Judicial efficiency and foreign direct investments: evidence from OECD countries*

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Abstract

The purpose of this paper is to study the effect of judicial efficiency on a country's ability to attract foreign direct investments. I analyse FDI flows after observing the internalisation choice *ex post*. I move beyond the gravity framework to study FDI, by claiming that the pattern through which foreign investors structure their production internationally is driven by the interaction between investment and country characteristics. I provide robust estimates of the effect that differences in efficiency have both on the extensive and intensive margin of FDI, by including zero entries. I tackle the issue of endogeneity resorting to IV methodology. Causal estimates show that judicial efficiency explains more of the pattern of FDI than the combined skilled labour and capital endowment.

JEL Classification: F14, F23, K40.
Keywords: FDI, Contract Enforcement, Efficiency of Justice, Competitiveness.

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1 Introduction

In this paper I analyse the effect of judicial efficiency on a country's ability to attract foreign direct investments flows. In particular, I want to test whether judicial efficiency is the institutional channel through which the pattern of FDI in advanced economies is determined.

A recent debate among European institutions focused its attention on the quality, independence and efficiency of national justice systems whose role is seen as crucial in attracting foreign investments (EU, 2013; Esposito et al., 2014). Indeed, policy makers strive to attract and promote FDI inflows, expecting them to bring capital, new technologies, marketing techniques and management skills, therefore fostering economic growth (Javorcik, 2004).

However, the geographical distribution of foreign direct investments in advanced economies varies significantly across countries both along the extensive and the intensive margin.

Figure 1 shows the distribution of FDI in High-Tech-Knowledge-Intensive and Low-Tech-Low-Knowledge-Intensive sectors, expressed as percentage of total inflows among the reported EU countries. Great Britain, Germany, France and Spain attract relatively more FDI than others in both sector categories, underlying a country-effect both in attracting foreign direct investments.

Figure 2 reports the percentage difference between high and low tech-knowledge-intense FDI in the same EU countries. Indeed, Switzerland, Luxembourg and the Netherlands stands out as well as Great Britain and Germany in attracting relatively more high-tech with respect to low-tech investments, hence revealing a specialisation pattern of FDI.

What induces firms to differentiate the distribution of facilities in advanced economies, once controlled for factor endowments and other country-specific characteristics? Is judicial efficiency the institutional channel that determines the pattern of FDI among OECD countries?

A large literature analyses the link between judicial efficiency and contract enforcement on foreign direct investment inflows along several research dimensions. The theory comes up with a number of predictions on how firm, industry and country characteristics influence the multinational enterprise organisation choice. Unlike Grossman & Helpman (2002) and its related literature[1], I am not interested in the effect that contract enforcement has on the decision of multinational firms to outsource or internalise (i.e. the so-called *hold up problem*), since I observe the internalisation choice

[1] Grossman & Helpman (2003), Grossman & Helpman (2005) and Ornelas & Turner (2008)

Figure 1: Share of Total FDI in High-Tech and Low-Tech Sectors

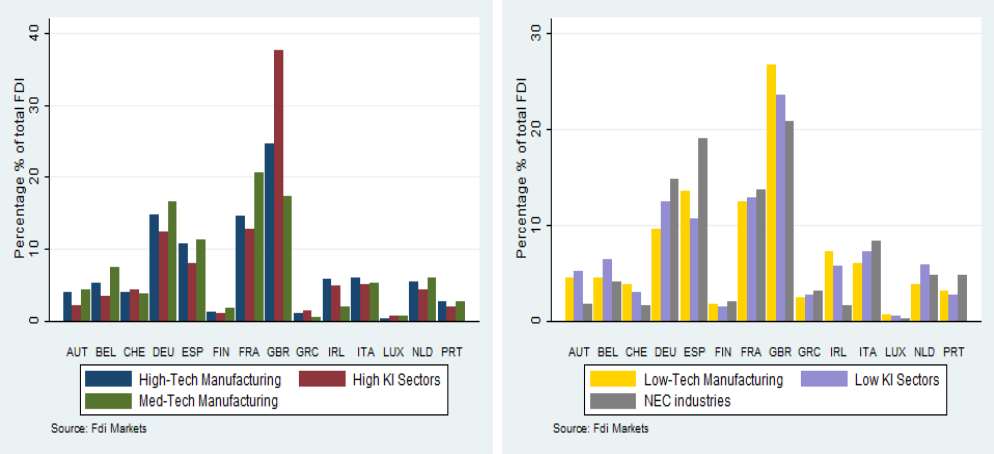
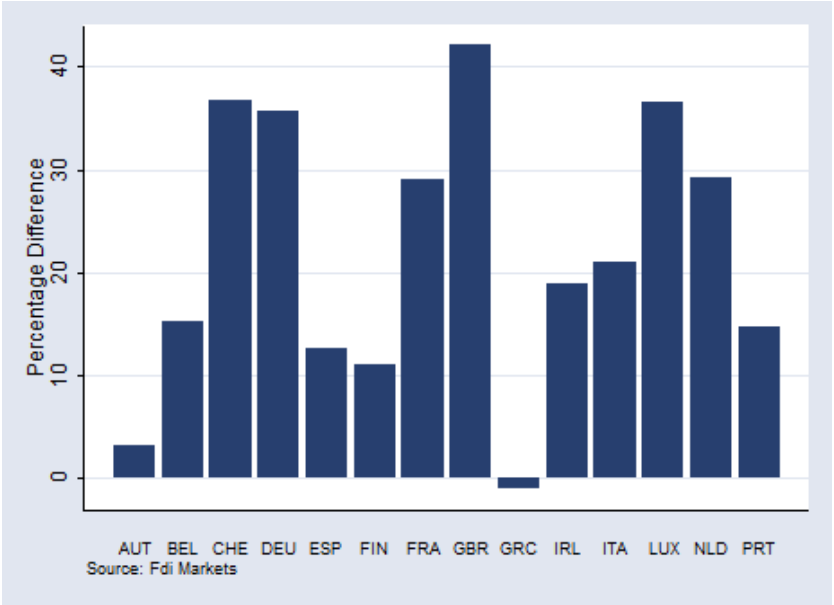


Figure 2: Pattern of FDI, Knowledge-Intensive with respect to Low-Tech



ex post at investment project level. I analyse the effect of judicial efficiency on countries' ability to attract knowledge-capital intensive investments, that are those foreign activities relatively more sensitive to the efficiency loss due to transfer of knowledge such as firm-specific assets, trade marks, know-how and patents. Following Rajan & Zingales (1998), I explain the pattern of FDI in OECD countries by using the interaction between industry and country characteristics including in the analysis both the manufacturing and service sectors.

Indeed, FDI are investment decisions typically taken at the firm level and many factors contribute to the final outcome on *where* to invest. Hence, to explain a given multinational activity several conjectures apply to different types of investment projects and to other characteristics of the receiving countries (Barba Navaretti & Venables, 2004; Markusen, 2002). Foreign direct investments occur along two interacting directions: the first exploits determinants related to types of business activity or industries, the second determinants related to countries' endowments.

Rajan & Zingales (1998) first make predictions about within-country differences between industries based on the industry-country interaction, testing whether industrial sectors that are relatively more dependent on external financing develop faster in countries with more developed financial markets. Following the same logic, will investments that are relatively more knowledge-capital intense locate in countries with better judicial quality?

The cross-country pattern of FDI is well approximated by the "gravity" relationship (Feenstra, 2003). This links the log of bilateral investments to the logged sizes of origin and destination economies and the log distance between them (Head & Mayer, 2013). Empirical studies on FDI augment the basic gravity equation by including other between-countries factors such as sharing a common language, factor endowments, corruption and taxes, third country competition, information proxies, taxes and wages.

Bénassy-Quéré et al. (2007) analyse the institutional determinants of bilateral FDI stock within a gravity framework, finding a significant effect of several institutional distances, without focusing on judicial efficiency. Head & Ries (2008) explain FDI as an outcome of the market for corporate control in a gravity framework, where the trade-off relies between strategic ownership advantage of fundamental market segments and monitoring costs, analysing mergers and acquisitions. Javorcik & Wei (2009) and its related literature[2] study the impact of several institutions and policies aimed to attract FDI in defined sets of countries using several firm-level data in a gravity framework. In particular, they focus on corruption and its inflows reducing effect in

[2]Harding & Javorcik (2011) and Harding & Javorcik (2013)

firms with high technological sophistication and on the impact of investment promotion agencies in countries with severe bureaucracy.

However, while the gravity equation provides a useful benchmark, a very similar relationship holds for almost all sort of spatial interactions. It is therefore important to move beyond the gravity relationship and identify the determinants of FDI relative to other form of international interactions (Barba Navaretti & Venables, 2004).

Also the importance of contract enforcement in international trade has been well developed, although with respect to comparative advantage or linked to how the Intellectual Property Right protection influences the way multinationals structure the international organisation of their production. Levchenko (2004) analyse the effect that contract enforcement can have on comparative advantage and the pattern of trade in institutionally dependent sectors among developed and developing countries. Head et al. (2004) find that, in the auto parts production, the less underinvestment generated by the *keiretsu* suppliers influences the composition of Japanese parts imports, resulting in an improved competitiveness relative to the United States. Nunn (2007) analyses the effect of contract enforcement on comparative advantage narrowing the focus on the effect that judicial institutions have on under investments in relationship-specific investments. Finally Naghavi et al. (2013) study how firms choose between procurement from related parties and from independents suppliers at the product level, focusing again on how multinationals organise their production along global value chains with respect to IPR legislation.

In this paper, I study how judicial efficiency plays a role in defining the pattern of foreign direct investments in OECD countries. I analyse FDI flows after observing the internalisation choice *ex post*. I move beyond the gravity framework to study FDI, by claiming that the pattern through which foreign investors structure their production internationally is driven by the interaction between investment and country characteristics. I also claim that judicial efficiency is the institutional channel that affects qualitatively the pattern of FDI by shaping the geographical distribution of international technology transfer. My hypothesis is that investment projects that are characterised by an higher degree of firm-specific assets will flow relatively more in countries where justice is more efficient, explaining why some advanced economies specialise more than others in attracting knowledge-capital intense investments[3].

[3]According to the Italian Trade Agency (Istituto per il Commercio Estero (ICE), Rapporto "Italia Multinazionale", 2012), FDI inflows in Italy in knowledge-capital intensive industries represented in 2011 just the 22.2% of labour forced employed in foreign-owned firms, a percentage unchanged from the previous ten years. While the sales and retail sector the employed 47.5% of labour forced hired in multinational enterprises. These fea-

In order to estimate the causal relationship between judicial efficiency and FDI, several conjectures apply. First, I need to identify an appropriate measure of dependence on judicial efficiency at industry level relevant for the whole economy, taking into account both manufacturing and service sectors. Moreover, this measure should be exogenous in order to avoid the reflection of the equilibrium between the demand for judicial efficiency for a given sector and its supply in a given country.

Second, both FDI inflows and judicial efficiency could be driven by a common omitted variable. In the absence of a comprehensive theory of FDI determinants, the list of possible omitted variables that judicial efficiency might be a proxy for is endless and the explanatory variables to include a subjective matter. However, I should control for those factors that are mainly identified as alternative determinants of FDI.

Third, vastly differing histories and legal traditions have shaped the justice systems in the OECD countries. Indeed, increased globalisation has led to some common trends, therefore a source of exogenous variation in judicial efficiency should be isolated in order to capture its causal effect on FDI inflows.

The paper is organised as follows. The next section describes the model and the estimating equation. Section 3 presents the industry data on foreign direct investments and analyse their sectoral distribution. Section 4 reports OLS fixed effects estimates. Section 5 and 6 test for the robustness of results and analyse the issue of endogeneity. Section 7 concludes.

2 Model and estimating equation

The effect of judicial efficiency and length of trials in determining the pattern of FDI acts along two different channels. On the one hand, a legal system that protects intellectual property rights of foreign investors guarantees the safeguard of intangible assets against infringements and counterfeiting. On the other hand, an efficient and independent legal system contributes to trust and stability, since predictable, timely and enforceable justice decisions are important structural components of an attractive business environment (Barba Navaretti & Venables, 2004).

Barba Navaretti & Venables (2004) show that at certain level of bargaining power due to firm-specific assets, the multinational firm sees its profits

tures reflect - at country level - Italy's productive structure in term of skill and capital endowment and - at industry level - the type of investment project, attracted by gaining market access to the Italian demand for consumer goods.

from outsourcing as reduced with respect to the ones obtain through internalisation.

When the latter situation occurs, the effect of judicial efficiency affects investments not through the channel of sub-optimality in relationship specific investments, but through the channel of reduced loss in efficiency due to transmission of knowledge (Yeaple, 2013).

Indeed, the link between the pattern of FDI in advanced economies and judicial efficiency relies in the knowledge-intensity of the intermediates produced or services provided by the affiliate firm. Goods and services that require knowledge-intensive stages of production correspond to higher shares of value-added generated at aggregate industry level, while the efficiency loss due to transmission of technology increases with the knowledge-intensity of each investment project (Yeaple, 2013). Therefore, high value added intensity can be a suitable proxy to characterise those investments whose knowledge-intensity is higher, hence requiring tougher requisites of judicial efficiency.

Industries that show most high-tech projects are those characterised by relative high shares of value added, by a greater potential of international transfer of technology, but also more sensitive to the protection of firm specific assets in terms of efficiency loss due to transmission of knowledge.

This is how I identify the channel through which judicial efficiency shapes qualitatively the pattern of FDI: high knowledge-capital intense investments are those characterised by high share of value added intensity; these investments will face a higher cost due to efficiency loss when transmitting knowledge; judicial efficiency plays a role in minimising this cost; therefore high knowledge-intensive investments will flow into countries with better judicial efficiency, once controlled for factor endowments.

I test this hypothesis by estimating the following equation:

$$FDI_{ic} = \alpha_i + \alpha_c + \beta_1 j_i J_c + \beta_2 h_i H_c + \beta_3 k_i K_c + \beta_4 x_i X_c + \epsilon_{ic} \qquad (1)$$

where FDI_{ic} denotes the number of *greenfield* foreign direct investments that flow in industry i and country c from all other countries in the world; j_i is a measure of knowledge-intensity that captures the dependence from judicial efficiency in industry i; J_c is a measure of judicial efficiency in country c; H_c and K_c denote country c's endowment of skilled labour and capital and h_i and k_i are the skill and capital intensities of production in industry i; x_i and X_c are additional industry varying and country varying control variables; α_i and α_c denote industry fixed effects and country fixed effects.

Foreign direct investments inflows are explained by the interaction of an industry characteristic with a country characteristic. Each observation varies in the country and industry dimension in order to capture the effect relative to variables that vary both across countries and across industries.

Indeed, I *do not* estimate the positive relationship between the quality of country c institutions and the total volume of FDI, since country fixed effects control for the average effect of country c in attracting FDI. Conversely, I *do not* estimate the positive relationship between industry i relative productivity and the total volume of FDI, since industry fixed effects control for the average effect of industry i in engaging in foreign investments. Therefore, β_1 only captures the effect that judicial efficiency has on the pattern of FDI, not their total volume.

Judicial efficiency requirements at industry level is measured as average OECD value added share. This is because having j_i varying both at industry and country level would reflect the equilibrium between the demand for judicial efficiency for a given sector and its supply in a given country, making this information endogenous. Therefore I assume that there is a technological reason why some industries exhibit an higher share of investment projects that have tougher requirements of judicial efficiency than others. Moreover, I assume that these investment project specific differences persist across countries, therefore I can use an average measure to identify an industry's dependence on judicial efficiency. The main idea is that while there are differences in local conditions among advanced economies, dependence on judicial efficiency is not related to the nationality of the multinational enterprise, but to the technology embedded in each investment project. What matters is the requirement of judicial efficiency that each investment project need in order to minimise the efficiency loss in technology transfer.

I consider both positive and zero entries hence I estimate the effect that differences in efficiency have on the *extensive margin* of FDI, i.e. industry i decision to directly invest in country c. Conversely, when the sample is restricted to positive entries only I estimate the effect that differences in judicial efficiency have on the *intensive margin* of FDI, i.e. industry i volume of FDI, conditional on the fact that industry i has already directly invested in country c.

β_1 is expected to be positive for the judicial quality interaction and negative for the length of trials one. High Q_c indicates that countries with better contract enforcement attract relatively more FDI in industries for which protection of firm-specific assets is important, while high LT_c indicates that countries with longest duration of trials attract relatively less FDI.

According to Horstmann & Markusen (1987) at same levels of judicial efficiency multinational activity occurs in knowledge-capital intensive industries and outsourcing takes place in physical-capital intensive industries. Hence, I will expect the skill interaction $h_i H_c$ to be *positive* and to indicate that countries skilled-labour abundant attract relatively more FDI in knowledge-capital intensive industries. Also, I will expect the capital interaction $k_i K_c$ to

be *negative* and to indicate that countries capital abundant attract relatively less FDI in physical-capital intensive industries, since outsourcing will occur.

Estimates from equation (1) cannot be interpreted as conclusive evidence of the effect of judicial efficiency on the pattern of FDI flows. This is for two reasons: the first is that there may be still an omitted variable bias. Indeed, value-added intensive industries tend to be skill intensive and countries with good judicial quality tend to have higher incomes and better endowments of skilled labour. Also, countries with an efficient justice show a comparative advantage in exporting skill intensive and high technology goods. Hence, the judicial efficiency interaction $jd_i JE_c$ may be capturing this specialisation in advanced economies. Country and industry fixed effects mitigate the omitted variable bias problem, by controlling for country and industry deviations from the mean. However, additional controls for determinants of FDI should be taken into account.

The second reason is that reverse causality may run from FDI inflows to judicial efficiency. A lot of studies focus on FDI host country effects, however no evidence is provided about the consequences of foreign investments for judicial efficiency. Palumbo et al. (2013) analyse the determinants of judicial performance and focus on demand side factors, indicating that an increase in workload is likely to generate congestion if the supply of justice does not adjust accordingly. Indeed, augments in foreign direct investments are related to business cycles fluctuations and the latter are seen as external factors that affect the number of incoming cases. Moreover, even if the availability of Alternative Dispute Resolution instruments may influence positively the congestion of the length of trials, their enforcement relies anyway on the public authority. Levchenko (2004) argues that institutions are quite slow to change, therefore in the short run an increase in FDI inflows leads to an increased pressure on the judicial system, generating a negative reverse causality effect on its performance. Other authors such as Nunn (2007) argue that countries that attract a lot of FDI and see their economy boosted by foreign investments (e.g. Ireland) may have a greater incentive to develop and maintain a good contracting environment. Therefore the direction of reverse causality is difficult to establish.

3 Data

The data on FDI inflows come from FDI Markets data set, that tracks all crossborder investments leading to a new physical plant, i.e. *greenfield*, from 2003 onward on a world basis. It monitors the number of FDI collecting news of investments from the media, industry organisations and specialised

agencies, data purchased from market research companies and validates each news of new FDI with company sources.

Each observation reports the name of the investing company, the sector in which the investment takes place and the type of business activity open. FDI Markets covers 39 sectors and 18 types of business activities. Table 1 and Table 2 report the distribution of FDI among FDI Markets sectors and business activities in OECD countries. Each entry can be aligned with the North American Industry Classification System (NAICS) 2007.

In order to proceed with the alignment and the conversion to the NAICS 2007 4 digits classification, I selected the investments projects from the whole world to OECD countries and I collapsed the by sector and business activity obtaining a maximum of 504 combinations observed. I then converted each entry by sector and business activity to the corresponding NAICS 2007 4 digits code, starting from the type of business activity open. For example, if FDI Markets reports a Retail business activity in the Coal, Oil and Natural Gas sector, this will correspond to NAICS 4 digits code 4471 "Gasoline Stations", within the 2 digits code Retail Trade. Conversely, if FDI Markets reports a Research & Development business activity in the Consumer Products sector, this will be converted as NAICS 4 digits code 5417 that includes "Research and Development in the Social Sciences and Humanities".

Table 1: FDI distribution across sectors

Industry description	%	Industry description	%
Aerospace	1.23	Hotels & Tourism	2.4
Alternative/Renewable energy	1.74	Industrial Machinery	3.98
Automotive Components	3.47	Leisure & Entertainment	1.63
Automotive OEM	1.9	Medical Devices	1.08
Beverages	0.63	Metals	2.43
Biotechnology	1.02	Minerals	0.17
Building Materials	0.87	Non-Automotive Transport	0.39
Business Machines & Equip.	1.13	Paper, Printing & Packag.	0.98
Business Services	7.28	Pharmaceuticals	1.9
Ceramics & Glass	0.3	Plastics	1.68
Chemicals	2.04	Real Estate	3.35
Coal, Oil and Natural Gas	1.86	Rubber	0.37
Communications	4.22	Semiconductors	1.28
Consumer Electronics	1.76	Software & IT services	15.88
Consumer Products	5.15	Space & Defence	0.39
Electronic Components	2.81	Textiles	5.76
Engines & Turbines	0.44	Transportation	2.89
Financial Services	8.45	Warehousing & Storage	1.44
Food & Tobacco	4.57	Wood Products	0.58
Healthcare	0.54		

Source: FDI Markets.

The resulting conversion has been thoroughly checked at company name level, in order to identify possible misclassification errors and it lead to 76 NAICS 2007 4 digits industries further converted to 50 industries ISIC rev. 3 2 digits classification in order to match the other variables classifications. Figure 3 shows the sectoral distribution of FDI resulting from FDI Markets compared with the value flows of FDI from OECD database (available for few industries). The manufacturing sector account for 15% of total greenfield FDI and of total amount invested in OECD countries. The service sector account for 76% of total greenfield FDI and for 68% of total amount invested in OECD countries.

Zero entries has been included generating for each of the 32 OECD countries 50 entries, one for each sector, generating a dataset of 1600 observations. Therefore, the dataset on FDI includes 723 positive observation and 877 zero entries, representing the 54.8% of the total.

Value added intensity is measured as value added share at industry level as average of OECD countries, taken from the OECD Structural Analysis

Table 2: FDI distribution across business activities, OECD countries

Business Activity	%
Business Services	13.84
Construction	4.36
Customer Contact Centre	1.38
Design, Development & Testing	2.9
Education & Training	0.58
Electricity	1.29
Extraction	1.1
Headquarters	5.5
ICT & Internet Infrastructure	1.31
Logistics, Distribution & Transportation	6.11
Maintenance & Servicing	0.83
Manufacturing	16.97
Recycling	0.29
Research & Development	2.39
Retail	14.27
Sales, Marketing & Support	25.62
Shared Services Centre	0.6
Technical Support Centre	0.67

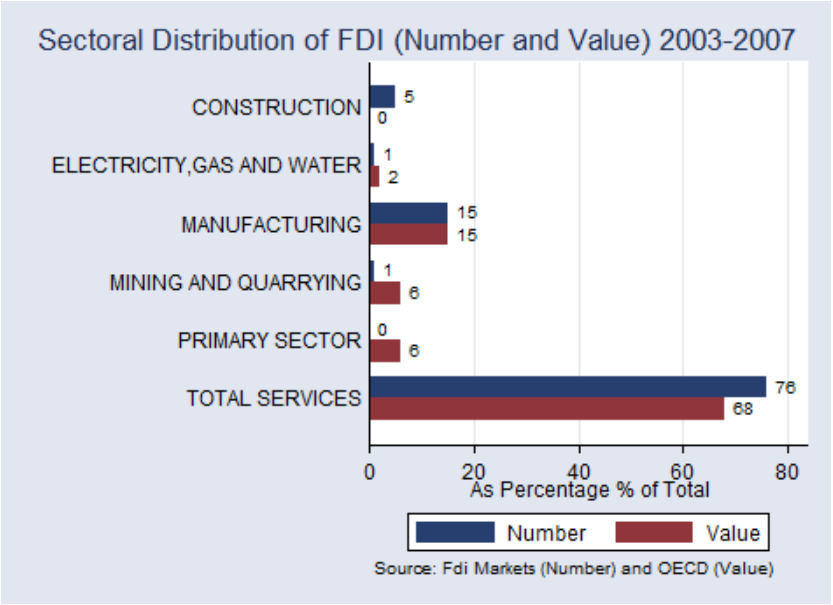
Source: FDI Markets.

(STAN) Databases.

Figure 4 reports the average OECD compared with US share of value added intensity across sectors taken from US Bureau of Economic Analysis. Sectors between 01 and 14 are the primary sector and mining; sectors from 15 to 37 represent the manufacturing industry; 45 is construction that includes high-tech civil engineering activities such as highways, railways, irrigation systems; 55 is hotel and restaurant; 60 is land transport including transport via pipelines; 64 is telecommunications; 65 is financial intermediation; 70 is real estate activities, while high value added intensity sector are from 64 to 85 and include real estate activities, renting of machinery, computer and related activities, R&D, other business activities such as management and consulting, public administration and defence, education and health.

Data on judicial quality and length of trials come from two sources. Judicial quality Q_c is a measure of "Rule of Law" from Kaufmann et al. (2003) and also used in Nunn (2007). This measure is a weighted average of a number of variables that measure individuals' perception of the effectiveness and predictability of the judicial system in each country between 1997 and 1998. Length of trials L_c is a series of alternative measures of length in days related

Figure 3: Sectoral Distribution of FDI



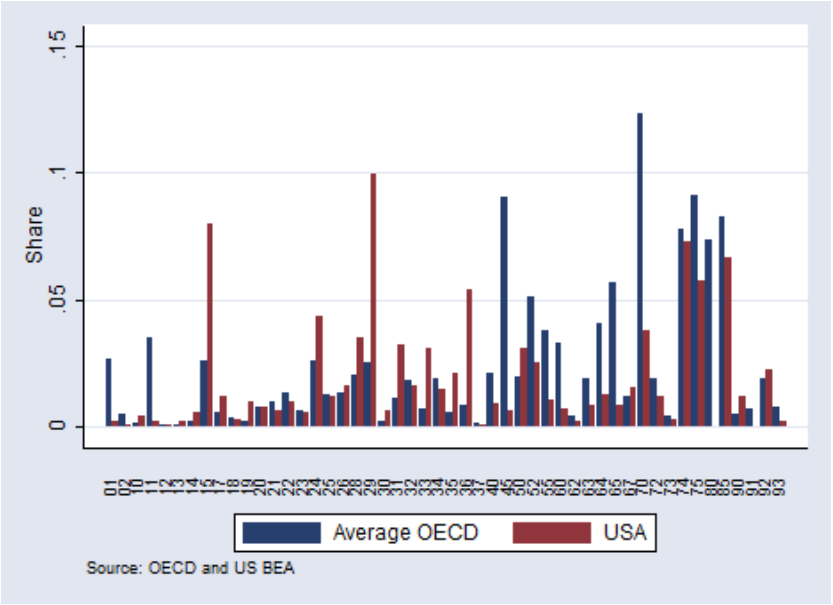
to eviction of tenants and collection of an unpaid check. In particular, they estimate the average duration until the completion of service of process, the issuance of judgement (trial) and the moment of repossession or payment (enforcement). Each phase of the process is then averaged between eviction of a tenants and collection of unpaid check. Average length of trials is then the sum of each stage average duration. These measures are derived from questionnaires answered by attorneys at Lex Mundi member firms, which is an international associations of law firms, taken from Djankov et al. (2003). Figure 5 shows the judicial quality measure and Figure 6 reports the average time between eviction of tenants and check collection of enforcement and overall length of trials. Judicial systems based on common law show higher efficiency with respect to civil law.

Countries endowments interactions are measured following Nunn (2007) using World Bank World Economic Outlook and OECD statistics data.

Skill intensity at industry level is measured as the natural logarithm of unit wage (expressed in millions), as OECD average from 2003 to 2007. Capital intensity at industry level is measured as the natural logarithm of capital stock per worker (expressed in millions), as OECD average from 2003 to 2007. The source of both data is OECD Structural Analysis (STAN) Databases at ISIC rev. 3 2 digits classification.

Skilled human capital stock is measured as the natural logarithm of labour force that completed tertiary education (expressed in millions) and physical

Figure 4: Value Added Share by Industry ISIC rev 3



capital stock is measured as the natural logarithm of capital stock (expressed in millions) taken from Hall & Jones (1999). The choice of using the latter data instead of OECD ones is driven by data availability.

4 Results

Tables 3 and 4 report the estimates of the effect of judicial efficiency on FDI inflows along the extensive and intensive margin respectively using judicial quality Q_c as judicial efficiency measure.

In Table 3 zero entries are included, while Table 4 report estimates on the restricted sample of positive entries. Conversely, Tables 5 and 6 reports estimates using average length of trials L_c as judicial efficiency measure. When I consider zero entries I estimate the effect that differences in efficiency have on the *extensive margin* of FDI, i.e. industry i decision to directly invest in country c. Conversely, when the sample is restricted to positive entries only I estimate the effect that differences in judicial efficiency have on the *intensive margin* of FDI, i.e. industry i volume of FDI, conditional on the fact that industry i has already directly invested in country c.

For each table, the first column shows model (1) estimates with the judicial quality interaction only; the second and third include respectively the skill and capital interaction added separately, while the fourth includes both

Figure 5: Judicial Quality: Rule of Law

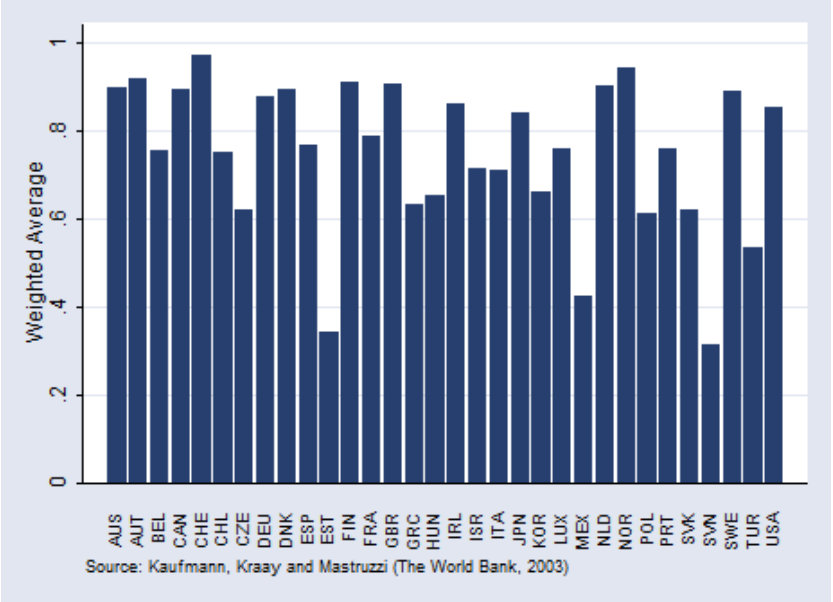
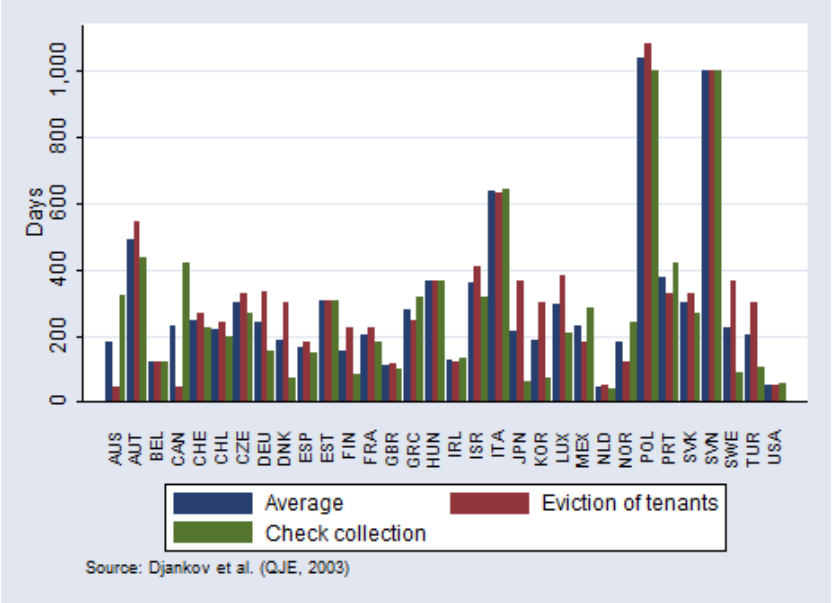


Figure 6: Average Length of Trials



skill interaction and capital interaction controls.

The estimated coefficients for the judicial efficiency interaction when judicial quality is used $j_i \times Q_c$ are always positive and statistically significant, while average length of trials $j_i \times L_c$ is employed the coefficients turns to be negative and statistically significant, as expected.

When factor endowments controls are included, as previously discussed in Section 2, one should expect a negative coefficient on the capital interaction and a positive coefficient on the skill interaction, which always occurs.

Beta standardised coefficient are always reported so that it is possible to directly compare the relative magnitude of the interaction terms. According to the estimates reported in Table 3, obtained using judicial quality as measure of judicial efficiency $j_i \times Q_c$, a one standard deviation increase in the judicial efficiency interaction augments the extensive margin of inward FDI of 0.42 standard deviations. When factor endowments are included the increase augments to 0.427 standard deviations. Turning to Table 4, a one standard deviation increase in the judicial efficiency interaction augments the intensive margin of inward FDI of 0.659 standard deviations and of 0.615 when factor endowments interactions are included.

The results support the hypothesis that judicial efficiency is an important determinant of FDI inflows and its effect is higher along the intensive margin, i.e. when foreign investors have already invested in industry i of country c.

Results are confirmed also by estimates obtained using average length of trials as measure of judicial efficiency $j_i \times L_c$. Indeed, a one standard deviation increase in the length of trials interaction reduces the extensive margin of inward FDI by -0.13 standard deviations and -0.131 when factor endowments are included, while reduces the intensive margin by -0.205 standard deviations and by -0.187 when controlling for factor endowments.

Next, I control for other determinants of FDI inflows that, if omitted, may bias the estimated relevance of judicial efficiency in attracting foreign direct investments. In particular, I want to control for a possible omitted variable bias. Country and industry fixed effects mitigate this problem, by controlling for country and industry deviations from the mean. However, countries with an efficient justice show a comparative advantage in exporting skill intensive and high technology goods. Hence, the judicial efficiency interaction may be capturing this specialisation in advanced economies, requiring an additional control for comparative advantage. The latter is measured as the natural logarithm of the industry i export share in country c, i.e. $ln(x_{ic}/X_c)$ using data from the OECD Structural Analysis (STAN) Databases at ISIC rev. 3 2 digits classification.

Furthermore, market size may play a crucial role in determining the sectoral and geographical distribution of FDI in advanced economies. Indeed,

Table 3: Baseline specification using judicial quality measure Q_c, extensive margin

	(1) FDI ic	(2) FDI ic	(3) FDI ic	(4) FDI ic
Judicial Eff. int. $ji \times Qc$	0.420***	0.416***	0.432***	0.427***
	[2.64]	[2.63]	[2.72]	[2.72]
Skill int. $hi \times Hc$		0.250**		0.352***
		[2.37]		[2.69]
Capital int. $ki \times Kc$			-0.093***	-0.103***
			[-2.95]	[-3.00]
Observations	1600	1600	1600	1600
R^2	0.425	0.426	0.430	0.433

Standardized beta coefficients; t statistics in brackets

Country and Industry fixed effects are included. Estimates are based on robust SE.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4: Baseline specification using judicial quality measure Q_c, intensive margin

	(1) FDI $ic > 0$	(2) FDI $ic > 0$	(3) FDI $ic > 0$	(4) FDI $ic > 0$
Judicial Eff. int. $ji \times Qc$	0.659***	0.663***	0.617***	0.615***
	[2.77]	[2.77]	[2.68]	[2.70]
Skill int. $hi \times Hc$		0.292		0.590**
		[1.56]		[2.19]
Capital int. $ki \times Kc$			-0.109**	-0.137**
			[-2.50]	[-2.57]
Observations	723	723	723	723
R^2	0.443	0.444	0.450	0.454

Standardized beta coefficients; t statistics in brackets

Country and Industry fixed effects are included. Estimates are based on robust SE.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 5: Baseline specification using length of trials measure L_c, extensive margin

	(1) FDI ic	(2) FDI ic	(3) FDI ic	(4) FDI ic
Judicial Eff. int. $ji \times Lc$	-0.130**	-0.128**	-0.134**	-0.131**
	[-2.01]	[-2.01]	[-2.07]	[-2.06]
Skill int. $hi \times Hc$		0.253**		0.353***
		[2.42]		[2.73]
Capital int. $ki \times Kc$			-0.091***	-0.101***
			[-2.92]	[-2.98]
Observations	1600	1600	1600	1600
R^2	0.422	0.423	0.427	0.429

Standardized beta coefficients; t statistics in brackets

Country and Industry fixed effects are included. Estimates are based on robust SE.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 6: Baseline specification using length of trials measure L_c, intensive margin

	(1) FDI $ic > 0$	(2) FDI $ic > 0$	(3) FDI $ic > 0$	(4) FDI $ic > 0$
Judicial Eff. int. $ji \times Lc$	-0.205**	-0.206**	-0.189**	-0.187**
	[-2.15]	[-2.16]	[-2.08]	[-2.09]
Skill int. $hi \times Hc$		0.272		0.583**
		[1.48]		[2.18]
Capital int. $ki \times Kc$			-0.115***	-0.142***
			[-2.64]	[-2.68]
Observations	723	723	723	723
R^2	0.436	0.437	0.444	0.448

Standardized beta coefficients; t statistics in brackets

Country and Industry fixed effects are included. Estimates are based on robust SE.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

value-added intensive industries tend to face large fixed costs and firms are willing to afford them only if prospectives sales are sufficiently large and countries with good judicial quality tend to have higher incomes, hence demand. Market size is measured as the interaction between a prospectives sales intensity at industry level and wealth at country level. Prospectives sales intensity at industry level is calculated as the natural logarithm of household consumption shares, as OECD average from 2003 to 2007, taken OECD Structural Analysis (STAN) Databases at ISIC rev. 3 2 digits classification. Wealth at country level is measured as the natural logarithm of GDP per capita.

The results with the set of control interactions are reported for both measures of judicial efficiency and for the extensive and intensive margins. Observation number drops from 1600 to 1427 due to some missing data at industry level for the prospectives sales intensity. Table 7 reports the estimates of the effect of judicial efficiency on the extensive margin FDI inflows using judicial quality measure and Table 8 shows the effect on the intensive margin of FDI inflows. The judicial efficiency interaction remains positive and statistically significant when these alternative determinants are controlled for and the magnitude of the coefficients slightly increases. Comparative advantage is always positive and statistically significant as expected, while the market size interaction is negatively significant at 10% level on the extensive margin and not significant on the intensive one.

Table 9 reports the estimates of the extensive margin of FDI inflows using average length of trial measure and Table 10 shows its effect on the intensive margin. Again, previous results are confirmed, since the length of trials interaction remains negative and statistically significant and the magnitude of the coefficients augments. Comparative advantage is always positive and statistically significant, while the market size interaction never significant, suggesting either a measurement error problem or its effect is captured by industry and country dummies.

5 Robustness and sensitivity analysis

I now test for the robustness and sensitivity of my results. First, I consider the effect that different trial stages may have on the extensive and intensive margin of FDI inflows, by decomposing average length of trials into duration of service of process, trial and enforcement. Table 11 reports extensive margin and Table 12 intensive margin results, showing that trial interaction alone does not have a significant effect on FDI inflows. However, this result is not surprisingly because it reflects the possibility of resorting to Alternative

Table 7: Controls using judicial quality measure Q_c, extensive margin

	(1) FDI ic	(2) FDI ic	(3) FDI ic	(4) FDI ic
Judicial Eff. int. $ji \times Qc$	0.468**	0.461**	0.484***	0.476***
	[2.56]	[2.55]	[2.67]	[2.66]
Comp. Adv. $ln(xic/Xc)$	0.092**	0.091**	0.092**	0.091**
	[2.46]	[2.45]	[2.46]	[2.45]
Market size int.	-0.290*	-0.286*	-0.307*	-0.304*
	[-1.81]	[-1.79]	[-1.88]	[-1.85]
Skill int. $hi \times Hc$		0.263**		0.369***
		[2.43]		[2.73]
Capital int. $ki \times Kc$			-0.092***	-0.103***
			[-2.85]	[-2.92]
Observations	1427	1427	1427	1427
R^2	0.443	0.444	0.449	0.451

Standardized beta coefficients; t statistics in brackets

Country and Industry fixed effects are included. Estimates are based on robust SE.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 8: Controls using judicial quality measure Q_c, intensive margin

	(1) FDI $ic > 0$	(2) FDI $ic > 0$	(3) FDI $ic > 0$	(4) FDI $ic > 0$
Judicial Eff. int. $ji \times Qc$	0.704***	0.710***	0.651***	0.645***
	[2.69]	[2.70]	[2.58]	[2.60]
Comp. Adv. $ln(xic/Xc)$	0.146**	0.146**	0.145**	0.145**
	[2.52]	[2.53]	[2.53]	[2.54]
Market size int.	0.068	0.049	0.057	0.018
	[0.42]	[0.31]	[0.37]	[0.12]
Skill int. $hi \times Hc$		0.344*		0.649**
		[1.75]		[2.23]
Capital int. $ki \times Kc$			-0.100**	-0.132**
			[-2.29]	[-2.41]
Observations	642	642	642	642
R^2	0.465	0.467	0.472	0.476

Standardized beta coefficients; t statistics in brackets

Country and Industry fixed effects are included. Estimates are based on robust SE.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 9: Controls using length of trials measure L_c, extensive margin

	(1) FDI ic	(2) FDI ic	(3) FDI ic	(4) FDI ic
Judicial Eff. int. $ji \times Lc$	-0.138**	-0.135**	-0.141**	-0.138**
	[-2.03]	[-2.01]	[-2.09]	[-2.08]
Comp. Adv. $ln(xic/Xc)$	0.088**	0.087**	0.088**	0.087**
	[2.38]	[2.37]	[2.38]	[2.37]
Market size int.	0.004	0.004	-0.002	-0.003
	[0.05]	[0.04]	[-0.02]	[-0.04]
Skill int. $hi \times Hc$		0.273**		0.377***
		[2.53]		[2.79]
Capital int. $ki \times Kc$			-0.089***	-0.100***
			[-2.79]	[-2.87]
Observations	1427	1427	1427	1427
R^2	0.439	0.441	0.445	0.447

Standardized beta coefficients; t statistics in brackets

Country and Industry fixed effects are included. Estimates are based on robust SE.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 10: Controls using length of trials measure L_c, intensive margin

	(1) FDI $ic > 0$	(2) FDI $ic > 0$	(3) FDI $ic > 0$	(4) FDI $ic > 0$
Judicial Eff. int. $ji \times Lc$	-0.233**	-0.234**	-0.220**	-0.218**
	[-2.06]	[-2.06]	[-2.01]	[-2.03]
Comp. Adv. $ln(xic/Xc)$	0.137**	0.137**	0.137**	0.137**
	[2.38]	[2.39]	[2.40]	[2.42]
Market size int.	0.254	0.239	0.224	0.184
	[1.45]	[1.37]	[1.34]	[1.11]
Skill int. $hi \times Hc$		0.323*		0.656**
		[1.68]		[2.25]
Capital int. $ki \times Kc$			-0.111**	-0.143***
			[-2.52]	[-2.60]
Observations	642	642	642	642
R^2	0.459	0.460	0.467	0.472

Standardized beta coefficients; t statistics in brackets

Country and Industry fixed effects are included. Estimates are based on robust SE.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Dispute Resolutions. The other previous results are confirmed.

Second, I check for the robustness of my result to sample variation by restricting it to the manufacturing and mining sectors only. Table 13 reports results of the manufacturing and mining sectors using the judicial quality interaction, while Table 14 using length of trials. When the sample is restricted in both cases the judicial efficiency interactions are still significant, but show an increase in their magnitude. The skill interaction loses its significance level. This may reflect the process of deindustrialisation that is occurring in advanced economies. Indeed, production plants tend to be moved in developing countries, while only headquarters and R&D activities are placed in OECD countries and the latter are classified as services.

Third, I examine whether my results are sensitive to the removal of influential observations. I identify outliers through the studentized residuals method and I remove the most influential observations. Results for the extensive margin are reported in Table 15, showing a reduced magnitude and significance, but confirming previous results.

6 Endogeneity

As discussed in Section 2, the OLS estimates of model (1) cannot be interpreted as causal, due to omitted variable bias and reverse causality. This is because many other variables can influence the FDI flows and also because countries that attract more FDI may experience several host country effects. On one hand, more investments may increase courts' workload that is likely to generate a congestion of the judicial system, leading to a negative reverse causality effect on its performance. On the other hand, countries that see their economy boosted by foreign investments (e.g. Ireland) may have a greater incentive to develop and maintain a good contracting environment.

In order to interpret these estimates as causal, I need to resort to an instrumental variable. Using IV is not common neither in the FDI related literature nor in the trade one. This is because generally is difficult to formulate an exclusion restriction that holds.

The instrument should impact FDI flows only through the channel of judicial efficiency and I rely on *state antiquity* to construct interaction variables to instrument for the judicial efficiency interaction. This index has been developed by Bocksette & Putternam (2002) at Brown University and identifies a measure of length of governmental presence of present-day countries based on the time the latter had been the site of nation-states, kingdoms or empires over longer spans of history. For each period of fifty years from 1 to 1950 a.d. the authors compute a measure that takes into account for every

Table 11: Decomposition of length of trials, extensive margin

	(1) FDI ic	(2) FDI ic	(3) FDI ic
Skill int. $hi \times Hc$	0.376***	0.390***	0.357***
	[2.74]	[2.78]	[2.76]
Capital int. $ki \times Kc$	-0.100***	-0.098***	-0.103***
	[-2.88]	[-2.85]	[-2.91]
Comp. Adv. $ln(xic/Xc)$	0.090**	0.083**	0.094**
	[2.42]	[2.32]	[2.47]
Market size int.	-0.078	0.057	0.004
	[-0.74]	[0.64]	[0.04]
Judicial Eff. int. $ji \times Service\ c$	-0.125**		
	[-2.39]		
Judicial Eff. int. $ji \times Trial\ c$		-0.076	
		[-1.58]	
Judicial Eff. int. $ji \times Enforcement\ c$			-0.188**
			[-2.43]
Observations	1427	1427	1427
R^2	0.447	0.444	0.452

Standardized beta coefficients; t statistics in brackets

Country and Industry fixed effects are included. Estimates are based on robust SE.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 12: Decomposition of length of trials, intensive margin

	(1) FDI $ic > 0$	(2) FDI $ic > 0$	(3) FDI $ic > 0$
Skill int. $hi \times Hc$	0.657**	0.661**	0.655**
	[2.22]	[2.23]	[2.28]
Capital int. $ki \times Kc$	-0.140**	-0.151***	-0.131**
	[-2.51]	[-2.61]	[-2.49]
Comp. Adv. $ln(xic/Xc)$	0.146**	0.131**	0.145**
	[2.54]	[2.39]	[2.46]
Market size int.	0.152	0.225	0.175
	[0.94]	[1.35]	[1.05]
Judicial Eff. int. $ji \times Service\ c$	-0.182**		
	[-2.42]		
Judicial Eff. int. $ji \times Trial\ c$		-0.129	
		[-1.61]	
Judicial Eff. int. $ji \times Enforcement\ c$			-0.280**
			[-2.38]
Observations	642	642	642
R^2	0.470	0.465	0.479

Standardized beta coefficients; t statistics in brackets

Country and Industry fixed effects are included. Estimates are based on robust SE.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 13: Manufacturing and mining sample using judicial quality measure Q_c, extensive margin

	(1) FDI ic	(2) FDI ic	(3) FDI ic	(4) FDI ic
Judicial Eff. int. $ji \times Qc$	1.014**	1.017**	0.995**	0.984**
	[2.37]	[2.37]	[2.37]	[2.35]
Comp. Adv. $ln(xic/Xc)$	0.090*	0.092*	0.092*	0.088*
	[1.80]	[1.81]	[1.84]	[1.78]
Market size int.	-0.303	-0.304	-0.260	-0.251
	[-1.49]	[-1.49]	[-1.29]	[-1.26]
Skill int. $hi \times Hc$		-0.090		0.279
		[-0.66]		[1.33]
Capital int. $ki \times Kc$			-0.130***	-0.147***
			[-2.89]	[-2.71]
Observations	748	748	748	748
R^2	0.479	0.479	0.487	0.488

Standardized beta coefficients; t statistics in brackets

Country and Industry fixed effects are included. Estimates are based on robust SE.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 14: Manufacturing and mining sample using length of trial measure L_c, extensive margin

	(1) FDI ic	(2) FDI ic	(3) FDI ic	(4) FDI ic
Judicial Eff. int. $ji \times Lc$	-0.336*	-0.337*	-0.332*	-0.328*
	[-1.86]	[-1.86]	[-1.87]	[-1.87]
Comp. Adv. $ln(xic/Xc)$	0.108*	0.109*	0.109**	0.104*
	[1.95]	[1.96]	[1.99]	[1.92]
Market size int.	0.134	0.134	0.170	0.174
	[0.79]	[0.79]	[0.99]	[1.02]
Skill int. $hi \times Hc$		-0.062		0.329
		[-0.48]		[1.62]
Capital int. $ki \times Kc$			-0.136***	-0.156***
			[-2.97]	[-2.85]
Observations	748	748	748	748
R^2	0.468	0.469	0.478	0.479

Standardized beta coefficients; t statistics in brackets

Country and Industry fixed effects are included. Estimates are based on robust SE.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 15: Sensitivity to influential observation, extensive margin

	(1) FDI ic	(2) FDI ic	(3) FDI ic	(4) FDI ic
Judicial Eff. int. $ji \times Qc$	0.228***	0.129**		
	[4.18]	[2.27]		
Judicial Eff. int. $ji \times Lc$			-0.033*	-0.037*
			[-1.73]	[-1.75]
Skill int. $hi \times Hc$	0.159*	0.153*	0.153*	0.156*
	[1.80]	[1.79]	[1.75]	[1.83]
Capital int. $ki \times Kc$	-0.051***	-0.036**	-0.044***	-0.034**
	[-3.38]	[-2.49]	[-2.96]	[-2.40]
Comp. Adv. $ln(xic/Xc)$		0.039**		0.031*
		[2.14]		[1.70]
Market size int.		-0.162		-0.089
		[-0.88]		[-0.50]
Observations	1581	1409	1581	1408
R^2	0.791	0.824	0.794	0.827

Standardized beta coefficients; t statistics in brackets

Country and Industry fixed effects are included. Estimates are based on robust SE.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

present day nation state's territory whether there has been a governmental presence above tribal level, it was a colony and how much of today's land was ruled by the government. In order to combine the data from the 39 fifty years periods, the authors uses several discounting rates, ranging from 0% to 50% for each half century.

Since each country's length of governmental presence up to 1950 is predetermined and unaffected by FDI inflows in 2003-2007, state antiquity can be used to isolate exogenous variation in countries' judicial efficiency, in particular through the channel of enforcement. State antiquity may also reflect those very long run historical processes that may affect FDI such as culture. In order to ensure the exclusion restriction to hold, I use the normalised index with the maximum 50% discount rate so that those factors that persist along history are controlled for and long-run influence from the past is mitigated.

The IV estimates for the extensive margin and intensive using both measures of judicial quality and length of trials are reported in Table 16 and Table 17 respectively. Column (1) and (4) recalls the OLS baseline results, (2) and (5) the first stage estimates and (3) and (6) the IV ones.

Regarding judicial quality, the first stage estimates show that state antiquity has a positive and statistically significant influence in both the extensive and intensive margin. The F-statistics on excluded instrument is 87.83 and 47.91 respectively, reducing the problem of weak instrument. This result is consistent with Bocksette & Putternam (2002). Indeed, judicial quality is a measure of "rule of law" and is based on individuals' perception of the effectiveness and enforcement of contracts. Territories and people that experienced the operations of a state for longer time may support the development of individual attitudes consistent with discipline and hierarchical control. The IV coefficient is positive and statistically significant, providing evidence on the importance of judicial efficiency on FDI attractiveness. The magnitude of the IV coefficient is larger than the OLS one. Taking into account potential negative reverse causality and omitted variable bias relative to other cultural effects, IV estimates can be expected to be higher. Moreover, according to the IV estimates, the effect that judicial quality has on the pattern of FDI is greater than the combined effect of both factor endowments and comparative advantage controls both in the extensive and intensive margin.

Considering average length of trials, the first stage estimates show that state antiquity has a negative and statistically significant influence on average length of trials in both the extensive and intensive margin, reflecting the reasons used to judicial quality first stage. The F-statistics on excluded instrument is 29.19 and 16.52 respectively, still above the 10 rule of thumb. The IV coefficient is negative and statistically significant and the magnitude

is larger than the OLS one as expected, providing further evidence on the importance of judicial efficiency on FDI attractiveness.

The economic interpretation of the causal estimates is also economically meaningful. Think for example to the performance of Italy and the UK in attracting investments in the manufacturing of motor vehicles sector: the first attracts 1 greenfield investments in the period 2003-2007, the latter 6. Italy's judicial quality measure is 0.71, while the UK's one is 0.91. The motor vehicles sector value added intensity is 0.019. If Italy would improve its judicial quality to the level of the UK's one, then the number of FDI attracted will be - *ceteris paribus* and using extensive margin estimates - 9.76.

The same exercise applies if I use average length of trials as measure of judicial efficiency: Italy's value is 637.5 days, while the UK's one is 108. The effect of a reduction of length of trials for Italy at the UK's level will lead - *ceteris paribus* and using extensive margin estimates - to 24.29 FDI.

Considering the total number of FDI inflows to OECD countries in the motor vehicle industry (157 over the 2003-2007 period), Italy will improve its share from 0.64% to 6.22% (Q_c based estimates) or to 15.46% (average length of trials based estimates) in the sector.

The difference in the estimates is related to how judicial efficiency is evaluated. According to Kaufmann et al. (2003), their judicial quality is exclusively a perception-based measure, in order to capture the effect of corruption or confidence in enforcement, but also expectations. Average length of trials from Djankov et al. (2003) catches only the complexity of the legal environment. Indeed, perception and expectations on the functioning of the judicial system may affect foreign investors more than objective data on duration of trials and take longer time to adjust when reforms are enforced.

7 Conclusions

In this paper I studied whether a country's ability to ensure an efficient judicial system is an important determinant of foreign direct investments inflows.

I analysed FDI flows after observing the internalisation choice *ex post*. I moved beyond the gravity framework to study FDI, by claiming that the pattern through which foreign investors structure their production internationally is driven by the interaction between investment and country characteristics. I also claimed that judicial efficiency is the institutional channel through which the pattern of FDI in advanced economies is determined by testing the hypothesis that investment projects that are characterised by

an higher degree of firm-specific assets will flow relatively more in countries where justice is more efficient, explaining why some advanced economies specialise more than others in attracting knowledge-capital intense investments

I provided robust estimates of the effect that differences in efficiency have both on the *extensive margin*, by including zero entries, and on the *intensive margin* of FDI. Moreover, I also provided causal estimates by tackling the issue of endogeneity resorting to IV methodology. When the state antiquity interaction is used as instrument for the judicial efficiency interactions, the latter explains more of the pattern of FDI than the combined skilled labour and capital endowment in OECD countries, both along the extensive and intensive margin.

Table 16: IV estimates, extensive margin

	(1) OLS	(2) First Stage	(3) 2SLS	(4) OLS	(5) First Stage	(6) 2SLS
Judicial Eff. int. $ji \times Qc$	0.476***		0.635**			
	[2.66]		[2.13]			
Skill int. $hi \times Hc$	0.369***	0.029	0.361***	0.377***	-0.081	0.352***
	[2.73]	[1.12]	[2.72]	[2.79]	[-1.04]	[2.69]
Capital int. $ki \times Kc$	-0.103***	0.008	-0.104***	-0.100***	-0.011	-0.102***
	[-2.92]	[0.79]	[-3.04]	[-2.87]	[-0.34]	[-2.96]
Comp. Adv. $ln(xic/Xc)$	0.091**	-0.008	0.094**	0.087**	0.016	0.094**
	[2.45]	[-0.78]	[2.50]	[2.37]	[0.62]	[2.45]
Market size int.	-0.304*	0.756***	-0.444*	-0.003	-0.622***	-0.173
	[-1.85]	[5.08]	[-1.67]	[-0.04]	[-2.96]	[-1.06]
State antiquity int.		0.605***			-1.141***	
		[9.37]			[-5.40]	
Judicial Eff. int. $ji \times Lc$				-0.138**		-0.337**
				[-2.08]		[-2.03]
F-test		87.83			29.19	
Observations	1427	1427	1427	1427	1427	1427
R^2	0.451	0.972	0.450	0.447	0.758	0.436

Standardized beta coefficients; t statistics in brackets

Country and Industry fixed effects are included. Estimates are based on robust SE.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 17: IV estimates, intensive margin

	(1) OLS	(2) First Stage	(3) 2SLS	(4) OLS	(5) First Stage	(6) 2SLS
Judicial Eff. int. $ji \times Qc$	0.645***		0.981**			
	[2.60]		[2.13]			
Skill int. $hi \times Hc$	0.649**	0.042	0.639**	0.656**	-0.078	0.634**
	[2.23]	[0.89]	[2.36]	[2.25]	[-0.57]	[2.37]
Capital int. $ki \times Kc$	-0.132**	-0.022**	-0.121**	-0.143***	0.029	-0.126**
	[-2.41]	[-2.42]	[-2.25]	[-2.60]	[1.12]	[-2.39]
Comp. Adv. $ln(xic/Xc)$	0.145**	-0.014	0.151***	0.137**	0.013	0.146**
	[2.54]	[-0.82]	[2.68]	[2.42]	[0.32]	[2.46]
Market size int.	0.018	0.345***	-0.109	0.184	-0.306*	0.049
	[0.12]	[2.66]	[-0.54]	[1.11]	[-1.73]	[0.24]
State antiquity int.		0.545***			-0.906***	
		[6.92]			[-4.06]	
Judicial Eff. int. $ji \times Lc$				-0.218**		-0.590**
				[-2.03]		[-1.98]
F-test		47.91			16.52	
Observations	642	642	642	642	642	642
R^2	0.476	0.973	0.472	0.472	0.805	0.441

Standardized beta coefficients; t statistics in brackets

Country and Industry fixed effects are included. Estimates are based on robust SE.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

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