# Who's Afraid of a Globalized World? Foreign Direct Investments, Local Knowledge and Allocation of Talents*

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**Abstract**

We study the distributional effects of globalization within a model of heterogeneous agents where both managerial talent and knowledge of the *local* economic environment are required in order to set up a firm in a given country. Therefore, agents willing to set up a firm in a foreign country need to incur a learning cost that depends on how different is the foreign entrepreneurial environments from the domestic one. In this context, we show that globalization fosters FDI and raises wages, output and productivity. Moreover, it benefits workers and highly talented multinational entrepreneurs, while harming low-ability domestic producers. The effects of openness follow from highly efficient foreign entrepreneurs driving inefficient local firms out of the market. We provide empirical evidence consistent with the implications of the model, showing a significant negative effect of the distance between nationwide regulations indexes on bilateral FDI flows.

**JEL Classification**: E61-F23-F41.
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# 1 Introduction

Foreign Direct Investments (FDI) are one of the predominant and most debated features of globalization. FDI grew dramatically in the last 15 years of the 20th century, far outpacing the growth of trade and income: whereas world-wide real GDP increased at a rate of 2.5 percent per year between 1985 and 1999 and world-wide exports by 5.6 percent, world-wide real inflows of FDI increased by 17.7 percent. Another salient feature of FDI is that they take place mostly between developed countries, i.e. between countries that are similar in terms of natural endowments and relative supply of inputs. For the period 1970-2000, Barba Navaretti and Venables (2004) report that more than 90% of outward flows of FDI originates from advanced countries. Over the same period, the share of the world FDI inflows directed to developed countries ranges between 58 and 78 percent.[1] Moreover, a growing body of empirical evidence is pointing to the existence of a positive effect of FDI inflows on wages and productivity. Baldwin, Braconier and Forslid (1999) show that FDI positively affect wages using industry-level data for seven OECD countries. Keller and Yeaple (2003) provide firm-level evidence from the US showing that FDI spillovers account for about 14% of productivity growth in U.S. firms between 1987 and 1996. Javorcik (2004) provides similar evidence for Lithuania.[2]

In this paper, we build a very simple general equilibrium model that provides an encompassing explanation of these facts and, at the same time, allows to study the distributional effects of globalization through FDI. In fact, even though there is a general consensus that the process of globalization is bound to be in the long-run welfare improving, it may still produce winners and losers if appropriate transfer schemes are not available. This issue, despite its obvious relevance, has been so far hardly analyzed in the literature.

To this aim, we consider a world of heterogeneous agents where both managerial talent and knowledge of the local economic environment are required in order to set up a firm and earn positive profits. The main trade-off that arises in the model depends on how individuals with different abilities are allocated to different types of jobs available in the economy.

To be more specific, a first key feature of the model is that agents with different levels of managerial ability are allowed to choose their occupation, i.e. whether to become entrepreneurs or workers. Those who become entrepreneurs may, in turn, engage in FDI, i.e. set up a firm abroad. However, in order to become a successful entrepreneur in a given country, managerial ability is not sufficient: some *knowledge* of the local economic environment is also required. A second key feature of the model is that domestic agents are assumed to know the characteristics of the domestic economic environment (e.g. domestic consumers' tastes) while they ignore the characteristics of the foreign economic environment and have to *learn* them if they want to profitably set up a firm abroad. Thus, both managerial ability *and* nationality contribute to determine career choices. The idea is that a certain level of managerial talent, though allowing

[1] Surprisingly, economic theory has been geared mainly towards explaining flows of capital (and goods) among countries that are different. This is clearly the case for Ricardian and Heckscher-Ohlinean models while "new-trade" models *à la* Krugman explain intraindustry trade and investment flows between economies that are *ex-ante* similar and *ex-post* different: increasing returns to scale favor specialization and concentration of production (and, thus, trade). Locations are *ex-post* different because, once specialization has taken place as the consequence of increasing returns, different varieties are produced in each country.

[2] See Lipsey (2002) for a review of the micro evidence on the home and host country effects of FDI.

agents to profitably produce within the economic domestic environment, may be of little help when setting up a firm abroad. The more so, the more different the foreign and the domestic economic environments. This *distance* between entrepreneurial environments is the only explicit barrier to capital movements that matters in the model. It may be overcome only at the cost of learning how the foreign environment works. Of course, in equilibrium, only the most talented entrepreneurs have incentives to pay the learning cost and produce abroad. Thus, the model endogenously determines the allocation of talents between (domestic and international) entrepreneurial activity and salaried work. It follows that the pattern of FDI flows and the levels of Total Factor Productivity (TFP), GDP and wages depend on how efficiently talents are allocated. Talent allocation, in turn, depends on how hard it is to learn how to deal with the foreign entrepreneurial environment. A lower distance between entrepreneurial environments reduces the learning cost and raises the inflow of foreign-owned firms into the local market. This increases local wages and makes the entrepreneurial activity less profitable, driving a fraction of low-ability domestic entrepreneurs out of the market. This general equilibrium effect improves the allocation of talents and increases both TFP and GDP. On the contrary, a larger distance between entrepreneurial environments protect low-ability entrepreneurs from foreign competitors and reduce output, wages and TFP.

Summing up, this paper makes the following three points.

1. Globalization, by reducing the distance between entrepreneurial environments (for example, by making consumers' taste more homogeneous throughout the world), raises aggregate GDP and TFP, by inducing larger FDI flows. The underlying mechanism works through the improved allocation of talents in the economy. Thus, globalization fosters efficiency.

2. Globalization has large distributional effects. The individuals with the lowest level of entrepreneurial talent (who choose to become workers independently of the level of globalization) and the individuals with the highest level of talent (who choose to become multinational entrepreneurs if the degree of globalization is high enough) are better off in a fully globalized universe, i.e. an universe where the learning cost is zero and therefore GDP, TFP and wages are largest.
   Differently, the individuals with an "intermediate" level of talent (i.e. local entrepreneurs who never choose to engage in FDI and may be even driven out of the entrepreneurial activity if the degree of globalization is high enough) prefer to live in a non-globalized universe. The reason is that, in a globalized world, they pay the cost of tougher competition without enjoying the benefits of accessing to wider markets. Only in a non-globalized world they survive as entrepreneurs as they are sheltered from foreign competitors.

3. Finally, in our model, a lower cross-country distance between entrepreneurial environments raises the volume of bilateral FDI flows. We test this prediction against the data. We proxy the entrepreneurial environment using OECD and the World Bank indexes that measure the level of Product Market Regulation. We match these data with data on bilateral FDI flows drawn from the *OECD International Direct Investment Statistics*.
   Our empirical specification lies in the tradition of gravity models with an additional ex-

planatory variable: the *absolute value* of the difference between the source and host country indexes of regulation. We find that, controlling for the *level* of regulation in both countries, countries fixed effects, time effects, countries GDP and a set of geographical variables, the coefficient of the variable capturing regulation proximity is negative and in most cases significant. We interpret this finding as evidence consistent with the hypothesis that the distance between nationwide regulations contributes to shape the size of bilateral FDI flows. Thus, we find our empirical results suggestive that similarity in entrepreneurial environment fosters FDI.

Even though these points are strictly interrelated, for the sake of clarity it is convenient to discuss them (and relate them to the literature) separately. We do so in section 2. In particular, subsection 2.1 discusses the literature on the determinants of FDI, subsection 2.2 the literature on allocation of talents, and subsection 2.3 the literature on the distributional effects of globalization. The rest of the paper is organized as follows. Section 3 presents the data and shows that cross-country differences in regulation affect FDI flows. Section 4 describes the model economy. Section 5 solves for the closed economy benchmark and section 6 analyzes the framework where entrepreneurs are allowed to set up firms abroad. Finally, section 7 concludes.

# 2 Related Literature

## 2.1 Cross-country differences and FDI

An extensive (theoretical and empirical) literature has studied the factors that drive FDI flows.[3] The key findings may be quickly summarized as follows.

First, a host of institutional, technological and market factors affect firms' decision to set up production facilities in a foreign market.[4] Obvious examples are trade barriers, (firm- vs. plant-level) economies of scale, and market size.[5] Second, larger cross-country factor cost differentials, generated either by differences in productivity or in the relative supply of inputs, are typically associated to larger FDI flows.[6] Third, and more importantly for this paper, *larger* cross-country differences along some well identified dimensions, negatively affect FDI flows. Variables like "smaller physical distance", "sharing a common language" or "sharing a border" significantly contribute to determine the size of bilateral FDI flows in gravity-like empirical models (see Ekholm (1998) and Shatz (2003)). Moreover, Markusen and Maskus (2002) show that the

[3] See among others Horst (1972), Deardorff, (1998), Ekholm (1998), Lipsey (2001), Razin et al. (2003), Shatz (2003).

[4] See Barba Navaretti and Venables (Chap 2, 2004) for an in-depth discussion of the benefits and costs to the firm of FDI.

[5] First, trade barriers encourage *horizontal* FDI, i.e. FDI aimed at serving a local market, while they discourage *vertical* FDI, i.e. FDI aimed at reducing production costs by relocating (part of) the production activities abroad. Second, multinational firms are likely to be characterized by intangible firm-specific assets from which firm-level (as opposed to plant-level) scale economies originate. Finally, most FDI are directed toward large markets: as investing in a given country implies large fixed costs, firms are willing to afford it if perspective sales are sufficiently large (Brainard (1997)).

[6] Vertical FDI, that involve the fragmentation of the production process and the relocation of the most labor intensive technologies to relatively low wage countries, typically exploit factor prices differences. Using US data, Brainard (1993) and Markusen and Maskus (2001) get some support for the relevance of factor market considerations as determinants of FDI.

similarity between host and home factor endowments is one of the main factors driving the location of foreign subsidiaries (together with the size of the host market).

We focus our attention on the third set of determinants of FDI and **(1)** provide an explanation of why smaller cross-country differences (along some *non obvious* dimensions) foster bilateral FDI flows and **(2)** produce new empirical evidence in support of this finding.[7]

In our model countries will not differ in terms of factor endowments. Cross-country differences will rather lie in a factor that we call "entrepreneurial environment". The following statement from Unilever's website helps understanding what we mean by "entrepreneurial environment":

> "Many of our brands have international appeal, while others are leaders in local markets. It is our *keen understanding of cultures and markets* that allows us to anticipate consumers' needs and to provide them with what they need, when they need it." (Unilever, emphasis added)[8]

Broadly speaking, one may think of the entrepreneurial environment as representing the complex set of circumstances, generally different across countries, entrepreneurs need to deal with: identification of consumers' tastes, communication with costumers, relationship with the bureaucracy, comprehension of the legal environment, purchase of inputs, relationship with other firms, setup of the production process (hiring and firing procedures, salary structure, technology choices,...).[9]

Given this, our reasoning is simple: in each country only some agents become entrepreneurs. These are the ones that have a combination of managerial ability and knowledge of the local environment that allows them to profitably produce and sell in the domestic country. However, at least to some extent, knowledge of the local environment also allows to infer the characteristics of the foreign economic environment. The more so the more similar the two countries. It follows that smaller cross-country differences between entrepreneurial environments make it easier for domestic entrepreneurs to set up firms abroad.

While we describe this mechanism in a formal general equilibrium model (sections 5 and 6), our contribution, in this respect, is also empirical. We regress bilateral FDI flows on (a set of controls and) variables that proxy the distance between "entrepreneurial environments". The variables that we use are indexes that measure the cross-country distance between the levels of Product Market Regulation. Usually in empirical works, proximity in "regulations" is not taken into account as one of the possible determinants of FDI. However, our model shows that it should matter. The reason is that national regulations contribute to shape the economic environment, because they typically prescribe to follow particular procedures (e.g. business start-up procedures, administrative rules, safety and health regulations, food regulations). The

[7]The reason why we do not focus on the first two sets of determinants of FDI is twofold. First, the channels through which they shape *Ricardian* (and *"Hecksher-Ohlinean"*) FDI flows are well understood. Second, the overwhelming proportion of FDI is horizontal rather than vertical and this implies that typically FDI do not flow in order to exploit factor price differences.

[8]Cite taken from Barba Navaretti and Venables (2004).

[9]Thus, the entrepreneurial environment is shaped by demand- and supply-side factors. Demand factors are related to the environment of the downstream market where final transactions take place, while supply factors are related to the environment where *production* take place.

more the institutional settings (or any kind of law that imposes to comply with some procedures) are different, the more costly the adaptation process to the new environment and the smaller the incentives to actually run businesses abroad. Thus, rough as it may be, this measure captures (at least part of) the difference between entrepreneurial environments and has the advantage of being easily observable. Interestingly, we find that the coefficient of the variable capturing regulation proximity is negative and typically significant. Thus, similarity in the levels of nationwide regulations does seem to contribute to raise the size of bilateral FDI flows.

We now discuss the role of agents' heterogeneity and how our model relates to the literature on the allocation of talents.

### 2.2 Heterogeneity and Allocation of Talents

Our paper is strictly related to the seminal paper of Melitz (2003), who develops a dynamic industry model with heterogeneous firms to analyze the intra-industry effects of international trade. As in our paper, also in Melitz (2003) only the most efficient firms export and exposure to trade forces the least productive firms to exit the market via higher real wages. The key difference is that in Melitz (2003) heterogeneity is cast at the firm level: consumers are homogeneous and there is no endogenous sorting of agents into jobs. In our paper, firms' heterogeneity stems from the heterogeneity (in managerial talent) of the agents, who are allowed to make career choices. These features of our model allow to stress the role of the (endogenous) mechanism by which exposure to foreign competition improves the allocation of talents and, most importantly, to discuss the distributional implications of globalization.

In order to make the differences between Melitz (2003) and the present paper clear, let us stress (again) the link (absent in Melitz, 2003) between globalization and allocation of talents *via* FDI. As already explained, in our model agents have both different levels of managerial ability and different nationalities. Nationality matters because, given a certain level of managerial ability, it gives an advantage *vis-à-vis* foreign entrepreneurs thanks to a better knowledge of the local economic environment. Once individuals are allowed to make career choices, in each country the pool of entrepreneurs will consist of individuals with *relatively* high entrepreneurial talent. Within the pool of entrepreneurs, only the most talented will set up firms (not only at home but also) abroad. The issue is *how much* talent is required in order to become a local/multinational entrepreneur. It obviously depends on how costly it is to be an entrepreneur and, in particular, on how costly it is to hire labor.

We make a very simple point. Globalization, by reducing the cost of acquiring information about the foreign country, spurs FDI flows, increases the demand for labor and, consequently, raises wages. The increase in wages has two effects. **(1)** It reduces firms' profits, making the entrepreneurial activity less attractive *per se*. **(2)** It increases the opportunity costs of being an entrepreneur, making the alternative choice (be a worker) more attractive. The obvious consequence is that larger FDI flows, by pushing up the cost of labor, drive the least talented domestic producers out of the entrepreneurial activity. Notice that this happens even in the absence of the standard pro-competitive effect of FDI that works through lower prices;[10] only

[10]The competition effect is present in almost all the standard IO-based FDI models, since Horstmann and

the general equilibrium effect, via higher labor demand and higher wages, is at work.

Allocation of talents and FDI flows are therefore strictly related. As only the most efficient entrepreneurs can afford the cost of learning how the foreign economic environment works and engage in FDI, larger FDI flows directly improve the domestic allocation of talents and raise aggregate efficiency. Moreover, the effect on efficiency is further reinforced by the fact that larger FDI flows drive bad domestic entrepreneurs out of the market.

A further point that differentiates this paper from Melitz (2003) is the analysis of the distributional implications of globalization, to which we now turn.

### 2.3 The Effects of Globalization: Winners and Losers

To the best of our knowledge, this is the first paper that uncovers the distributional effects of globalization. For the sake of clarity, let us consider two polar cases. The case of a *Globalized Universe*, where the entrepreneurial environment is identical across locations and therefore nationality is irrelevant; and the case of a *National Universe* where entrepreneurial environments differ and nationality is a relevant characteristic.

**(1)** *Globalized Universe.* In this world only talent matters: learning costs are zero. The most talented individuals become entrepreneurs and there exists a critical level of talent that makes the marginal individual indifferent between being an entrepreneur or a worker. An individual whose entrepreneurial talent lies just below that critical level would choose to be an entrepreneur only if wages were lower, both because profits would be higher and because the worker option would be less attractive.

**(2)** *National Universe.* In this world the entrepreneurial environments are different across countries and learning how the foreign environment works is costly. For the sake of clarity, let us consider the case where the cost of learning how the foreign environment works is infinitely large so that FDI are *de facto* ruled out. In this world only local firms demand labor in the local labor market. Consequently, wages are lower compared to the *Globalized Universe*.

Consider now three individuals. In decreasing order of managerial ability:[11] Ms Capitalistson, Ms Petitbourgeoison and Ms Proletariatson.

The first one (Ms. Capitalistson) has a large degree of entrepreneurial talent. In the *Globalized Universe* she invests both at home and abroad while in the *National Universe* she is a domestic entrepreneur. On the one hand, she likes the *National Universe* because wages are lower and this implies larger domestic profits. On the other hand, she also likes the *Globalized Universe* because of the larger investment possibilities. It turns out that if her talent is large

Markusen (1992). In our model product market competition does *not* increase in the domestic country as a consequence of foreign competition. We rule this effect out by assuming monopolistic competition and Dixit-Stiglitz preferences.

[11] By managerial ability we mean any individual characteristic that helps being a successful entrepreneur. Talent is one, though not the only one. The ability of raising funds in a world with capital market imperfections is certainly another; in that case having wealthy parents would be akin to being more talented. In this paper we will consider managerial ability as exogenous and independent of the economic environment (the degree of competition, etc.). To see a model where this is not the case (i.e., where the contributions of talent and family background depend on equilibrium outcomes) see Hassler and Rodríguez Mora (2000). In any case, there is nothing offensive about having less managerial talent in our model.

enough she prefers the *Globalized Universe*.

The second one (Ms. Petitbourgeoison) has a lower degree of entrepreneurial ability. Her talent level is such that, in the *Globalized Universe*, she (slightly) prefers to be a worker. Therefore, in the *National Universe* where wages are lower, she chooses to become entrepreneur. Thus, globalization expels her from the entrepreneurial activity and makes her strictly worse off.[12] The intuition is simple: from an entrepreneur's point of view, globalization is beneficial insofar it allows to gain access to larger markets. Low-ability entrepreneurs lose from globalization because tougher competition drives them out of the market and prevents them from reaping the benefits of accessing to larger markets.

Finally, Ms. Proletariatson has even lower entrepreneurial abilities. So low that she chooses to be a worker independently of the world (*Globalized* or *National*) where she happens to live. It follows that she prefers to live in the *Globalized Universe*, where wages are higher.

Thus, in a national world differences in entrepreneurial environments shelter inefficient firms. Even if there is no direct pro-competition effect of FDI, the general equilibrium effect on the labor market is sufficient to expel mediocre entrepreneurs as differences in the environments become smaller. Our model predicts that the middle-ability class (i.e. local entrepreneurs that would not invest abroad anyway) always supports localisms and regional fragmentation while the end-tails of the ability distribution (i.e. workers and producers willing to engage in FDI) would rather live in a globalized universe.[13]

# 3 Cross Countries Differences and FDI

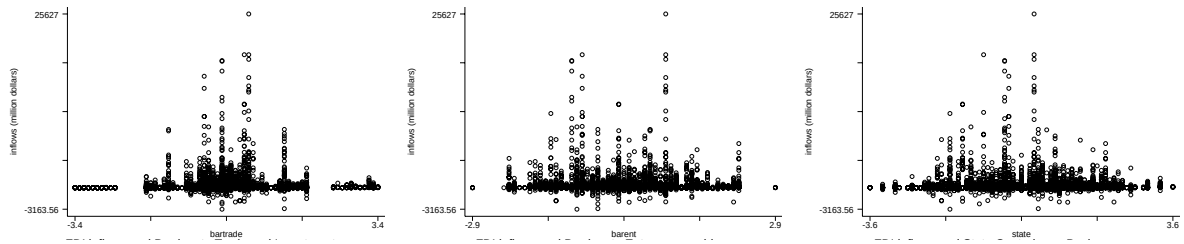
The argument presented above (formally presented in the model outlined in section 4) implies that a lower cross-country distance between economic environments leads to higher bilateral FDI flows, because it reduces the cost of learning how to deal with the foreign entrepreneurial environment. This sections provides empirical evidence in this direction. Specifically, it shows a negative relation between bilateral FDI flows and variables that proxy the cross-country distance between entrepreneurial environments.

From an empirical point of view, a major difficulty is that the "distance between entrepreneurial environments" is difficult to measure. A good proxy, however, may be represented by the different levels (and types) of regulations implemented in different countries. The idea is that regulation, along its several dimensions, is one of the key determinants, although of course not the only one, of the entrepreneurial environment. Thus, our working hypothesis will be that cross-country differences in the extent of regulation translate into differences in entrepreneurial environments. To conduct the analysis, we exploit two datasets, collected by the OECD and the World Bank, providing country-level regulations indexes and data on bilateral FDI flows.

Panel (a) in figure 1 displays on the horizontal axis the difference between country $i$ and country $j$ index of *Barriers to International Trade and Investment* in the late 90's, as measured

[12] To see that Ms. Petitbourgeoison is strictly worse off under globalization notice that she is almost indifferent between career choices in the *Globalized Universe* and becomes entrepreneur in the *National Universe*. Lower wages imply that entrepreneurial profits are larger in a *National world*, so she must be better off in such a world.

[13] Section 6.4 elaborates more on this point.




(a) Barriers to International Trade and Investment

(b) Barriers to Entrepreneurship

(c) State Control over Business Enterprises

Figure 1: Plots of the regulatory distances between countries $i$ and $j$ against the FDI flows from country $j$ to country $i$ (1980-1997).

by the OECD, and on the vertical axis the flow of FDI from country $j$ to country $i$ (from 1980 to 1997). The graph shows that bulk of FDI flows lies in the area where the difference between regulations is close to zero. The smaller the difference between regulations, the larger and the more frequent the bilateral flows of FDI. Panel (b) in figure 1 uses a different measure of regulation, *Barriers to Entrepreneurship*, on the horizontal axis. On the vertical axis, as before, the flow of FDI from country $j$ to country $i$. Again, a smaller difference between regulations tends to be associated with larger bilateral FDI flows. Finally, Panel (c) in figure 1 considers as a third measure of regulation the extent of *state control over business enterprises*. Also this graph shows the "triangular" pattern as the previous ones.

These graphs suggest that FDI do *not* flow from more regulated countries (where one would tend to think that the rewards from capital are low[14]) to less regulated economies where one would think that the rewards from capital are high. If this was the case, we would observe much larger and frequent FDI flows when the difference between the regulation indexes is negative. Rather, it seems that smaller differences in regulations tend to be associated with larger bilateral FDI flows.[15]

Before moving to the regression-based evidence we turn to the description of the data.

### 3.1 The Data

The data on FDI are drawn from the *OECD International Direct Investment Statistics* that provides yearly statistics for OECD countries on international direct investment flows (inflows, outflows) by geographical distribution, i.e. to and from partner countries and regions from 1980 to 1997. Data are provided in national currency and have been converted to US dollars using yearly average exchange rates.

As control variables we use GDP, from the *OECD Main Economic Indicators*, population

[14]Unless, of course, regulated countries are poor and have a high marginal productivity of capital. In this case we should expect these countries to enjoy net FDI inflows. Our point is that, *in addition to this effect*, the flows seem to depend negatively on the regulatory *distance*.

[15]One alternative explanation may be that the negative relation between differences in regulations and FDI flows is due to the fact that FDI take place mostly among (rich) non regulated countries that have *similar* regulation levels. If this was the case, what would actually foster bilateral FDI is not the regulation proximity between countries but, rather, their low regulation levels. The empirical analysis that follows controls for the *level* of regulation and GDP in each country and therefore allows to reject this hypothesis.

from the Penn World Tables, and a set of geographic variables that includes: latitude and longitude of the source and host country; an adjacency dummy (i.e. if countries share common land borders); a linguistic tie dummy (i.e. if countries share a common language); distance between (the main cities of the) countries; European Union, North America and Asian dummies; a NAFTA dummy. The geographical variables are drawn from Frankel, Stein and Wei (1995) and Frankel and Wei (1998).

Finally, we exploit variables capturing the level of different types of regulation implemented in different countries. We use two sets of such variables, one from the OECD (Nicoletti et al. (2000)) and one from the World Bank (available at `http://www.doingbusiness.org/`).

The OECD dataset consists of indexes measuring the extent of Product Market Regulation in a number of OECD countries during the 90's. It provides both an overall index of Product Market Regulation and a set of sub-indexes measuring the extent of regulation along particular dimensions, namely *Barriers to international trade and investment*, *Barriers to entrepreneurship*, *State control over business enterprises*, *Administrative regulations*, *Economic regulation*. Of particular interest for our purposes are the indexes capturing mostly administrative burdens and red tape costs (*Administrative regulations* and *Barriers to entrepreneurship*), i.e. all those bureaucratic procedures whose *knowledge* is an essential prerequisite in order to be able to set up a firm in a (foreign) country. In what follows we will be exploiting the whole set of sub-indexes. Though some of them are clearly highly correlated, others, like *Administrative regulations* and *Barriers to international trade and investment* display very low correlation (see Table 2 in the appendix).

The World Bank, on the other side, provides a comprehensive database, called *Doing Business*, collecting information on business regulations and their enforcement, especially on small- and medium-size domestic firms, for 145 countries. The dataset we exploit refers to January 2004. The available indicators cover seven major areas, namely Starting a Business, Hiring and Firing, Registering Property, Getting Credit, Protecting Investors, Enforcing Contracts, and Closing a Business. For each of them different indexes are provided. Some indicators (like *Number of procedures to register a business* or *Index of employment law rigidity*) aim at measuring the effect of *actual* regulation on businesses, while others (such as *Time and cost to register a business, enforce a contract, or go through bankruptcy*) are measures of regulatory *outcomes*. Table 3, in the appendix, displays the full set of available variables.

Of course, these measures of regulation are far from perfect. Ideally, one would like to have time-varying information on whether regulations are *qualitatively* different among countries rather than just *quantitatively* different. The problem may be that two countries where the number of procedures to start up a business is the same may require very different tasks to be complied with. However, since quantitative differences in the amount of regulation plausibly come together with qualitative differences, these data allow to capture, at least partially, qualitative differences as well.

### 3.2 Empirical Results

In order to check whether the patterns highlighted by the graphical analysis are robust to a more thorough empirical analysis, we run a battery of regressions in the tradition of gravity models, adding additional explanatory variables like the regulation *level* and the *absolute value of the difference* between the source and host country indexes of regulation.

We estimate the following model:

$$F_{ijt} = \alpha_i + \tau_t + X_{ijt}\beta + \gamma|reg_i - reg_j| + \varepsilon_{ijt} \quad (1)$$

where $F_{ijt}$ is the FDI flow from country $j$ (the source) to country $i$ (the host) at time $t$, as a share of the GDP of the host country; $\alpha_i$ is a (host) country fixed effect; $\tau_t$ is a year effect; the vector $X_{ijt}$ includes variables, such as the source and host countries GDP (in US dollars); the source and host countries population; the latitude and longitude of the source country;[16] the distance between the main cities of the two countries. Dummy variables are included to control for country $i$ and $j$ sharing the same language; sharing common land borders; both belonging to the European Union; being both located in North America; being both located in Asia; both belonging to the NAFTA. These geographical variables are meant to capture the proximity-concentration trade-off (Brainard (1997)).

Finally, we control for the *level* of regulation in both the host and source country by exploiting a time-varying index of Employment Protection Legislation measured (Nicoletti et al. (2000)) in 1990 and 1998. This is the only available measure of regulation that varies over time. It allows to control for the level of regulation also in the host country where non time-varying characteristics are otherwise captured by the fixed effect.[17]

Controlling for the level of regulation, the coefficient $\gamma$ captures exclusively the effect of *regulation proximity*, as measured by the absolute value of the difference between regulation indexes, on FDI bilateral flows.

We perform our analysis on a set of 22 countries, for which we have data on both regulation indexes and FDI flows, listed in Table 1 (see appendix). Tables 4, 5, 6 and 7 report the results of the estimation.

**Table 4: results using the OECD regulation data**

Table 4 presents the results from the estimation of equation (1) obtained exploiting the OECD regulation variables. Columns A–H report the results of eight alternative specifications differing in the measure of regulation proximity included on the right hand side. In column A we use the overall index of Product Market Regulation and, from column B to column H, we exploit the sub-indexes that focus on particular dimensions of product market regulation. In each specification, the regulation *levels* of the source and host country are controlled for by the time-varying regulation measure of EPL described above.

The first two rows of table 4 report the coefficients of the regulation levels that have, as

[16] The latitude and longitude of the host country, as well as any other non time-varying characteristic of the host country, are captured by the fixed country effect $\alpha_i$.

[17] Results are unchanged if one controls for the regulation level exploiting other measures of regulation.

expected, negative signs.[18] The remaining rows of table 4 show the coefficients of the different indexes that measure the distance between regulations. The coefficients of *all* variables measuring the regulatory distance across countries are negative and significant at the conventional significance levels.

**Tables 5, 6 and 7: results using the World Bank regulation data**

These tables report the results from the estimation of equation (1) using the World Bank *Doing Business 2004* dataset. Overall, the majority of the World Bank indexes of regulation proximity are both negative and significant. Some, though all negative (except one), are not significant. In particular, Table 5 shows that the distance in regulations that measure the difficulty of *Starting a Business* and the difficulty of *Hiring and Firing* are all negative and significant (except the variable *Minimum capital to start a business (% of income per capita)*).

Table 6 shows that higher similarity in regulations concerning *Property Registration* also has a positive effect of FDI inflows as both the *Number of procedures to register a property* and the *Number of days to register a property* enter negatively and significantly. Differently, the results on the effect of differences in the *Credit* system are mixed as the *Index of legal rights of borrowers and lenders* and *Coverage of private registry* are negative and significant while the coefficients of the other variables, though negative, are not significant. This may reflect the fact the multinationals have easier access to credit to and may also rely on internal capital markets.

Finally, Table 7 suggests that, while differences in the index of *Investor Protection* is not significant, a larger distance in the procedures related to *Contract Enforcement* reduces the inflows of FDI. Finally, larger differences in the *Bankruptcy* procedures do not matter for FDI.[19]

**Economic significance**

As our regulation variables are, in many cases, indexes with no natural scale, the magnitude of the coefficients is not *per se* informative of the potential impact of regulation proximity on FDI flows. Therefore, we have calculated the so-called "beta" coefficients, reported in table 8 along with the sample means and standard deviations. A beta coefficient is given by the product of the estimated coefficient and the standard deviation of its corresponding independent variable, divided by the standard deviation of the dependent variable. It converts the regression coefficients into units of sample standard deviations and is equivalent to a regression where all variables are previously divided by their standard deviations.[20]

The magnitude of the beta coefficients reported in table 8 suggests that regulation proximity has a non negligible impact on FDI flows. For instance, a one standard deviation decline in the distance between *Barriers to Entrepreneurship* raises the ratio of FDI to GDP of as much as 7.81% of its standard deviation. This number is not small as, in the same regression, the beta coefficient of the linguistic tie dummy (sharing the same language) is a very similar 0.08. The beta coefficients of the remaining independent variables in each of the different specifications

[18] Only the coefficient of the source country regulation level is statistically significant, because of the presence of the host country fixed effect and the little time variation of the regulation index.

[19] Also in tables 5, 6 and 7 the regulation *levels* enter with a negative sign for both countries, but only the coefficients of the source country are statistically significant.

[20] Wooldridge (2003, Section 6.1).

are not reported for brevity and are available upon request. However, the broad picture that emerges suggests that the magnitude of the effect of the regulation proximity variables is, in general, comparable to that of the other proximity variables usually included in gravity-like models.

Therefore, the overall evidence suggests that, along some dimensions, differences in regulations may matter i.e., controlling for the level of regulation, a smaller distance between national regulations fosters bilateral FDI flows. In particular, we find that the distance between regulations concerning *Product Markets*, *Labor Markets* (with some emphasis to be placed on firing restrictions), and *Contract Enforcement* plays a prominent role in shaping bilateral FDI flows. Notice that these regulations have to do with the way entrepreneurs have to set up firms. For example, product market regulations typically imply the existence of particular start up procedures one needs to comply with in order to start a business. Labor market and contract enforcement regulations may forbid (or allow only for) certain types of contractual arrangements to be stipulated with workers and/or suppliers. Thus, entrepreneurs need to *know* these prescriptions in order to set up a firm.

The next section presents a simple general equilibrium model, consistent with the above empirical evidence, that allows to study the distributional effects of globalization.

# 4 The Model

## 4.1 Demand and Production

There are two political entities (countries). In each of them agents have Dixit-Stiglitz preferences on the mass of products sold in their country. The demand for good $j$ is:

$$x_j = Y p_j^{-\theta}$$

where $Y$ stands for aggregate demand in the country, $\theta$ is the constant demand elasticity and $p_j$ is the price of the good. We normalize the price of the "aggregate" good in each country to 1. All goods are consumed in the country where they are produced.[21] Entrepreneurs (who can be either national or foreigner) set up firms and face a monopolistic environment. All firms produce with constant returns to scale using only labor. They maximize:

$$\max_{p_j} \left(p_j x_j - a w x_j\right) = Y p_j^{-\theta} \left(p_j - a w\right)$$

$a$ being unit labor requirements. Thus, gross profits (gross of fixed costs, as explained below) and productive labor demand (*productive* as opposed to *total* labor demand, as again explained

[21] In appendix C we relax this assumption and assume that a tradable good is produced by perfectly competitive firms in the context of a two-sector model.

below) of a single firm are respectively:

$$\pi = Y\left(\frac{\theta}{\theta-1}\right)^{-\theta}(wa)^{1-\theta}\frac{1}{\theta-1} \tag{2}$$

$$z = \left(\frac{\theta}{\theta-1}\right)^{-\theta}a^{1-\theta}w^{-\theta}Y \tag{3}$$

In the rest of the paper we assume without loss of generality that $\theta = 2$ and $a = \frac{1}{4}$. Gross profits and productive labor demand, then, simplify to:

$$\pi = \frac{Y}{w} \tag{4}$$

$$z = \frac{Y}{w^2} \tag{5}$$

### 4.2 Entrepreneurs and net profits

Agents are heterogeneous and differ in their ability to run businesses. Each agent faces a career choice. She has to decide whether to become a worker or an entrepreneur. Agents choosing to become entrepreneurs set up a firm and produce a good that enters symmetrically in the utility function of consumers, generating the demand presented above. We assume that entrepreneurs need to pay in every period a fixed cost in order to run their business. This fixed cost takes the form of hiring a number of workers $\kappa$, on top of the productive labor demand in equation (5). The cost $\kappa$ is the source of heterogeneity and determines the career choice.

The idea is that in the day-by-day running of the firm, entrepreneurs face options and have to take decisions. In order to take the right decision two types of abilities are required. The first is managerial talent: good entrepreneurs are better able to solve problems and therefore make larger profits. The second type of ability is related to the entrepreneurial environment. Given a certain level of managerial talent, entrepreneurs with a deeper knowledge of the entrepreneurial environment are able to take better decisions. We think of the entrepreneurial environment as the set of factors that shape the economy primarily (though not uniquely) through its *demand* side. Examples are cultural factors, language, tastes, but also regulations (e.g. different procedures to start up businesses) or any other factor that does not directly affect technology. Therefore, it is quite natural to think that entrepreneurial environments differ across countries and that entrepreneurs that have "local" knowledge have an advantage vis-à-vis entrepreneurs who do not have this knowledge.

We model these two types of entrepreneurial abilities (talent and local knowledge) by assuming that, in each period $t$, agents need to take two actions. In each case the "right action" is a number in the real line:

$$r_t \in \mathbb{R}$$

$$\mu_t \in \mathbb{R}$$

Both $r_t$ and $\mu_t$ are random variables. In order to guess $r_t$, managerial talent is required; in order

to guess $\mu_t$, it is useful to have local knowledge.[22]

Entrepreneurs do not know the precise value of $r_t$ and $\mu_t$ and take decisions based on their available information. The further away their action from the "right action", the larger the number of "unproductive" workers that are hired. That is, the expected number of "unproductive" workers $\kappa$ is:

$$E(\kappa) = E\left(r_t - a\right)^2 + E\left(\mu_t - b\right)^2$$

We now specify the information set available to producers.

**Information on $r_t$.** We assume that all producers know that $r_t$ is a normally distributed random variable, with independent draws over time, that has a certain known mean (whose value is irrelevant) and a variance $V_r$. In each period, before taking decisions, each entrepreneur receives an unbiased signal on $r_t$. The precision of the signal determines the ability of the entrepreneur. High-ability entrepreneurs receive more precise signals and make on average fewer mistakes.

If the precision of the signal received by the entrepreneur is $\tau$, the variance of the posterior is $\frac{1}{\frac{1}{V_r}+\tau}$. Given that the optimal action is to choose $a$ equal to the expectation of $r_t$, it is clear that:

$$E(\kappa) = Var(r_t) + Var(\mu_t) = \frac{1}{\frac{1}{V_r} + \tau} + Var(\mu_t)$$

Agents differ because they receive signals on $r_t$ with different levels of precision. More talented entrepreneurs have larger precision (lower variance) and they expect to take, on average, more correct decisions. Consequently, they expect to hire fewer "unproductive" workers: the number of "unproductive" workers is decreasing in the talent of the individual.

**Information on $\mu_t$.** Agents do not receive signals on the value of $\mu_t$. Rather, they know that it evolves according to the following process:

$$\mu_t = \mu + u_t$$

where $\mu$ is a country-specific constant and $u_t$ is an individual-specific white noise disturbance with zero mean and variance equal to $\sigma_u$. Agents take decisions before the realization of the shock $u_t$. We assume that domestic producers know $\mu$ and therefore they are only left with the residual uncertainty implied by the presence of the shock $u_t$. Therefore, due to the uncertainty on $\mu_t$ they hire, on average, only $\sigma_u$ "unproductive" worker as, from their perspective, $Var\left(\mu_t\right) = Var\left(u_t\right) = \sigma_u$.

Foreigners, instead, do not know the exact value of $\mu$ and have to learn it by observing its realizations over time. They have a prior on it, with a certain precision $P_t$.[23] The variance of

[22]The assumption that the two decisions are separated and that each requires a different type of ability is a useful analytical simplification. It is possible to specify a model where a single decision is taken at the cost of getting a much more involved learning process without gaining further insights.

[23]Notice that the prior is, in our model, a measure of the distance between entrepreneurial environments, as it tells how much foreign agents know about the domestic environment, *before starting the learning process.*

the beliefs of foreign producers on $\mu_t$ is $\frac{1}{P_t} + \sigma_u$. Consequently,

$$E(\kappa) = Var(r_t) + Var(\mu_t) = \frac{1}{\frac{1}{V_r} + \tau} + \sigma_u + \frac{1}{P_t}$$

At the end of each period agents learn the realization of $\mu_t$ and update their beliefs. As $u_t$ has variance equal to $\sigma_u$, after having observed the realization of $\mu_t$ for $s$ periods the precision is:

$$P_{t+s} = P_t + s \times \frac{1}{\sigma_u}$$

Over time foreign producers learn the exact value of $\mu$, as their precision becomes infinite, and the expected number of "unproductive" workers to be hired because of the imperfect knowledge of the entrepreneurial environment converges to $\sigma_u$, which is the expected amount hired also by domestic entrepreneurs.

We index talent by $\phi$ and label $Var(r_t) + Var(u_t) = \frac{1}{\frac{1}{V_r} + \tau} + \sigma_u \equiv \phi$, with $\phi$ being distributed according to some CDF $F(\phi)$. This implies that:

$$E(\kappa) = Var(r_t) + Var(\mu_t) = Var(r_t) + Var(u_t) + \frac{1}{P_t} = \phi + \frac{1}{P_t}$$

In order to have a suitable benchmark when we allow for cross-border activity, the next section solves for the closed economy equilibrium.[24] In this case, as domestic producers know how to deal with the entrepreneurial environment (i.e. they have infinite precision on $\mu$), we have that $E(\kappa) = Var(r_t) + Var(u_t) = \phi$. Therefore the expected net benefits and total labor demand of a firm run by an entrepreneur with talent $\phi$ are given respectively by:

$$\begin{aligned} E[\pi(\phi)] &= \frac{Y}{w} - \phi w \\ L(\phi) &= \frac{Y}{w^2} + \phi = z + \phi \end{aligned}$$

It is useful to notice that:

$$E[\pi(\phi)] = (z - \phi)\, w$$

As standard, we assume that no individual can be entrepreneur and worker at the same time.

# 5 Closed Economy Equilibrium

At the aggregate level the only relevant price is the wage rate. Given a certain wage, agents are going to choose to become entrepreneurs if and only if:[25]

$$w \leq E[\pi(\phi)] \quad \Leftrightarrow \quad \phi \leq z - 1$$

[24] Section 6 solves for the open economy.

[25] We assume the existence of perfect capital markets, so that only the expected profits (and not the actual profits) are relevant.

Assuming a continuum of agents of mass one, the mass of agents that will choose to be entrepreneurs is $F(z-1)$. Hence, labor supply and demand are:

$$L_S(z) = 1 - F(z-1) \tag{6}$$

$$L_D(z) = F(z-1) \times z + \int_0^{z-1} \phi dF(\phi) \tag{7}$$

Notice that *en lieu* of expressing supply and demand as a function of prices, we express them as a function of firms' productive labor demand ($z$). We do so for simplicity; $z$ is a monotonously decreasing function of the wage rate, and expressing everything in terms of $z$ simplify matters. An increase in $z$ means that labor has become relatively cheaper relative to $Y$ (thus labor demand goes up and supply down), and it is therefore convenient to think of $z$ as of how cheap labor is.

Equilibrium is attained when **(1)** career choices (being an entrepreneur or not) are optimally taken; **(2)** the labor market clears (labor demand equals the mass of workers); **(3)** aggregate demand equals the total income generated in the economy. We will refer to the last two conditions as to the labor market equilibrium and the goods market equilibrium.

### 5.1 Labor Market

In what follows we are going to maintain the hypothesis that $\phi$ (the inverse of talent) is uniformly distributed in $[0,1]$.[26] Hence, from (6), labor supply reads as follows:

$$L_S(z) = \min\{\max[2-z, 0], 1\}$$

and from (7) labor demand is given by:

$$L_D(z) = \begin{cases} 0 & \text{If } z < 1 \\ \frac{1}{2}(z-1)(3z-1) & \text{If } 1 \leq z \leq 2 \\ z + \frac{1}{2} & \text{If } 2 < z \end{cases}$$

In equilibrium it must be that $1 \leq z \leq 2$, because if $2 < z$ labor supply is zero while if $z < 1$ labor demand is zero. Therefore, the condition $L_D = L_S$ boils down to:

$$\frac{3}{2}z^2 - z - \frac{3}{2} = 0$$

There is a unique positive solution to this equation, whose value is denoted by $Z_A$ (specifically $Z_A = \frac{1}{3} + \frac{1}{3}\sqrt{10}$, which does not mean anything by itself). What is interesting is that $z$ (how cheap is labor relative to the output of the economy) is the only variable that affects the labor market. This property will turn out to be very useful later on.

[26] Appendix C solves the model using a general CDF.

### 5.2 Goods market

In equilibrium, aggregate demand $Y$ must be equal to the total output of the economy. Total output per firm equals the sum of gross profits $\left(\pi = \frac{Y}{w} = z \times w\right)$ and the wage bill $(z \times w)$,[27] hence it equals $2zw$. There are $F(z-1)$ firms, thus the goods market equilibrium condition reads as follows:

$$Y = 2F(z-1)zw$$

and therefore, any equilibrium price needs to be such that $w = 2F(z-1)$. Given the assumption that the distribution of talent is uniform: $\phi \sim U(0,1)$:

$$w = 2(z-1)$$

Thus, $z$ (how cheap it is labor) completely characterizes the equilibrium and it is pinned down solely by the labor market clearing condition. For later reference it is useful to observe that, given our assumptions, the equilibrium values of wages and income are respectively $w_A = 2(Z_A - 1) = \frac{2}{3}\sqrt{10}$ and $Y_A = 4Z_A(Z_A-1)^2 = \frac{40}{27}\left(1+\sqrt{10}\right)$.

## 6 The open economy

We now turn to a world where entrepreneurs are allowed to set up firms abroad,[28] i.e. engage in FDI.[29] In this setting, entrepreneurial ability is country-specific. Each country is assumed to be characterized by a different entrepreneurial environment and talent is defined as the ability to deal with the *domestic* environment. Thus, in order to successfully set up a firm abroad, entrepreneurs need to *learn* how the foreign entrepreneurial environment works. As explained in section 4.2, we model the learning cost as an extra amount of "unproductive" workers to be hired in order to run the firm properly. The expected number of "unproductive" workers is, in each period, equal to $\sigma_u + \frac{1}{P_0 + s \times \frac{1}{\sigma_u}}$ where $s$ is the time elapsed since the foreign entrepreneur started producing abroad and $P_s = P_0 + s \times \frac{1}{\sigma_u}$ is the precision after observing the realization of $\mu_t$ for $s$ periods. We denote the expected present value of the learning cost of a firm that starts producing abroad (and never leaves the foreign market) as $\overline{C}(\beta, P_0, \sigma_u) \equiv \sum_{s=0}^{\infty} \beta^s \frac{1}{P_0 + s \times \frac{1}{\sigma_u}}$.[30]

Finally, we assume that entrepreneurs who set up a plant abroad incur in an additional cost that requires hiring an extra amount $\gamma$ of workers. This assumption captures the idea that

[27] Gross profits are then split between entrepreneurs' income and the fixed costs.

[28] We rule out trade. For a model of FDI and trade see Helpman, Melitz and Yeaple (2003).

[29] We focus on "horizontal" FDI, i.e. investments aiming at establishing production facilities in a foreign country in order to serve the local market by making use of the local workforce. In other words, we restrict to goods that need to be produced in the same geographic location where they are consumed. One can think either of firms providing services, or firms facing substantial trade costs. As discussed in section 2.1, there is a general consensus that the overwhelming proportion of FDI is horizontal rather than vertical. We rule out both the licensing alternative (on this see Ethier (1986), Horstmann and Markusen (1987), and Ethier and Markusen (1996)) and "vertical" FDI, in which the production process is fragmented across countries (on this see Helpman (1984), Helpman (1985), Markusen (2002, Ch. 9)).

[30] Notice that, provided that $\beta < 1$, $P_0 > 0$ and $\sigma_u$ is finite, the expected present value of the learning cost is a finite number. To see why, note that $\sum_{s=0}^{\infty} \beta^s \frac{1}{P_0 + s \times \frac{1}{\sigma_u}} < \sum_{s=0}^{\infty} \beta^s < \infty$ because starting from some finite $s$ each element of the first series is smaller than the corresponding term of the second (converging) series.

foreign entrepreneurs are less efficient than domestic ones (with the same level of talent) due, for example, to the difficulty of monitoring workers abroad. Thus, expected per period profits are $E[\pi_t(\phi)] = \left(z - \phi - \gamma - \frac{1}{P_0 + s \times \frac{1}{\sigma_u}}\right) w$.

### 6.1 Individual decisions

We focus on steady state analysis and characterize the values of the three possible career choices that each individual faces:

1. Be a worker.
2. Be a domestic entrepreneur.
3. Be a multinational entrepreneur.

In steady state, the value of being respectively a worker and a domestic entrepreneur, denoted by $V_W$ and $V_N$, is given by:

$$V_W = w \frac{1}{1-\beta} \tag{8}$$

$$V_N = (z - \phi)\, w \frac{1}{1-\beta} \tag{9}$$

where $\beta$ is the subjective discount factor. The above asset equations simply state that the values are equal to the present discounted values of the future streams of wages and net profits. The value of being a multinational entrepreneur and having already learned how the foreign country works, is:

$$V_X = V_N + \frac{1}{1-\beta} \left(\widetilde{z} - \phi - \widetilde{\gamma}\right) \widetilde{w} \tag{10}$$

where the variables with a tilde refer to the foreign country. In equation (10) the first term of the right hand side is simply the value of being a domestic entrepreneur while the second term is the value of being a multinational "educated" entrepreneur, thus it accounts for the extra fixed cost $\widetilde{\gamma}$ associated to FDI and not for the learning cost.

Finally, the value of becoming a multinational entrepreneur that still has to bear the learning cost in order to set up a firm abroad is:

$$\begin{aligned} V_{BX} &= V_X - \overline{C}(\beta, P_0, \sigma_u)\widetilde{w} \\ &= V_N + \frac{1}{1-\beta}\left(\widetilde{z} - \widetilde{\phi} - \gamma\right)\widetilde{w} - \overline{C}(\beta, P_0, \sigma_u)\widetilde{w} \end{aligned}$$

Where $\overline{C}(\beta, P_0, \sigma_u)\widetilde{w}$ is the present discounted value of the learning cost. Given that the cost decreases over time, no agent will produce abroad for some time only: if an agent sets up a firm abroad, it is forever.

### 6.1.1 Steady State Decisions

Using the above asset equations, we first look at the decision of individuals who have *not* been FDI entrepreneurs in the past and have therefore not learned yet how the entrepreneurial environment works in the foreign country. Then, we will analyze the decisions of the agents who already know how to deal with the foreign country environment.

- Individuals who have *not* engaged in FDI,
  - will choose to be workers if and only if[31]

$$z - 1 \leq \phi$$

  - will choose to be domestic entrepreneurs if and only if:

$$\widetilde{z} - \widetilde{\gamma} - (1-\beta)\overline{C}(\beta, P_0, \sigma_u) \leq \phi \leq z - 1$$

  - and will change their mind and set up a firm abroad if and only if

$$\phi \leq (\widetilde{z} - \widetilde{\gamma}) - (1-\beta)\overline{C}(\beta, P_0, \sigma_u)$$

- Individuals who have been running a firm abroad in the past (or that for any circumstances do not need to pay the learning cost) have a different decision scheme.
  - They become workers if and only if:

$$z - 1 \leq \phi$$

  - They become domestic entrepreneurs if and only if

$$\widetilde{z} - \widetilde{\gamma} \leq \phi \leq z - 1$$

  - And continue being multinational entrepreneurs if and only if

$$\phi \leq \widetilde{z} - \widetilde{\gamma}$$

Notice that agents with $\phi \in \left[(\widetilde{z} - \widetilde{\gamma}) - (1-\beta)\overline{C}(\beta, P_0, \sigma_u), \widetilde{z} - \widetilde{\gamma}\right]$ *will be engaging in FDI only if they have been doing so in the past, but will be domestic entrepreneurs otherwise.*

If in steady state any agent who *could* be a multinational entrepreneur *is* actually one, then individuals split up among the three categories according to the following rules:

[31] The actual restriction is $\max\left\{z-1, (z-1)\frac{w}{w+\widetilde{w}} + \left(\widetilde{z} - \widetilde{\gamma} - (1-\beta)\overline{C}(\beta, P_0, \sigma_u)\right)\frac{\widetilde{w}}{w+\widetilde{w}}\right\} \leq \phi$. However, in what follows we will focus on the case where the set of domestic entrepreneurs is non-empty for any level of the learning cost. This happens whenever $\widetilde{z} - z \leq \widetilde{\gamma} - 1$ (which simplifies to $1 \leq \widetilde{\gamma}$ under symmetry). In this case, it is easy to see that the above condition boils down to the one presented in the text.

$$
\begin{aligned}
z-1 \leq & \phi && \text{(Workers)}\\
\widetilde{z}-\widetilde{\gamma}-(1-\beta)\overline{C}(\beta,P_0,\sigma_u) \leq & \phi \leq z-1 && \text{(Domestic entrepreneurs)}\\
& \phi \leq \widetilde{z}-\widetilde{\gamma}-(1-\beta)\overline{C}(\beta,P_0,\sigma_u) && \text{(Exporting entrepreneurs)}
\end{aligned}
$$

In order to simplify notation we define a variable $C$ capturing the discounted value of the future stream of learning costs: $C=(1-\beta)\overline{C}(\beta,P_0,\sigma_u)$.

Notice that in this model individuals live forever. For this reason, in steady state there are no flows in and out of the different states. However, all our results carry over if we extend the model and assume an overlapping generations structure where individuals die with at a certain rate and newborns enter (at the same rate) with a random level of talent.

We now turn to the analysis of the labor market equilibrium and of the goods market equilibrium.

### 6.2 Labor market

In a symmetric steady state countries have the same aggregate income $Y$ and the same wage rate $w$. The labor supply, in each country, is given by the total number of individuals who choose not to be entrepreneurs:

$$L_S(z)=1-F(z-1)$$

The labor demand is given, in each country, by the sum of $(i)$ the demand for labor of national entrepreneurs $(ii)$ and the demand for labor of foreign entrepreneurs operating in the country. As in steady state the learning cost has been already paid, the labor demand reads as follows:

$$
\begin{aligned}
L_D(z) &= \int_0^{(z-\gamma-C)}(z+\gamma+\phi)\,dF(\phi)+\int_0^{z-1}(z+\phi)\,dF(\phi)\\
&= \left[z+\gamma+E\left(\phi|\phi\leq(z-(\gamma+C))\right)\right]F(z-(\gamma+C))+\\
&\quad+\left[z+E\left(\phi|\phi\leq(z-1)\right)\right]F(z-1)
\end{aligned}
$$

where $\int_0^{(z-\gamma-C)}(z+\phi+\gamma)$ is the labor demand of foreign producers that we denote by $L_D^f$, and the second term $\int_0^{z-1}(z+\phi)\,dF(\phi)$ is the labor demand of domestic producers, denoted by $L_D^d$.

Notice that a drop in $C$ (lower learning costs) affects the demand for labor *via* two margins. On the one side, a lower $C$ induces a larger amount of foreigners to engage in FDI, thus increasing the domestic labor demand (*extensive* margin). On the other side, the *marginal* foreign entrepreneurs (and *only* the marginals) need to hire less workers (*intensive* margin) because the fixed cost $C$ is lower.[32] However, the net effect on labor demand of a decrease in $C$ is clearly positive.[33] Recalling that talent is uniformly distributed ($\phi\sim U(0,1)$) and realizing that the

[32]Notice that a *larger* $C$ would affect labor demand only through the extensive margin because in that case a lower amount of foreigners would engage in FDI, leaving unaltered the labor demand of those who keep being multinationals.

[33]The fixed cost $\gamma$ affects the demand for labor as well, not only by changing the proportion of foreign agents who decide to produce in the home country (very much as the learning cost $C$ ), but also by affecting the labor demand of *all* foreign producers (and not only the marginals).

number of entrepreneurs that demand labor is bounded between zero and one:

$$\begin{aligned} L_D &= \left[\max\left\{\min\left\{\left(z-(\gamma+C)\right),1\right\},0\right\}\right](z+\gamma)+ \\ &\quad +\frac{1}{2}\left[\max\left\{\min\left\{\left(z-(\gamma+C)\right),1\right\},0\right\}\right]^2+\left[\max\left\{\min\left\{\left(z-1\right),1\right\},0\right\}\right]z+ \\ &\quad +\frac{1}{2}\left[\max\left\{\left\{\min\left(z-1\right),1\right\},0\right\}\right]^2 \end{aligned}$$

With

$$\begin{aligned} L_D^f &= \left[\max\left\{\min\left\{\left(z-(\gamma+C)\right),1\right\},0\right\}\right](z+\gamma)+ \\ &\quad +\frac{1}{2}\left[\max\left\{\min\left\{\left(z-(\gamma+C)\right),1\right\},0\right\}\right]^2 \\ L_D^d &= \left[\max\left\{\min\left\{\left(z-1\right),1\right\},0\right\}\right]z+\frac{1}{2}\left[\max\left\{\left\{\min\left(z-1\right),1\right\},0\right\}\right]^2 \end{aligned}$$

Thus, domestic and foreign labor demands are given by:

$$L_D^d=\begin{cases} 0 & \text{If } z<1 \\ \frac{1}{2}\left(z-1\right)\left(3z-1\right) & \text{If } 1\leq z\leq 2 \\ z+\frac{1}{2} & \text{If } 2<z \end{cases} \tag{11}$$

and

$$L_D^f=\begin{cases} 0 & \text{If } z<\gamma+C \\ \frac{1}{2}\left(z-\gamma-C\right)\left(3z+\gamma-C\right) & \text{If } \gamma+C\leq z\leq 1+\gamma+C \\ z+\gamma+\frac{1}{2} & \text{If } 1+\gamma+C<z \end{cases} \tag{12}$$

Total labor demand $\left(L_D=L_D^f+L_D^d\right)$ is increasing in $z$ (how cheap labor is). The domestic labor demand is larger than the foreign if labor is relatively expensive (low $z$), while if wages are low (high $z$) the foreign labor demand is larger, because foreign firms need to have larger staffs to operate ($\gamma>0$).

When $z\geq 2$ labor is so cheap that all domestic agents want to be entrepreneurs, at least locally. This, of course, cannot happen in equilibrium. When $z\geq 1+\gamma+C$ labor is even cheaper (recall that $\gamma>1$) and therefore everybody would like to engage in FDI, which again cannot happen in equilibrium.

Let us now turn to what *can* happen in equilibrium. Given our assumption that the cost of operating abroad is large enough ($\gamma>1$), the shape of total labor demand depends on the size of $\gamma+C$.

We first analyze the case of a relatively high ($\gamma+C>Z_A$). Notice that, in this case, whenever $z$ is lower than $\gamma+C$ (labor is very expensive) the total labor demand equals the domestic labor demand, which is equal to the autarchic labor demand $Z_A$. Thus, not surprisingly, for relatively high fixed costs (and relatively high means precisely that $\gamma+C>Z_A$) the economy is *de facto* in autarchy. This can be seen in figure 2 (panel (a)). Foreign entrepreneurs demand labor in the home country only if it is very cheap, $z>\gamma+C$, so their presence has no effect in equilibrium.

We now turn to the case where the costs of opening a plant abroad are not so high ($\gamma+C<Z_A$).

The total labor demand is now, in the relevant range, the sum of both domestic and foreign demand, as in panel (b) of figure 2. In that case, in equilibrium, both domestic and foreign entrepreneurs hire labor in the home country.

Since in equilibrium it can not happen neither than $z > 1 + \gamma + C$ (because then everybody would want to be a multinational entrepreneur) nor that $z > 2$ (because then everybody would want to be a domestic entrepreneur), the equilibrium condition reads as follows:

$$\begin{aligned} L_S &= L_D \\ (2 - z) &= \frac{1}{2}(z-1)(3z-1) + \frac{1}{2}(z-\gamma-C)(3z+\gamma-C) \end{aligned}$$

The above equation is satisfied for a unique value of $z$ that we will denote $Z_T(\gamma, C)$:

$$Z_T(\gamma, C) = \frac{1}{6}\left((1+\gamma+2C) + \sqrt{(1+\gamma+2c)^2 + 6(\gamma-C)(\gamma+C) + 18}\right)$$

The value of $z$ in equilibrium is then:

$$z^* = \begin{cases} Z_T(\gamma, C) & \text{If } \gamma + C \leq Z_A \\ Z_A & \text{Otherwise} \end{cases}$$

Notice that when foreign producers actually hire in the home market, the labor demand cannot be smaller than in autarchy (see again figure 2), while labor supply is not affected by the possibility of cross-border investments. Thus it is clear that, *in any equilibrium with multinational entrepreneurs* (i.e. whenever $\gamma + C < Z_A$), **(1)** labor is relatively more expensive ($Z_A \geq Z_T(\gamma, C)$) and consequently **(2)** the number of workers is larger (the number of entrepreneurs smaller) than in autarchy.

The mass of agents that become entrepreneurs is smaller in each country if, in equilibrium, some (high-ability) agents invest across borders. This, anyway, does not mean that the number of firms that sells to consumers is going to be smaller, because entrepreneurs from both countries serve them.

### 6.3 Goods Market

In equilibrium, in each country total production must be equal to the income of its inhabitants (earned either at home or abroad), or equivalently, the income generated in each country (independently of the country of the earner) has to be equal to the total production, i.e.:

$$Y = F(z-1)\,2zw + F(z-\gamma-C)\,2zw$$

which implies that:

$$w = 2 \times [F(z-1) + F(z-\gamma-C)]$$

Thus, the wage is a linear function of the number of entrepreneurs that operate in the country.

### 6.4 The Distributional effects of Globalization

In this section we analyze the implications of the model concerning the distributional effects of globalization. We compare the steady states of two worlds with different values of $C$ (in the introduction we deemed them as the *Globalized Universe* (low $C$) and the *National Universe* (high $C$)) and ask in which world an individual with a certain $\phi$ would choose to be sent.

In the appendix we prove that, in equilibrium, the following statements are true:

$$\frac{\partial z(C)}{\partial C} > 0 \tag{13}$$

$$\frac{\partial w(C)}{\partial C} < 0 \tag{14}$$

$$\frac{\partial Y(C)}{\partial C} < 0 \tag{15}$$

$$\frac{\partial \pi}{\partial C} = \frac{\partial \left[Y(C)/w(C)\right]}{\partial C} > 0 \tag{16}$$

It is not surprising that a larger learning cost determines a smaller equilibrium number of foreign entrepreneurs (equation (13)). Less obvious is that this will reduce wages (equation (14)) and increase the gross profits of firms (equation (16)). We plot the above functions for a particular value of $\gamma$ ($\gamma = 1.1$) in figure 3.

A larger $C$ reduces the wage rate because it induces some foreign producers not to engage in FDI. This reduces the domestic labor demand and the wage rate. In turn, this induces a positive proportion of (high-ability) domestic workers to become (local) entrepreneurs, thus partially offsetting the drop in labor demand. Despite this, the net effect on the wage rate is negative. Thus, workers prefer to live in a more open universe, i.e. one where entrepreneurial environments are more similar.

A larger $C$ also implies that, in equilibrium, both the average and the marginal firms are less efficient. First, some very efficient foreign producers are expelled from the local market. Second, a positive mass of domestic workers with low entrepreneurial talent turn to the entrepreneurial activity, further lowering aggregate productivity.

Moreover, in case of a large differences in the entrepreneurial environment (high $C$), aggregate demand ($Y$) is lower, so that gross profits $\left(\frac{Y}{w}\right)$ could in principle be either larger or smaller, as both revenues and costs are lower. Nevertheless, the effect through wages is larger, meaning that a larger $C$ induces larger gross profits. The effect on net profits varies across the different types of entrepreneurs. The net profits of *local* producers (i.e. of agents that keep being local and do not *start* engaging in FDI) are larger the larger $C$, because the fixed cost $\phi$ does not depend on the learning cost, and, being wages lower, the total fixed cost $\phi w$ goes down. Thus, for local entrepreneurs the increase in net profits is larger than the increase in gross profits.

As to foreign producers, the effect of this would-be exercise of considering a larger $C$ is clear. A very talented individual facing the choice of which world to choose, would rather live in the world with the lowest level of $C$. The reason is that, once landed in this world, this individual would like to engage in FDI and would therefore suffer from a large $C$, because the negative direct effect of $C$ on net profits more than offsets the increase in gross profits.

Summing up, workers and talented entrepreneurs that engage in FDI prefer to live in a world with the lowest possible level of $C$. Differently, local producers prefer to live in a world with a high value of $C$.[34]

Finally, note that with lower cross-the-border investments, even if the mass of agents that become entrepreneurs in each country increases, the mass of varieties available goes down. Dixit-Stiglitz love for variety implies then that lower "openness" lowers efficiency. Notice that this decrease in variety is a direct consequence of the entrepreneurs being less productive (and thus requiring more workers) in an economy with high learning costs. Openness (low learning costs) is (behind the veil of ignorance) welfare improving because it improves the allocation of talent.

# 7 Concluding remarks

This paper first presents empirical evidence on the positive effect of cross-country proximity in "entrepreneurial environments" on bilateral FDI flows. By exploiting the *OECD International Direct Investment Statistics* and data on nationwide regulation levels from the OECD and the World Bank, we find evidence that smaller differences in regulations across countries tend to be associated with larger bilateral flows of FDI, even controlling for the *level* of regulation, for countries fixed effects and for time effects, in the context of a standard gravity model.

Motivated by this evidence, we build a general equilibrium model that – while consistent with the main stylized facts about FDI – allows to study the distributional effects of globalization. In the model agents are heterogeneous and differ both in their ability to be entrepreneurs or workers and their nationality. Entrepreneurs *may* set up a firm abroad, i.e. engage in FDI. If they do so they incur in two additional costs, one of which is the cost of *learning* how the foreign environment works. In this framework, globalization fosters FDI and improves the allocation of talents in the economy boosting wages, output, and productivity.

The mechanism is as follows. Only the more able entrepreneurs engage in FDI, and their fraction grows larger the "easier" it is to set up a firm abroad, i.e. the more similar the domestic and foreign entrepreneurial environments. This, in turn, increases the demand for domestic labor, output and wages. As a consequence, the minimum ability level needed to become an entrepreneur goes up. This implies that the size of the pool of entrepreneurs goes down while its composition changes: a greater proportion engages in FDI. Hence, globalization improves the allocation of talent of the economy because the increase in the wage rate dissuades low-ability people from becoming entrepreneurs. At the same time, even if less people opt for an entrepreneurial career, a larger fraction serve clients abroad, implying that the variety of products that costumers may acquire increases.

The model implies that high- and low-ability agents are better off in a globalized universe, i.e. in a world where learning costs are lower. The reason is that low-ability agents, who decide to become workers, earn higher wages in a globalized environment, whereas high-ability agents can exploit larger investment opportunities. Medium-ability agents, differently, prefer to live in

[34]The four functions object of this discussion (wage rate, local entrepreneurs profits, multinational entrepreneurs profits, and profits of becoming a multinational entrepreneur) are plotted in figure 4 for the agent with $\phi = \frac{1}{2}$ (with $\gamma = 1.1$).

a national universe where they are sheltered from foreign competition.

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# A Proofs

We now prove that the following statements are true:

$$\begin{aligned} \frac{\partial z(C)}{\partial C} &> 0 \\ \frac{\partial w(C)}{\partial C} &< 0 \\ \frac{\partial Y(C)}{\partial C} &< 0 \\ \frac{\partial \left[Y(C)/w(C)\right]}{\partial C} &> 0 \end{aligned}$$

*Proof.* First we prove that $\frac{\partial z(C)}{\partial C} > 0$

Recall that:

$$z(C) = \frac{(1+\gamma)+2C+\sqrt{((1+\gamma)+2C)^2 - 12\left(\frac{1}{2}(C^2-\gamma^2)-\frac{3}{2}\right)}}{6}$$

then,

$$\frac{\partial z(C)}{\partial C} = \frac{1}{3}\left(1+\frac{(1+\gamma-C)}{\sqrt{(1+\gamma+2C)^2 - 12\left(\frac{1}{2}(C^2-\gamma^2)-\frac{3}{2}\right)}}\right) > 0$$

since

$$\begin{aligned} \gamma &> 1 \\ \gamma + C &< Z_A \end{aligned}$$

which implies that $C < 1$ and $\gamma + 1 > 2$, therefore $\gamma + 1 - C > 0$. □

*Proof.* Next, we prove that $\frac{\partial w(C)}{\partial C} < 0$, where

$$w = 4z - 2(\gamma + C + 1)$$

hence,

$$\begin{aligned} \frac{\partial w(C)}{\partial C} &= 4\frac{\partial z(C)}{\partial C} - 2 \\ &= \frac{4}{3}\left(\frac{(1+\gamma-C)}{\sqrt{(1+\gamma+2C)^2 - 12\left(\frac{1}{2}(C^2-\gamma^2)-\frac{3}{2}\right)}} - \frac{1}{2}\right) \end{aligned} \tag{17}$$

Which is negative if

$$\begin{aligned} (1+\gamma-C) &< \frac{1}{2}\sqrt{(1+\gamma+2C)^2 - 12\left(\frac{1}{2}(C^2-\gamma^2)-\frac{3}{2}\right)} \\ (1+\gamma)^2 &< 2\left(\gamma^2 - C^2\right) + 6 + \frac{4}{3}(1+\gamma)C \end{aligned} \tag{18}$$

Which is true since $(1+\gamma)^2$ must be smaller than $(1+Z_A)^2 = 5.6997$ and the right hand side is larger than 6. □

*Proof.* Next, we prove that $\frac{\partial Y(C)}{\partial C} = \frac{\partial z(C)w(C)^2}{\partial C} < 0$.

$$\begin{aligned}\frac{\partial Y(C)}{\partial C} &= \frac{\partial z(C)}{\partial C}w^2 + 2zw\frac{\partial w(C)}{\partial C} \\ &= w\left(4z\frac{(1+\gamma-C)}{\sqrt{(1+\gamma+2C)^2 - 12\left(\frac{1}{2}(C^2-\gamma^2)-\frac{3}{2}\right)}} - \frac{\partial z(C)}{\partial C}2(\gamma+C+1)\right)\end{aligned}$$

recalling that

$$z = \frac{(1+\gamma)+2C+\sqrt{((1+\gamma)+2C)^2 - 12\left(\frac{1}{2}(C^2-\gamma^2)-\frac{3}{2}\right)}}{6}$$

then,

$$\begin{aligned}\frac{\partial Y(C)}{\partial C} &= w2\frac{(1+\gamma)+2C+\sqrt{((1+\gamma)+2C)^2 - 12\left(\frac{1}{2}(C^2-\gamma^2)-\frac{3}{2}\right)}}{3\sqrt{(1+\gamma+2C)^2 - 12\left(\frac{1}{2}(C^2-\gamma^2)-\frac{3}{2}\right)}}(1+\gamma-C) - \\ &\quad -w\frac{\partial z(C)}{\partial C}2(\gamma+C+1) \\ &= w\frac{2\left((1+\gamma)^2-C^2\right)+2C(1+\gamma-C)}{3\sqrt{(1+\gamma+2C)^2 - 12\left(\frac{1}{2}(C^2-\gamma^2)-\frac{3}{2}\right)}} + w\frac{2(1+\gamma-C)}{3} - \\ &\quad -w\frac{\partial z(C)}{\partial C}2(\gamma+C+1)\end{aligned}$$

and using again

$$\frac{\partial z(C)}{\partial C} = \frac{1}{3}\left(1 + \frac{(1+\gamma-C)}{\sqrt{(1+\gamma+2C)^2 - 12\left(\frac{1}{2}(C^2-\gamma^2)-\frac{3}{2}\right)}}\right)$$

we get that:

$$\begin{aligned}\frac{\partial Y(C)}{\partial C} &= w\frac{2\left((1+\gamma)^2-C^2\right)+2C(1+\gamma-C)}{3\sqrt{(1+\gamma+2C)^2 - 12\left(\frac{1}{2}(C^2-\gamma^2)-\frac{3}{2}\right)}} + w\frac{2(1+\gamma-C)}{3} \\ &\quad -\frac{w}{3}\left(1 + \frac{(1+\gamma-C)}{\sqrt{(1+\gamma+2C)^2 - 12\left(\frac{1}{2}(C^2-\gamma^2)-\frac{3}{2}\right)}}\right)2(\gamma+C+1) \\ &= w\frac{2}{3}C\left(\frac{(1+\gamma-C)}{\sqrt{(1+\gamma+2C)^2 - 12\left(\frac{1}{2}(C^2-\gamma^2)-\frac{3}{2}\right)}} - 2\right) < 0\end{aligned}$$

the above expression is negative since, as shown above:

$$\frac{(1+\gamma-C)}{\sqrt{(1+\gamma+2C)^2 - 12\left(\frac{1}{2}(C^2-\gamma^2)-\frac{3}{2}\right)}} < \frac{1}{2}$$

□

*Proof.* Finally, we prove that $\frac{\partial[Y(C)/w(C)]}{\partial C} = \frac{\partial(z(C)w(C))}{\partial C} > 0$

$$\begin{aligned}\frac{\partial\left(z\left(C\right)w\left(C\right)\right)}{\partial C} &= \frac{\partial z\left(C\right)}{\partial C}w + \frac{\partial w\left(C\right)}{\partial C}z \\ &= 2z\left(\frac{1}{3} + \frac{4}{3}\frac{\left(1+\gamma-C\right)}{\sqrt{\left(1+\gamma+2C\right)^2 - 12\left(\frac{1}{2}\left(C^2-\gamma^2\right)-\frac{3}{2}\right)}}\right) - \\ &\quad -\frac{2}{3}\left(1 + \frac{\left(1+\gamma-C\right)}{\sqrt{\left(1+\gamma+2C\right)^2 - 12\left(\frac{1}{2}\left(C^2-\gamma^2\right)-\frac{3}{2}\right)}}\right)\left(\gamma+C+1\right)\end{aligned}$$

where being:

$$z = \frac{\left(1+\gamma\right)+2C+\sqrt{\left(\left(1+\gamma\right)+2C\right)^2 - 12\left(\frac{1}{2}\left(C^2-\gamma^2\right)-\frac{3}{2}\right)}}{6}$$

we get that

$$\begin{aligned}\frac{\partial\left(z\left(C\right)w\left(C\right)\right)}{\partial C} &= 4\frac{\left(1+\gamma\right)+2C+\sqrt{\left(\left(1+\gamma\right)+2C\right)^2 - 12\left(\frac{1}{2}\left(C^2-\gamma^2\right)-\frac{3}{2}\right)}}{9\sqrt{\left(1+\gamma+2C\right)^2 - 12\left(\frac{1}{2}\left(C^2-\gamma^2\right)-\frac{3}{2}\right)}}\left(1+\gamma-C\right) \\ &\quad +\frac{2}{3}z - \frac{2}{3}\left(1 + \frac{\left(1+\gamma-C\right)}{\sqrt{\left(1+\gamma+2C\right)^2 - 12\left(\frac{1}{2}\left(C^2-\gamma^2\right)-\frac{3}{2}\right)}}\right)\left(\gamma+C+1\right)\end{aligned}$$

hence,

$$\begin{aligned}&\frac{\partial\left(z\left(C\right)w\left(C\right)\right)}{\partial C} = \frac{1}{9}3C + \frac{1}{9}\left(\left(1+\gamma\right)-C\right)\times \\ &\times\left[\frac{\sqrt{\left(\left(1+\gamma\right)+2C\right)^2 + 12\left(\frac{1}{2}\left(\gamma^2-C^2\right)+\frac{3}{2}\right)}}{\left(1+\gamma\right)-C} - \left(1 + \frac{2\left(1+\gamma-C\right)}{\sqrt{\left(1+\gamma+2C\right)^2 - 12\left(\frac{1}{2}\left(C^2-\gamma^2\right)-\frac{3}{2}\right)}}\right)\right]\end{aligned}$$

the above is negative since the expression in square brackets

$$\frac{\sqrt{\left(\left(1+\gamma\right)+2C\right)^2 + 12\left(\frac{1}{2}\left(\gamma^2-C^2\right)+\frac{3}{2}\right)}}{\left(1+\gamma\right)-C} - \left(1 + \frac{2\left(1+\gamma-C\right)}{\sqrt{\left(1+\gamma+2C\right)^2 - 12\left(\frac{1}{2}\left(C^2-\gamma^2\right)-\frac{3}{2}\right)}}\right) > 0$$

may be rewritten as follows

$$\frac{1}{l} - \left(1+2l\right)$$

and it is clearly positive if $l = \frac{2(1+\gamma-C)}{\sqrt{(1+\gamma+2C)^2 - 12\left(\frac{1}{2}(C^2-\gamma^2)-\frac{3}{2}\right)}} < \frac{1}{2}$, which holds true by (18). □

# B Figures and Tables

Table 1: Countries

| | |
|---|---|
| Australia | Netherlands |
| Belgium-Luxembourg | New Zealand |
| Canada | Norway |
| Denmark | Poland |
| Finland | Portugal |
| France | Spain |
| Germany | Sweden |
| Greece | Switzerland |
| Ireland | Turkey |
| Italy | United Kingdom |
| Japan | United States |

Table 2: Correlations between the OECD Regulation Subindexes

| | PMR | State | B. Ent. | B. T&I | Ec. reg. | Ad. reg. | Inw. | Outw. |
|---|---|---|---|---|---|---|---|---|
| PMR | 1 | | | | | | | |
| State Control | 0.86 | 1 | | | | | | |
| Bar. Entrep. | 0.54 | 0.42 | 1 | | | | | |
| Bar. T&I | 0.76 | 0.45 | 0.03 | 1 | | | | |
| Econ. reg. | 0.84 | 0.98 | 0.47 | 0.4 | 1 | | | |
| Admin. reg. | 0.49 | 0.36 | 0.97 | 0.01 | 0.38 | 1 | | |
| Inward reg. | 0.85 | 0.89 | 0.79 | 0.37 | 0.90 | 0.73 | 1 | |
| Outward reg. | 0.82 | 0.52 | 0.1 | 0.99 | 0.47 | 0.08 | 0.40 | 1 |

Table 3: Variables of the World Bank dataset *Doing Business 2004*

| | |
|---|---|
| *Starting a Business* | Number of procedures |
| | Average time spent during each procedure (in calendar days) |
| | Official cost of each procedure (% of income per capita) |
| | Paid-in minimum capital (as a percentage of income per capita) |
| *Hiring and Firing* | Difficulty of hiring index |
| | Rigidity of hours index |
| | Difficulty of firing index |
| | Rigidity of employment (average of the three above) |
| | Firing costs (number of weeks) |
| *Registering Property* | Number of procedures |
| | Number of days |
| | Official cost (% of property value per capita) |
| *Getting Credit* | Cost to create and register collateral (% of income per capita) |
| | Index of legal rights of borrowers and lenders |
| | Index of credit information availability |
| | Coverage of public registry (borrowers per 1000 capita) |
| | Coverage of private registry (borrowers per 1000 capita) |
| *Protecting Investors* | Disclosure of ownership and financial information index |
| *Enforcing Contracts* | Number of procedures |
| | Number of days |
| | Official cost (% of the debt value) |
| *Closing a Business* | Number of years |
| | Official cost (% of estate) |
| | Recovery rate (cents on the dollar) |

Table 4: **OECD Regulation variables.**

**Dependent variable**: FDI Inflows as a share of the host country GDP.

| **Regulation Variables** | Panel A: | Panel B: | Panel C: | Panel D: | Panel E: | Panel F: | Panel G: | Panel H: |
|---|---|---|---|---|---|---|---|---|
| Host Country EPL Level | -.000047 | -.0000757 | -.0000487 | -.0000425 | -.0000433 | -.0000476 | -.0000684 | -.0000355 |
| | (.000156) | (.0001558) | (.0001557) | (.000156) | (.0001558) | (.0001558) | (.0001559) | (.0001557) |
| Source Country EPL Level | -.0001426 | -.0002966 | -.0003574 | -.0003306 | -.0003336 | -.0003513 | -.0003188 | -.000373 |
| | (-.000346) | (.0000439) | (.0000447) | (.0000441) | (.000044) | (.0000447) | (.0000437) | (.0000454) |
| *Distance between regulations:* | | | | | | | | |
| Product Market | **-.0002163** | | | | | | | |
| | (.000105) | | | | | | | |
| Barriers to Trade and Investment | | **-.0003356** | | | | | | |
| | | (.0000806) | | | | | | |
| Barriers to Entrepreneurship | | | **-.0003232** | | | | | |
| | | | (.0000755) | | | | | |
| State control | | | | **-.0001446** | | | | |
| | | | | (.0000564) | | | | |
| Economic Regulation | | | | | **-.0002274** | | | |
| | | | | | (.0000689) | | | |
| Administrative Regulation | | | | | | **-.0002177** | | |
| | | | | | | (.0000599) | | |
| Overall outward-oriented regulation | | | | | | | **-.0002832** | |
| | | | | | | | (.0000889) | |
| Overall inward-oriented regulation | | | | | | | | **-.000352** |
| | | | | | | | | (.0000776) |
| $R^2$ | 0.1505 | 0.1535 | 0.1538 | 0.1511 | 0.1521 | 0.1526 | 0.1519 | 0.1543 |
| Observations | 3713 | 3713 | 3713 | 3713 | 3713 | 3713 | 3713 | 3713 |

Notes: The distance between regulations is measured as the absolute value of the difference between the source and the host country regulations. The level of regulation is accounted for by a time-varying measure of EPL (evaluated in 1990 and 1998). All specifications include the following control variables: host country fixed-effects, host and source country GDP and population, a time trend, distance between main cities, latitude and longitude of the source country; common language dummy, EU dummy, NAFTA dummy, common land borders dummy, both in Asia Pacific dummy, both in North America dummy. Standard errors in parenthesis.

Table 5: **World Bank Regulation variables: *Starting a Business* and *Hiring and Firing***

**Dependent variable**: FDI Inflows as a share of the host country GDP.

| **Regulation Variables** | Panel A: | Panel B: | Panel C: | Panel D: | Panel E: | Panel F: | Panel G: | Panel H: | Panel I: |
|---|---|---|---|---|---|---|---|---|---|
| Host Country EPL Level | -.0000615 | -.0000574 | -.0000578 | -.0000545 | -.000048 | -.0000639 | -.0000482 | -.0000491 | -.0000556 |
| | (.000156) | (.0001559) | (.0001559) | (.000156) | (.000156) | (.0001558) | (.0001559) | (.0001559) | (.000156) |
| Source Country EPL Level | -.0002949 | -.0002807 | -.0002929 | -.0003136 | -.0003029 | -.0003014 | -.0003055 | -.000304 | -.0002903 |
| | (.0000452) | (.0000463) | (.0000446) | (.0000438) | (.0000442) | (.0000438) | (.0000439) | (.000044) | (.0000457) |
| *Distance between regulations:* ***Starting a Business*** | | | | | | | | | |
| N. of procedures | **-.0000328** | | | | | | | | |
| | (.0000171) | | | | | | | | |
| Number of days | | **-4.82e-06** | | | | | | | |
| | | (2.05e-06) | | | | | | | |
| Cost (% of income per capita) | | | **-.0000148** | | | | | | |
| | | | (5.48e-06) | | | | | | |
| Minimum capital (% of income per capita) | | | | -1.32e-06 | | | | | |
| | | | | (1.23e-06) | | | | | |
| *Distance between regulations:* ***Hiring and Firing*** | | | | | | | | | |
| Difficulty of hiring | | | | | **-3.95e-06** | | | | |
| | | | | | (1.85e-06) | | | | |
| Rigidity of hours | | | | | | **-8.67e-06** | | | |
| | | | | | | (2.28e-06) | | | |
| Difficulty of firing | | | | | | | **-6.45e-06** | | |
| | | | | | | | (2.42e-06) | | |
| Rigidity of employment | | | | | | | | **-6.61e-06** | |
| | | | | | | | | (2.53e-06) | |
| Firing costs (number of weeks) | | | | | | | | | **-3.34e-06** |
| | | | | | | | | | (1.69e-06) |
| $R^2$ | 0.1504 | 0.1508 | 0.1512 | 0.1498 | 0.1506 | 0.1529 | 0.1512 | 0.1511 | 0.1504 |
| Observations | 3713 | 3713 | 3713 | 3713 | 3713 | 3713 | 3713 | 3713 | 3713 |

Notes: The distance between regulations is measured as the absolute value of the difference between the source and the host country regulations. The level of regulation is accounted for by a time-varying measure of EPL (evaluated in 1990 and 1998). All specifications include the following control variables: host country fixed-effects, host and source country GDP and population, a time trend, distance between main cities, latitude and longitude of the source country; common language dummy, EU dummy, NAFTA dummy, common land borders dummy, both in Asia Pacific dummy, both in North America dummy. Standard errors in parenthesis.

Table 6: **World Bank Regulation variables: *Registering Property* and *Getting Credit***

**Dependent variable**: FDI Inflows as a share of the host country GDP.

| **Regulation Variables** | Panel A: | Panel B: | Panel C: | Panel D: | Panel E: | Panel F: | Panel G: | Panel H: |
|---|---|---|---|---|---|---|---|---|
| Host Country EPL Level | -.0000548 | -.0000553 | -.0000512 | -.000053 | -.0000569 | -.0000576 | -.0000527 | -.0000527 |
| | (.000156) | (.000156) | (.0001561) | (.000156) | (.0001559) | (.000156) | (.000156) | (.000156) |
| Source Country EPL Level | -.000297 | -.0003099 | -.0003092 | -.0003195 | -.0003215 | -.0003153 | -.0002988 | -.0003229 |
| | (.0000447) | (.0000439) | (.0000448) | (.0000443) | (.0000438) | (.0000438) | (.0000454) | (.0000438) |
| *Distance between regulations:* ***Registering Property*** | | | | | | | | |
| N. of procedures | **-.0000371** | | | | | | | |
| | (.0000176) | | | | | | | |
| Number of days | | **-1.32e-06** | | | | | | |
| | | (7.75e-07) | | | | | | |
| Cost (% of property value per capita) | | | -.0000102 | | | | | |
| | | | (.0000137) | | | | | |
| *Distance between regulations:* ***Getting Credit*** | | | | | | | | |
| Cost to create collateral (%of income per capita) | | | | -2.75e-06 | | | | |
| | | | | (6.20e-06) | | | | |
| Legal rights index | | | | | **-.0000607** | | | |
| | | | | | (.0000231) | | | |
| Credit information index | | | | | | -.0000603 | | |
| | | | | | | (.0000446) | | |
| Public registry coverage | | | | | | | -3.74e-07 | |
| | | | | | | | (2.57e-07) | |
| Private bureau coverage | | | | | | | | **-2.22e-07** |
| | | | | | | | | (1.09e-07) |
| $R^2$ | 0.1506 | 0.1502 | 0.1497 | 0.1496 | 0.1511 | 0.1500 | 0.1500 | 0.1505 |
| Observations | 3713 | 3713 | 3713 | 3713 | 3713 | 3713 | 3713 | 3713 |

Notes: The distance between regulations is measured as the absolute value of the difference between the source and the host country regulations. The level of regulation is accounted for by a time-varying measure of EPL (evaluated in 1990 and 1998). All specifications include the following control variables: host country fixed-effects, host and source country GDP and population, a time trend, distance between main cities, latitude and longitude of the source country; common language dummy, EU dummy, NAFTA dummy, common land borders dummy, both in Asia Pacific dummy, both in North America dummy. Standard errors in parenthesis.

Table 7: **World Bank Regulation variables: *Protecting Investors*, *Enforcing Contracts* and *Closing a Business*.**

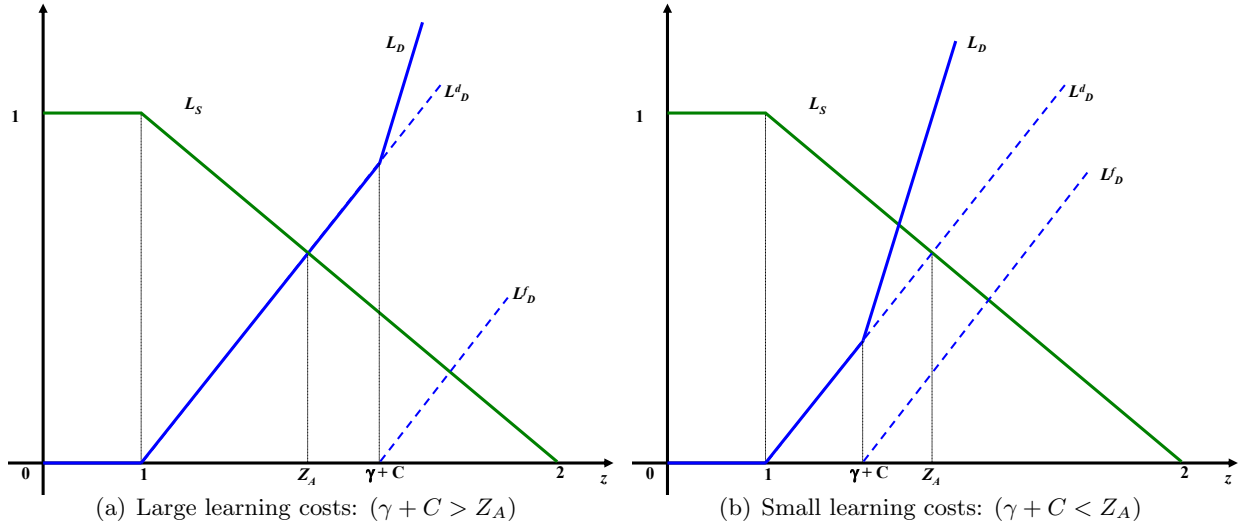
**Dependent variable**: FDI Inflows as a share of the host country GDP.

| **Regulation Variables** | Panel A: | Panel B: | Panel C: | Panel D: | Panel E: | Panel F: | Panel G: |
|---|---|---|---|---|---|---|---|
| Host Country EPL Level | -.0000454 | -.0000515 | -.0000497 | -.0000517 | -.0000518 | -.0000514 | -.0000511 |
| | (.0001561) | (.0001559) | (.0001556) | (.000156) | (.000156) | (.000156) | (.000156) |
| Source Country EPL Level | -.0003215 | -.0003281 | -.0002671 | -.0003189 | -.0002998 | -.0003123 | -.0003178 |
| | (.0000439) | (.000044) | (.0000451) | (.0000438) | (.0000446) | (.000044) | (.0000438) |
| *Distance between regulations:* ***Protecting Investors*** | | | | | | | |
| Disclosure index | -.0000673 | | | | | | |
| | (.0000473) | | | | | | |
| *Distance between regulations:* ***Enforcing Contracts*** | | | | | | | |
| N. of procedures | | **-.0000232** | | | | | |
| | | (9.97e-06) | | | | | |
| Number of days | | | **-6.29e-07** | | | | |
| | | | (1.44e-07) | | | | |
| Cost (% of debt) | | | | .0000106 | | | |
| | | | | (.0000106) | | | |
| *Distance between regulations:* ***Closing a Business*** | | | | | | | |
| Number of years | | | | | .0000918 | | |
| | | | | | (.0000473) | | |
| Cost (% of estate) | | | | | | -9.04e-06 | |
| | | | | | | (9.65e-06) | |
| Recovery Rate (cents on the dollar) | | | | | | | 2.21e-06 |
| | | | | | | | (2.44e-06) |
| $R^2$ | 0.1500 | 0.1508 | 0.1539 | 0.1498 | 0.1504 | 0.1497 | 0.1497 |
| Observations | 3713 | 3713 | 3713 | 3713 | 3713 | 3713 | 3713 |

Notes: The distance between regulations is measured as the absolute value of the difference between the source and the host country regulations. The level of regulation is accounted for by a time-varying measure of EPL (evaluated in 1990 and 1998). All specifications include the following control variables: host country fixed-effects, host and source country GDP and population, a time trend, distance between main cities, latitude and longitude of the source country; common language dummy, EU dummy, NAFTA dummy, common land borders dummy, both in Asia Pacific dummy, both in North America dummy. Standard errors in parenthesis.

Table 8: **"Beta" Coefficients**.

| Variable | Obs | Mean | Std. Dev. | Beta Coeffs |
|---|---|---|---|---|
| *Dependent variable* | | | | |
| FDI Inflows (share of host country GDP) | 3713 | 0.00077 | 0.00232 | |
| | | | | |
| *Distance in regulation* | | | | |
| **OECD variables** | | | | |
| Product Market Regulation | 3713 | 0.62893 | 0.47054 | -0.0439 |
| State control | 3713 | 1.09550 | 0.7763 | -0.0484 |
| Barriers to Entrepreneurship | 3713 | 0.81336 | 0.56037 | -0.0781 |
| Barriers to Trade and Investment | 3713 | 0.59838 | 0.61986 | -0.0897 |
| Economic Regulation | 3713 | 0.89041 | 0.6468 | -0.0634 |
| Administrative Regulation | 3713 | 1.0114 | 0.66697 | -0.0626 |
| Overall inward-oriented regulation | 3713 | 0.85109 | 0.6123 | -0.0747 |
| Overall outward-oriented regulation | 3713 | 0.55416 | 0.55855 | -0.0847 |
| **Starting a business** | | | | |
| N. of procedures | 3713 | 3.36386 | 2.5742 | -0.0364 |
| Number of days | 3713 | 24.37 | 27.59 | -0.0573 |
| Cost (% of income per capita) | 3713 | 8.533 | 7.8186 | -0.0499 |
| Minimum capital (% of income per capita) | 3713 | 36.733 | 39.549 | -0.0225 |
| **Hiring and firing** | | | | |
| Difficulty of hiring index | 3713 | 29.380 | 22.694 | -0.0386 |
| Rigidity of hours index | 3713 | 27.606 | 22.397 | -0.0837 |
| Difficulty of firing index | 3713 | 19.504 | 15.955 | -0.0444 |
| Rigidity of employment (average of the three) | 3713 | 24.197 | 16.947 | -0.0483 |
| Firing costs (number of weeks) | 3713 | 29.046 | 28.587 | -0.0412 |
| **Registering a property** | | | | |
| N. of procedures | 3713 | 3.1023 | 2.4196 | -0.0387 |
| Number of days | 3713 | 51.922 | 63.134 | -0.0359 |
| Official cost (% of property value per capita) | 3713 | 3.8360 | 3.2295 | -0.0142 |
| **Getting credit** | | | | |
| Cost of collateral (% of income per capita) | 3713 | 7.0121 | 7.1774 | -0.0085 |
| Index of legal rights of borrowers and lenders | 3713 | 2.6073 | 1.9637 | -0.0514 |
| Index of credit information availability | 3713 | 1.1053 | 0.86101 | -0.0224 |
| Coverage of public registry | 3713 | 132.3 | 204.81 | -0.0330 |
| Coverage of private registry | 3713 | 460.01 | 349.15 | -0.0334 |
| **Protecting investors** | | | | |
| Disclosure of ownership and financial info | 3713 | 1.1664 | 0.9665 | -0.0280 |
| **Enforcing contracts** | | | | |
| N. of procedures | 3713 | 5.801 | 4.419 | -0.0442 |
| Number of days | 3713 | 253.60 | 368.99 | -0.1000 |
| Official cost (% of debt value) | 3713 | 5.1653 | 3.4790 | 0.0159 |
| **Closing a business** | | | | |
| Number of years | 3713 | 1.0935 | 0.94187 | 0.0372 |
| Official cost (% of estate) | 3713 | 4.5354 | 4.303592 | -0.0168 |
| Recovery rate (cents on the dollar) | 3713 | 21.225 | 16.0981 | 0.0153 |




(a) Large learning costs: $(\gamma + C > Z_A)$ (b) Small learning costs: $(\gamma + C < Z_A)$

Figure 2: Labor market equilibrium with large and small learning costs

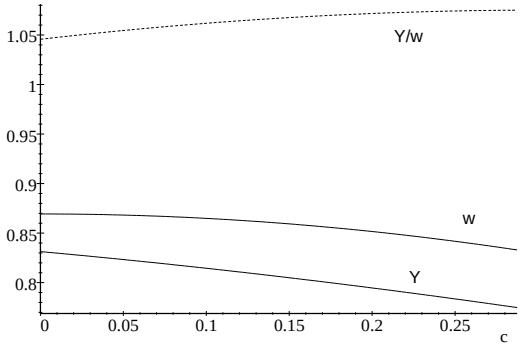



Figure 3: Effects of openness (lower $C$) on gross profits, wages and output. $(\gamma = 1.1)$.

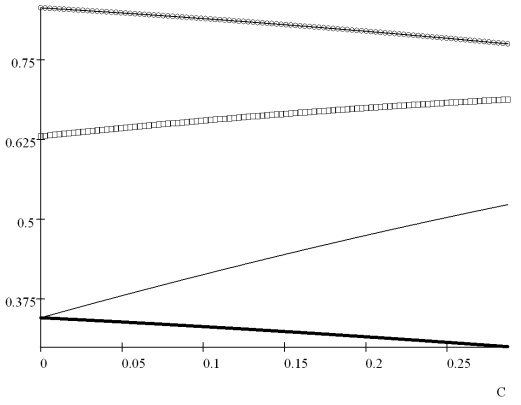



Figure 4: Effects of openness (lower $C$) for the median agent $(\phi = \frac{1}{2})$ on wages (dotted line), net profits from domestic activity (diamond line), net profits from foreign activity (solid line), net profits from *starting* a foreign activity (thick solid line). $(\gamma = 1.1)$.

# C A two-sector model with tradable goods

The model described in the main text is highly stilyzed. Among the many simplifications, we have also assumed tradable goods away. This, however, implies that multinational entrepreneurs cannot consume the profits earned abroad. In this appendix we show that adding a perfectly competitive sector of tradable goods, while addressing this problem, does not change the main results of the analysis.

This appendix also further generalizes the model by relaxing the assumption that entrepreneurial talent is uniformly distributed and allows $\phi \geq 0$ to be distributed according to any cumulative distribution function $F(\phi)$.

## C.1 The closed economy equilibrium

Assume the existence of a perfectly competitive sector where perfectly homogeneous tradable goods are produced. Labor is the only input and the production function in the tradable sector is $q = \alpha L$. The tradable good enters symmetrically in the Dixit-Stiglitz preferences of the agents so that its demand is $q = Y p_q^{-\theta}$, where the *numeraire* is, as in the main text, the price index of non-tradable goods.

In equilibrium $p_q = \frac{w}{\alpha}$ must hold. Being the supply of good $q$ infinitely elastic at $p_q = \frac{w}{\alpha}$, the quantity produced in the tradable sector is determined by consumers' product demand. Therefore, the demand for labor in the tradable sector is given by $L_q = \frac{q}{\alpha} = \frac{Y}{\alpha} p_q^{-\theta} = \alpha^{\theta-1} Y w^{-\theta}$. Assuming, as in the main text, $\theta = 2$ we have that:

$$L_q(z) = \alpha \frac{Y}{w^2} = \alpha z \tag{19}$$

We can now derive the aggregate labor demand equal to the sum of the demand for labor in the tradable and non tradable sectors. From (7) and (19) we have that:

$$\begin{aligned} L_D(z) &= L_q(z) + F(z-1) \times z + \int_0^{z-1} \phi dF(\phi) \\ &= \alpha z + F(z-1) \times z + \int_0^{z-1} \phi dF(\phi) \end{aligned} \tag{20}$$

From (20) the labor demand may be rewritten as follows:

$$L_D(z) = \begin{cases} \alpha z & \text{If } z \leq 1 \\ \alpha z + F(z-1) \times z + \int_0^{z-1} \phi dF(\phi) & \text{If } 1 \leq z \end{cases} \tag{21}$$

Thus, differently from the case analyzed in the text, for $z \leq 1$ the labor demand is not zero as some labor is hired in order to produce tradable goods.[35] Of course, in any equilibrium where both tradables and non tradables are produced, it must be that $z > 1$. Thus, being the labor supply $L_S(z) = 1 - F(z-1)$ the labor market equilibrium condition that pins down the value of $z$ is:

$$\begin{aligned} 1 - F(z-1) &= \alpha z + F(z-1) \times z + \int_0^{z-1} \phi dF(\phi) \\ 1 &= \alpha z + F(z-1) \times (z+1) + \int_0^{z-1} \phi dF(\phi) \end{aligned} \tag{22}$$

Notice that the right hand side of (22) is continuously increasing in $z$ and is equal to $\alpha$ if $z = 1$. Thus, provided that $\alpha < 1$, both tradables and non tradables are produced and the above equation uniquely identifies the autarchic equilibrium value of $z$ denoted by $Z_A$.[36]

The goods market equilibrium condition, that allows to separately identify the equilibrium values of the wage rate $w$ and of the income $Y$, reads as follows.

$$Y = \alpha^2 z + 2F(z-1) zw \tag{23}$$

Given that the value of $z$ is pinned down by the labor market equilibrium condition, the above equation allows to solve for $w$:

$$1 = \frac{\alpha^2}{w^2} + \frac{2F(Z_A - 1)}{w} \tag{24}$$

and therefore:

$$w_A = F(Z_A - 1) + \sqrt{[F(Z_A - 1)]^2 + \alpha^2} \tag{25}$$

[35] Notice that we now allow for any $\phi \geq 0$, thus $\phi$ is not constrained to be smaller than 1 as in the main text.

[36] Under the assumption of uniformly distributed talents one gets $Z_A = \frac{1-\alpha+\sqrt{(1-\alpha)^2+9}}{3}$

## C.2 The open economy equilibrium

We solve for a symmetric steady state. When the economy is open the labor demand is given by the sum of the demand for labor of domestic and foreign entrepreneurs. The labor demand of domestic entrepreneurs is as in equation (21). The labor demand of foreign entrepreneurs is, as in the main text, given by:

$$\begin{aligned} L_D^f(z) &= \int_0^{(z-\gamma-C)} (z+\gamma+\phi)\, dF(\phi) \\ &= F(z-\gamma-C) \times (z+\gamma) + \int_0^{(z-\gamma-C)} \phi dF(\phi) \end{aligned} \tag{26}$$

As in the main text, an equilibrium with FDI requires $1 \leq \gamma + C \leq z$. In this case (which holds true if $\gamma + C$ is low enough, namely $\gamma + C \leq Z_A$), the labor market clearing condition is:

$$\begin{aligned} 1 - F(z-1) &= \alpha z + F(z-1) \times z + \int_0^{z-1} \phi dF(\phi) + \\ &\quad + F(z-\gamma-C) \times (z+\gamma) + \int_0^{(z-\gamma-C)} \phi dF(\phi) \\ 1 &= \alpha z + F(z-1) \times (z+1) + \int_0^{z-1} \phi dF(\phi) + \\ &\quad + F(z-\gamma-C) \times (z+\gamma) + \int_0^{(z-\gamma-C)} \phi dF(\phi) \end{aligned} \tag{27}$$

Also in the open economy case the right hand side of (27) is continuously increasing in $z$ and is equal to $\alpha$ if $z = 1$. Thus, again, provided that $\alpha \leq 1$ the above equation uniquely identifies the equilibrium value of $z$ denoted by $Z^*(C)$. Notice that the labor demand can never be smaller than in autarchy. As the supply of labor is not affected by the possibility of cross-border investments, in any equilibrium with multinational entrepreneurs (i.e., whenever $\gamma + C < Z_A$), it follows that labor is now relatively more expensive, i.e. $Z_A \geq Z^*(C)$.

Again, the goods market equilibrium condition allows to disentangle $Y$ and $w$. The equilibrium condition reads as follows:

$$Y = \alpha^2 z + 2zw\left[F(z-1) + F(z-\gamma-C)\right] \tag{28}$$

and therefore:

$$w^*(C) = F(Z^*(C)-1) + F(Z^*(C)-\gamma-C) + \sqrt{\left[F(Z^*(C)-1) + F(Z^*(C)-\gamma-C)\right]^2 + \alpha^2} \tag{29}$$

A steady state with a lower $C$ (more similar entrepreneurial environments) displays higher levels of $w$ and $Y$.

The first result follows directly from equation (29 from which it is apparent that the wage rate is increasing in the fraction of (domestic and foreign) entrepreneurs, which in turn is decreasing in $C$.[37]

The second statement must be true since both productivity (as a consequence of low talented entrepreneurs exiting the market) and the fraction of workers goes up as $C$ decreases. Thus, output must go up.

Finally, we cannot claim in full generality that in steady state a lower $C$ implies lower gross profits $\frac{Y}{w}$. This is due to the fact that we abandon the assumption of linearity in the distribution of talents and allow for a general CDF $F(\cdot)$. This can be seen rewriting equation (28) as follows:

$$\frac{Y}{w} = z\left[\frac{\alpha^2}{w} + 2\left(F(z-1) + F(z-\gamma-C)\right)\right] \tag{30}$$

Recall that, as $C$ goes down, $z$ decreases while both $w$ and the total number of entrepreneurs go up. Thus, two offsetting forces are at work on the right hand side of (30). In the model solved in the main text, with a linear $F(\cdot)$ and $\alpha = 0$, we are able to prove analytically that the negative effect prevails and $\frac{Y}{w}$ decreases as $C$ goes down. While the inclusion of the tradable sector reinforces the negative effect, the presence of an arbitrary CDF does not allow to get analytical results. However, numerical results (available upon request) using different distribution functions (exponential, gamma, half-logistic and others) show that $\frac{Y}{w}$ does go down when $C$ goes down.

[37] Recall that a decrease in $C$ raises the aggregate (i.e. the sum of domestic and foreign) labor demand, while triggering a decrease in the number of domestic entrepreneurs and an increase in the number of foreign entrepreneurs. For the overall labor demand to go up, it must be that the number of (very efficient) foreign entrants is larger than the number of (inefficient) domestic entrepreneurs leaving the market, because more efficient entrepreneurs demand a lower amount of labor than inefficient ones. Another way of seeing that a lower $C$ raises the mass of entrepreneurs is that the number of varieties increases.