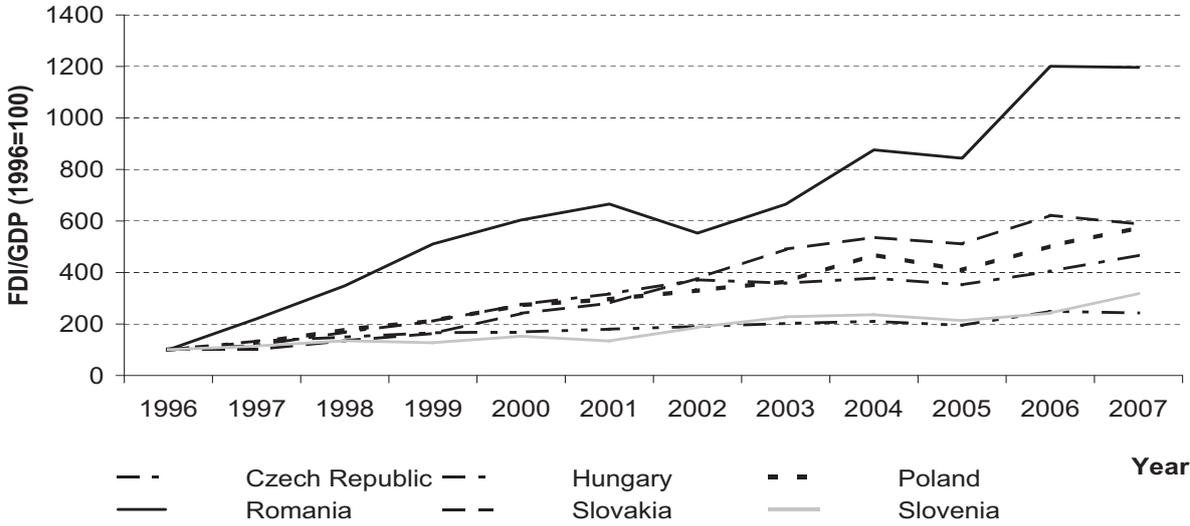
8. APPENDIX

Table 1 – Descriptive evidence

| | All firms | Domestic | Foreign | Foreign DC | Foreign LDC |
|---------------------------------|----------------|----------------|----------------|----------------|----------------|
| Wages (wage bill/employment) | 1.31 (0.85) | 1.23 (0.76) | 1.71 (1.10) | 1.77 (1.12) | 1.28 (0.80) |
| Employment | 3.66 (1.48) | 3.54 (1.42) | 4.25 (1.60) | 4.33 (1.58) | 3.70 (1.40) |
| TFP | 3.66 (1.23) | 3.55 (1.18) | 4.23 (1.32) | 4.30 (1.31) | 3.73 (1.26) |

Notes: All variables are in logarithm. Mean values are reported and standard errors in brackets.

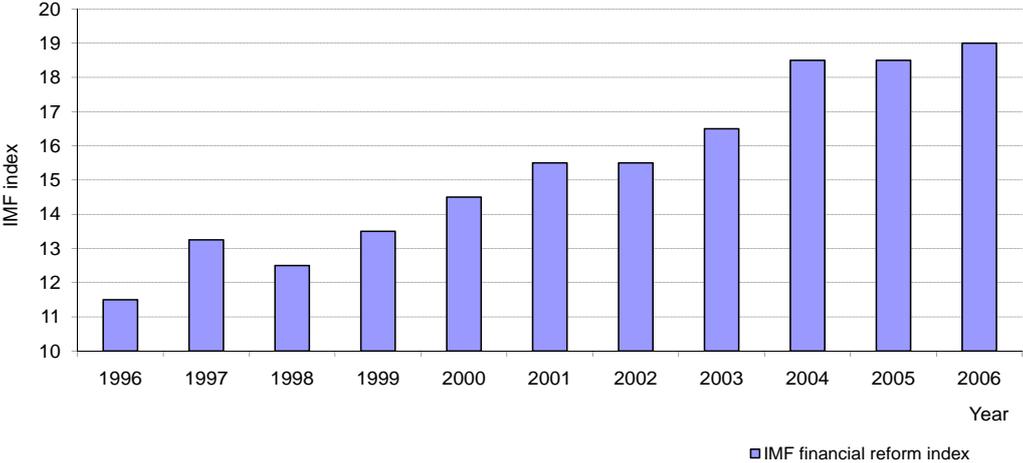
Figure 1 – FDI over GDP in Eastern Europe (1996-2007)



Source: UNCTAD

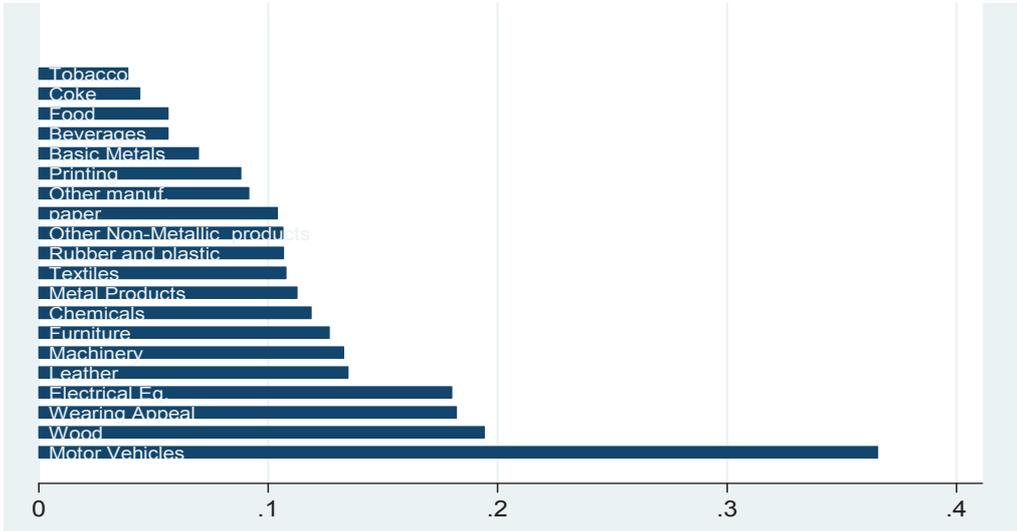
Note: base 100, 1996; ratio of FDI inflows to GDP in Eastern European countries. Source: UNCTAD.

Figure 2 – IMF financial reform index in Romania (1996-2006)



Source: IMF financial reform index from Abiad et al.(2008).

Figure 3 – IMF financial reform index by industry: change between 1998-2006



Source: author’s calculation based on IMF financial reform index for Romania from Abiad et al.(2008) and input-output tables from EUROSTAT.

Table 2 – Foreign-premia

| | Log. of firm TFP | | Log. of firm wages | |
|--------------------------------|---------------------|---------------------|---------------------|---------------------|
| | (1) | (2) | (3) | (4) |
| Foreign(i) | 0.663*** (0.018) | | 0.479*** (0.015) | |
| Foreign DC(i) | | 0.723*** (0.019) | | 0.536*** (0.016) |
| foreign LDC(i) | | 0.217*** (0.048) | | 0.058** (0.029) |
| Industry 2 digit fixed effects | yes | yes | yes | yes |
| Year fixed effects | yes | yes | yes | yes |
| Observations | 29085 | 29085 | 29085 | 29085 |
| R^2 | 0.214 | 0.217 | 0.238 | 0.244 |

Notes: The dependent variable is the logarithm of firm i 's total factor productivity in year t in columns (1) and (2) and wages in columns (3) and (4). $Foreign(i)$ is a dummy variable equal to one if the firm has more than 10 percent of foreign capital. $Foreign DC(i)$ is a dummy variable equal to one if the firm has more than 10 percent of foreign capital from developed countries and $Foreign LDC(i)$ from less developed economies. Less developed countries correspond to non high-income countries, defined by the World Bank as countries with 2007 per-capita GNIs under 11,456 computed in U.S. dollars using the Atlas conversion factor. Heteroskedasticity-robust standard errors clustered by industry-year level are reported in parentheses. ***, **, and * indicate significance at the 1, 5 and 10 percent levels respectively.

Table 3 – Baseline specification

| Dependent variable | Logarithm of wages paid by firm i in year t | | | | | |
|---------------------------------------|---|--------------------|----------------------|----------------------|----------------------|----------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Financial Index(s)(t-1) | 0.576*** (0.193) | 0.443** (0.187) | 0.419** (0.186) | 0.418** (0.186) | 0.375* (0.191) | 0.372* (0.190) |
| Financial Index (s)(t-1) × Foreign(i) | | 0.584** (0.249) | 0.560** (0.248) | 0.694*** (0.247) | 0.595** (0.245) | 0.591** (0.246) |
| Age(i)(t-1) | | | | -0.097*** (0.026) | -0.091*** (0.026) | -0.091*** (0.026) |
| TFP(i)(t-1) | | | | | 0.121*** (0.007) | 0.121*** (0.007) |
| Medium(i)(t-1) | | | | | -0.015 (0.014) | -0.015 (0.014) |
| Large(i)(t-1) | | | | | 0.052*** (0.015) | 0.052*** (0.015) |
| Capital(i)(t-1) | | | | | | 0.006 (0.006) |
| Size(s)(t-1) | | | -0.102*** (0.013) | -0.101*** (0.013) | -0.090*** (0.013) | -0.090*** (0.013) |
| Capital intensity(s)(t-1) | | | 0.000*** (0.000) | 0.000*** (0.000) | 0.000*** (0.000) | 0.000*** (0.000) |
| Herfindhal(s)(t-1) | | | -0.031* (0.017) | -0.030* (0.017) | -0.028* (0.017) | -0.028* (0.017) |
| Firm fixed effects | yes | yes | yes | yes | yes | yes |
| Year fixed effects | yes | yes | yes | yes | yes | yes |
| Observations | 26,346 | 26,346 | 26,346 | 26,346 | 26,346 | 26,346 |
| R-squared | 0.245 | 0.245 | 0.249 | 0.250 | 0.266 | 0.266 |

Notes: The regressions are OLS estimations of equation (I) for the period 1998-2006. The dependent variable is the logarithm of firm i 's wages in year t . Fixed effects by firm and year and a constant are included in all specifications. Financial reform(s)(t-1) is the weighted IMF financial index at the 2-digit nace industry level. *Foreign(i)* is a dummy variable equal to one if the firm has more than 10 percent of foreign capital. *Size(s)(t-1)* and *Capital intensity(s)(t-1)* variables are the median employment and capital intensity (capital stock over total employment) of the industry s in year $t-1$. *Herfindhal(s)(t-1)* measures the concentration of sales at the industry level. *TFP(i)(t-1)* is firm total factor productivity measured using the semi-parametrical estimator developed by Levinshon and Petrin (2003). *Medium(i)(t-1)* and *Large(i)(t-1)* are indicator variables measuring the size of the firm based on total employment. The omitted category is small firms. Heteroskedasticity-robust standard errors clustered by industry-year pairs are reported in parentheses. ***, **, and * indicate significance at the 1, 5 and 10 percent levels respectively.

Table 4 – Disentangling the origin of foreign-owned firms

| Dependent variable | Logarithm of wages paid by firm i in year t | | | | | |
|---|---|--------------------|----------------------|----------------------|----------------------|----------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Financial reform(s)(t-1) | 0.444** (0.188) | 0.420** (0.186) | 0.420** (0.186) | 0.399** (0.191) | 0.377* (0.191) | 0.375* (0.191) |
| Financial reform(s)(t-1) × Foreign DC(i) | 0.580** (0.247) | 0.554** (0.246) | 0.687*** (0.245) | 0.609** (0.244) | 0.582** (0.244) | 0.578** (0.244) |
| Financial reform(s)(t-1) × Foreign LDC(i) | 0.653 (0.558) | 0.649 (0.557) | 0.807 (0.552) | 0.837 (0.587) | 0.806 (0.589) | 0.800 (0.589) |
| Age(i)(t-1) | | | -0.097*** (0.026) | -0.096*** (0.027) | -0.091*** (0.026) | -0.091*** (0.026) |
| TFP(i)(t-1) | | | | 0.122*** (0.007) | 0.121*** (0.007) | 0.121*** (0.007) |
| Medium(i)(t-1) | | | | | -0.015 (0.014) | -0.015 (0.014) |
| Large(i)(t-1) | | | | | 0.052*** (0.015) | 0.052*** (0.015) |
| Capital(i)(t-1) | | | | | | 0.006 (0.006) |
| Industry level controls | no | yes | yes | yes | yes | yes |
| Firm fixed effects | yes | yes | yes | yes | yes | yes |
| Year fixed effects | yes | yes | yes | yes | yes | yes |
| Observations | 26346 | 26346 | 26346 | 26346 | 26346 | 26346 |
| R^2 | 0.245 | 0.249 | 0.250 | 0.266 | 0.266 | 0.266 |

Notes: The regressions are OLS estimations of equation (I) for the period 1998-2006. The dependent variable is the logarithm of firm i 's wages in year t . Fixed effects by firm and year and a constant are included in all specifications. Financial reform(s)(t-1) is the weighted IMF financial index at the 2-digit nace industry level. Foreign DC(i) is a dummy variable equal to one if the firm has more than 10 percent of foreign capital from developed countries and Foreign LDC(i) from less developed economies. Less developed countries correspond to non high-income countries, defined by the World Bank as countries with 2007 per-capita GNIs under 11,456 computed in U.S. dollars using the Atlas conversion factor. The table includes the same firm level control variables as in the baseline specification. Heteroskedasticity-robust standard errors clustered by industry-year pairs are reported in parentheses. ***, **, and * indicate significance at the 1, 5 and 10 percent levels respectively.

Table 5 – Controlling for trade liberalization

| Dependent variable | Logarithm of wages paid by firm i in year t | | | | | |
|---|---|--------------------|--------------------|--------------------|--------------------|--------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Financial reform(s)(t-1) | 0.295 (0.194) | 0.295 (0.194) | 0.297 (0.193) | 0.298 (0.195) | 0.298 (0.195) | 0.299 (0.193) |
| Financial reform(s)(t-1) × Foreign(i) | 0.615** (0.245) | 0.614** (0.245) | 0.600** (0.255) | | | |
| Financial reform(s)(t-1) × Foreign DC(i) | | | | 0.598** (0.243) | 0.598** (0.243) | 0.588** (0.253) |
| Financial reform(s)(t-1) × Foreign LDC(i) | | | | 0.869 (0.609) | 0.868 (0.608) | 0.780 (0.616) |
| Tariff(s)(t-1) | | 0.016 (0.140) | 0.026 (0.125) | | 0.016 (0.140) | 0.026 (0.125) |
| Tariff(s)(t-1) × Foreign(i) | | | -0.056 (0.267) | | | |
| Tariff(s)(t-1) × Foreign DC(i) | | | | | | -0.085 (0.268) |
| Tariff(s)(t-1) × Foreign LDC(i) | | | | | | 0.463 (0.461) |
| Firm level controls | yes | yes | yes | yes | yes | yes |
| Industry level controls | yes | yes | yes | yes | yes | yes |
| Firm fixed effects | yes | yes | yes | yes | yes | yes |
| Year fixed effects | yes | yes | yes | yes | yes | yes |
| Observations | 21,364 | 21,364 | 21,364 | 21,364 | 21,364 | 21,364 |
| R-squared | 0.212 | 0.212 | 0.212 | 0.212 | 0.212 | 0.213 |

Notes: The regressions are OLS estimations of equation (I) for the period 1998-2006. The dependent variable is the logarithm of firm i 's wages in year t . Fixed effects by firm and year and a constant are included in all specifications. Financial reform (s)(t-1) is the weighted IMF financial index at the 2-digit nace industry level. *ForeignDC(i)* is a dummy variable equal to one if the firm has more than 10 percent of foreign capital from developed countries and *ForeignLDC(i)* from less developed economies. Less developed countries correspond to non high-income countries, defined by the World Bank as countries with 2007 per-capita GNIs under 11,456 computed in U.S. dollars using the Atlas conversion factor. *Tariff(s)(t-1)* is the effectively applied import tariffs at the NACE 4 digit product level from World Bank (WITS). The table includes the same firm level control variables as in the baseline specification. Heteroskedasticity-robust standard errors clustered by industry-year pairs are reported in parentheses. ***, **, and * indicate significance at the 1, 5 and 10 percent levels respectively.

Table 6 – Industry trends

| Dependent variable | Logarithm of wages paid by firm i in year t | | | |
|--|---|--------------------|--------------------|--------------------|
| | (1) | (2) | (3) | (4) |
| Financial reform(s)(t-1) \times Foreign(i) | 0.532** (0.259) | 0.547** (0.257) | | |
| Financial reform(s)(t-1) \times Foreign DC(i) | | | 0.525** (0.257) | 0.532** (0.256) |
| Financial reform(s)(t-1) \times Foreign LDC(i) | | | 0.629 (0.563) | 0.771 (0.599) |
| Firm level controls | no | yes | no | yes |
| Industry-year fixed effects | yes | yes | yes | yes |
| Firm fixed effects | yes | yes | yes | yes |
| Observations | 26346 | 26346 | 26346 | 26346 |
| R^2 | 0.253 | 0.270 | 0.253 | 0.270 |

Notes: The regressions are OLS estimations of equation (I) for the period 1998-2006. The dependent variable is the logarithm of firm i 's wages in year t . Fixed effects by firm and year and a constant are included in all specifications. Financial reform(s)(t-1) is the weighted IMF financial index at the 2-digit nace industry level. Foreign DC(i) is a dummy variable equal to one if the firm has more than 10 percent of foreign capital from developed countries and Foreign LDC(i) from less developed economies. Less developed countries correspond to non high-income countries, defined by the World Bank as countries with 2007 per-capita GNIs under 11,456 computed in U.S. dollars using the Atlas conversion factor. The table includes the same firm level control variables as in the baseline specification. Heteroskedasticity-robust standard errors clustered by industry-year pairs are reported in parentheses. ***, **, and * indicate significance at the 1, 5 and 10 percent levels respectively.

Table 7 – Alternative weights

| Dependent variable | Logarithm of wages paid by firm i in year t | | | |
|--|---|---------------------|---------------------|---------------------|
| | (1) | (2) | (3) | (4) |
| Financial Reform IO US(s)(t-1) | 0.750 (1.011) | | 0.750 (1.010) | |
| Financial Reform IO US(s)(t-1) \times Foreign(i) | 1.443*** (0.385) | 1.285*** (0.390) | | |
| Financial Reform IO US(s)(t-1) \times Foreign DC(i) | | | 1.462*** (0.399) | 1.289*** (0.405) |
| Financial Reform IO US(s)(t-1) \times Foreign LDC(i) | | | 1.254* (0.739) | 1.238 (0.751) |
| Firm level controls | yes | yes | yes | yes |
| Industry level controls | yes | | yes | |
| Firm fixed effects | yes | yes | yes | yes |
| Year fixed effects | yes | | yes | |
| Industry-year fixed effects | | yes | | yes |
| Observations | 24,767 | 24,767 | 24,767 | 24,767 |
| R-squared | 0.270 | 0.274 | 0.270 | 0.274 |

Notes: The regressions are OLS estimations of equation (I) for the period 1998-2006. The dependent variable is the logarithm of firm i 's wages in year t . Fixed effects by firm and year and a constant are included in all specifications. Financial reform IO US(s)(t-1) is the weighted IMF financial index at the 2-digit nace industry level, using as weights US IO tables. *ForeignDC(i)* is a dummy variable equal to one if the firm has more than 10 percent of foreign capital from developed countries and *ForeignLDC(i)* from less developed economies. Less developed countries correspond to non high-income countries, defined by the World Bank as countries with 2007 per-capita GNIs under 11,456 computed in U.S. dollars using the Atlas conversion factor. The table includes the same firm and industry level control variables as in the baseline specification. Heteroskedasticity-robust standard errors clustered by industry-year pairs are reported in parentheses. ***, **, and * indicate significance at the 1, 5 and 10 percent levels respectively.

Table 8 – Rajan and Zingales measures

| Dependent variable | Logarithm of wages paid by firm i in year t | | | | | |
|---|---|---------|---------|---------|---------|---------|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Financial (t-1)× External dependence(s)× Foreign(i) | 2.052* | | | | | |
| | (1.046) | | | | | |
| Financial (t-1)× External dependence(s)× Foreign DC(i) | | 1.974* | | | | |
| | | (1.054) | | | | |
| Financial (t-1)× External dependence(s)× Foreign LDC(i) | | 3.168 | | | | |
| | | (2.926) | | | | |
| Financial(t-1)× Liquidity needs(s)× Foreign(i) | | | 5.347** | | | |
| | | | (2.329) | | | |
| Financial(t-1)× Liquidity needs(s)× Foreign LDC(i) | | | | 5.366** | | |
| | | | | (2.412) | | |
| Financial(t-1)× Liquidity needs(s)× Foreign DC(i) | | | | 5.143 | | |
| | | | | (5.373) | | |
| Financial(t-1)× Asset Tangibility(s)× Foreign(i) | | | | | 2.511** | |
| | | | | | (1.052) | |
| Financial(t-1)× Asset Tangibility(s)× Foreign DC(i) | | | | | | 2.482** |
| | | | | | | (1.044) |
| Financial(t-1)× Asset Tangibility(s)× Foreign LDC(i) | | | | | | 3.232 |
| | | | | | | (2.083) |
| Firm level controls | yes | yes | yes | yes | yes | yes |
| Firm fixed effects | yes | yes | yes | yes | yes | yes |
| Industry-year fixed effects | yes | yes | yes | yes | yes | yes |
| Observations | 16,076 | 16,076 | 16,076 | 16,076 | 16,076 | 16,076 |
| R-squared | 0.284 | 0.284 | 0.284 | 0.284 | 0.284 | 0.284 |

Notes: The regressions are OLS estimations of equation (1) for the period 1998-2006. The dependent variable is the logarithm of firm i 's wages in year t . Fixed effects by firm and year-industry pairs and a constant are included in all specifications. Financial reform(t-1) is the IMF financial index. External dependence(s), Liquidity needs(s) and Asset Tangibility(s) are measures of the sector financial vulnerability for the US provided by Braun (2002) and Braun and Larrain (2005). *ForeignDC(i)* is a dummy variable equal to one if the firm has more than 10 percent of foreign capital from developed countries and *ForeignLDC(i)* from less developed economies. Less developed countries correspond to non high-income countries, defined by the World Bank as countries with 2007 per-capita GNIs under 11,456 computed in U.S. dollars using the Atlas conversion factor. The number of observations is now reduced since the financial resources measures of the US are not available for all NIC 2-digit sectors. The table includes the same firm level control variables as in the baseline specification. Heteroskedasticity-robust standard errors clustered by industry-year pairs are reported in parentheses. ***, **, and * indicate significance at the 1, 5 and 10 percent levels respectively.

Table 9 – Foreign firms, financial reform and value added

| Dependent variable | Logarithm of value added of firm i in year t | | | | | |
|---|--|---------------------|---------------------|---------------------|---------------------|---------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Financial reform(s)(t-1) | 0.183 (0.313) | 0.172 (0.311) | | 0.174 (0.313) | 0.163 (0.311) | |
| Financial reform(s)(t-1) × Foreign(i) | 0.697*** (0.220) | 0.689*** (0.226) | 0.855*** (0.219) | | | |
| Financial reform(s)(t-1) × Foreign DC(i) | | | | 0.749*** (0.232) | 0.740*** (0.237) | 0.913*** (0.228) |
| Financial reform(s)(t-1) × Foreign LDC(i) | | | | -0.093 (0.652) | -0.109 (0.659) | -0.021 (0.652) |
| Firm level controls | no | yes | yes | no | yes | yes |
| Industry level controls | yes | yes | | yes | yes | |
| Firm fixed effects | yes | yes | yes | yes | yes | yes |
| Year fixed effects | yes | yes | | yes | yes | |
| Industry-year fixed effects | | | yes | | | yes |
| Observations | 26346 | 26346 | 26346 | 26346 | 26346 | 26346 |
| R^2 | 0.347 | 0.348 | 0.354 | 0.348 | 0.348 | 0.354 |

Notes: The regressions are OLS estimations of equation (I) for the period 1998-2006. The dependent variable is the logarithm of firm i 's value added in year t . Fixed effects by firm and year and a constant are included in all specifications. Financial reform(s)(t-1) is the weighted IMF financial index at the 2-digit nace industry level. Foreign DC(i) is a dummy variable equal to one if the firm has more than 10 percent of foreign capital from developed countries and Foreign LDC(i) from less developed economies. Less developed countries correspond to non high-income countries, defined by the World Bank as countries with 2007 per-capita GNIs under 11,456 computed in U.S. dollars using the Atlas conversion factor. The table includes the same industry level control variables as in the baseline specification. Heteroskedasticity-robust standard errors clustered by industry-year pairs are reported in parentheses.***, **, and * indicate significance at the 1, 5 and 10 percent levels respectively.

Table 10 – Foreign firms, financial reform and TFP

| Dependent variable | Logarithm of firm TFP i in year t | | | | | |
|--|---------------------------------------|--------------------|---------------------|--------------------|--------------------|---------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Financial reform(s)(t-1) | 0.182 (0.312) | 0.165 (0.309) | | 0.173 (0.312) | 0.156 (0.309) | |
| Financial reform(s)(t-1) \times Foreign(i) | 0.567** (0.237) | 0.587** (0.238) | 0.763*** (0.231) | | | |
| Financial reform(s)(t-1) \times Foreign DC(i) | | | | 0.621** (0.254) | 0.640** (0.253) | 0.823*** (0.244) |
| Financial reform(s)(t-1) \times Foreign LDC(i) | | | | -0.267 (0.727) | -0.233 (0.737) | -0.150 (0.725) |
| Firm level controls | no | yes | yes | no | yes | yes |
| Industry level controls | yes | yes | | yes | yes | |
| Firm fixed effects | yes | yes | yes | yes | yes | yes |
| Year fixed effects | yes | yes | | yes | yes | |
| Industry-year fixed effects | | | yes | | | yes |
| Observations | 26346 | 26346 | 26346 | 26346 | 26346 | 26346 |
| R^2 | 0.287 | 0.288 | 0.294 | 0.287 | 0.288 | 0.294 |

Notes: The regressions are OLS estimations of equation (I) for the period 1998-2006. The dependent variable is the logarithm of firm i 's TFP in year t . Fixed effects by firm and year and a constant are included in all specifications. Financial reform(s)(t-1) is the weighted IMF financial index at the 2-digit nace industry level. Foreign DC(i) is a dummy variable equal to one if the firm has more than 10 percent of foreign capital from developed countries and Foreign LDC(i) from less developed economies. Less developed countries correspond to non high-income countries, defined by the World Bank as countries with 2007 per-capita GNIs under 11,456 computed in U.S. dollars using the Atlas conversion factor. The table includes the same industry level control variables as in the baseline specification. Heteroskedasticity-robust standard errors clustered by industry-year pairs are reported in parentheses.***,**, and * indicate significance at the 1, 5 and 10 percent levels respectively.

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