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Non-trade provisions in trade agreements and FDI

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1. Introduction

Preferential Trade Agreements (PTAs) have become increasingly complex instruments of economic integration. Other than to exchange reciprocal market access through tariff and non-tariff reductions, countries have used PTAs to regulate cross-border issues related to investment, competition, services, technical and sanitary standards, and intellectual property rights. In addition, more recently, non-trade issues related to civil and political rights, economic and social rights and environmental protection have progressively become part of PTAs (Carrère et al., 2017; Lechner 2016, Raess and Sari, 2018). A prominent example is given by the EU, which in 1995 decided to include non-trade issue clauses in all its trade agreements (Borchert et al., 2020), this therefore becoming a relevant aspect of its Southern and Eastern Neighbourhood policy.

Due to the complexity of PTAs and the variety of motives for FDI, the relation between PTAs and FDI is not a simple one. PTAs are generally associated with an increase in trade between the parties, but the effect of a PTA on FDI can depend on whether trade and FDI complement or substitute each other. *Horizontal* FDI, with which firms replicate their domestic activities abroad, are a substitute for trade, and are likely to be affected negatively by a PTA (Bergstrand and Egger, 2007). *Vertical* FDI, performed by firms that seek to source inputs from abroad or that separate production stages across countries, are instead more likely to be complementary to trade, and are therefore likely to increase in response to a PTA (Anderson et al. 2019; Markusen 2002; Osnago et al., 2020). Further, there can be more complex FDI strategies such as export-platform FDI (Chen 2009; Ekholm et al., 2007) and "mixed-motives" characterized by various degrees of 'horizontal-ness' and 'vertical-ness' (Baldwin and Okubo, 2014).

This paper studies the effect of PTA provisions not directly related to trade (henceforth non-trade issues, or NTIs) on bilateral greenfield FDI flows. For-instance, the recent EU agreements with Georgia, Moldova and Ukraine, or the FTA between the US and Chile, feature, other than the elimination of tariffs and non-tariff barriers, also a substantial number of provisions related to economic and social rights and environmental protection. Our aim is to explore to what extent these additional provisions affect the flow of FDI between the parties of such agreements. We exploit data on bilateral greenfield FDI from fDi Markets, over the period 2003-17, matched with data on the NTI-content of PTAs from Lechner (2016). We adopt a structural gravity setting and estimate the effect that the introduction of the various NTIs – civil and political rights (CPR), economic and social rights (ESR) and environmental protection (EP) – has on FDI.

We are not aware of any previous works studying this issue[2], hence the main contribution of this paper is to unveil robust empirical regularities, rather than testing a specific theoretical proposition. The expected relationship between NTIs and FDI remains, in fact, an empirical question, as there can be a variety of effects at work. On one side, stronger commitment on labour standards and environmental protection could hinder the entry of multinational enterprises into certain markets due to higher costs – both fixed and variable; on the other side, progress on governance and the strength of institutions could signal a more stable and safe business environment and increase incentives to invest. There could also be a zero effect of NTIs on FDI, in case NTIs in PTAs have primarily the function to prevent the worsening of certain minimum environmental or labour standards.

We find that NTIs appear to have a negative effect on bilateral greenfield FDI. This is found for all three types of NTIs (CPR, ESR and EP), with the effect being robust to controlling for the overall depth of a PTA, the presence of substantive investment-specific provisions, the existence of a bilateral investment treaty, and EU single-market membership. This negative effect appears to be driven by FDI directed to middle- and low-income countries (i.e. south), and investments between south-south countries in particular.

We then explore whether the NTI-FDI relation is of a bilateral nature, or whether the NTIs contained in the PTAs a country is a member of affect its overall inflow of FDI. To put this differently, suppose two countries sign a trade agreement containing some NTIs, e.g. Korea with the US: do these NTIs affect only Korea-US FDI, or also FDI from third countries directed to Korea and the US? To explore the latter (third-country) effect, we aggregate the data from the bilateral to the country-year level and find, again, that a country's total FDI inflow is negatively affected by the average number of NTI provisions contained in its PTAs. The country-level estimates are, however, less robust than those obtained at the bilateral level: so, even if we cannot exclude that NTIs might have an impact on FDI from third countries, we retain the bilateral-level the main dimension through which NTIs exert their effect on FDI.

Although the research question that we explore is novel to the literature, this paper places itself at the intersection of two main strands of the literature. First, we add to the studies investigating the economic effect of trade agreements (among many others, Baier and Bergstrand, 2007; Egger et al., 2011; Heid et al, forthcoming; Olivero and Yotov, 2012) and the effect on FDI in particular (Anderson et al, 2019; Bergstrand and Egger, 2007; 2010; Chen, 2009; Kox and Rojas-Romagosa, 2020; Ramondo,

[2] At the time of writing there is ongoing work by Hugo Rojas-Romagosa on the relation between NTIs and FDI. He exploits FDI data from UNCTAD (instead of fDI Markets), which include mergers and acquisitions besides greenfield investment, and preliminary results appear to differ from those reported in this paper.

and Rodríguez-Clare, 2013). Second, we contribute to the recent literature investigating the non-trade content of trade agreements (Borchert et al., 2020; Lecher, 2016) and its impact on trade (Carrère et al., 2017; Lopez Vicente et al., 2020; Osnago et al., 2020; Raess and Sari, 2018). The paper closest to ours is Kox and Rojas-Romagosa (2020). They investigate the impact of PTAs and bilateral investment treaties on FDI: we follow their approach in specifying our empirical exercise and extend the analysis to how NTIs in PTAs affect FDI. More details about our contribution to these literatures are provided in section 3, below.

The remainder of this paper is organized as follows. Section 2 describes the data and provides some descriptive evidence of the growing role of NTIs in PTAs. Section 3 outlines our empirical strategy. Section 4 and 5 expose the results obtained with bilateral and country level data, respectively. Section 6 concludes.

2. Data

We exploit data on bilateral FDI from the fDi Markets Database, collected by the FDI Intelligence Unit of the Financial Times. This database reports accurate information on all (announced) greenfield investment projects since 2003, and covers all sectors and countries worldwide. Our main sample of analysis includes 71,572 greenfield investments directed to 172 destination countries and originating from 147 origin countries, over the 2003-2017 period. Where possible, fDi Markets also collects information on the value of the investment and the number of jobs associated with the FDI project undertaken by a firm. This information, however, is not very useful in practice, as it is available for only a small fraction of the projects[3] and is estimated by fDi Markets for the remaining cases. For this reason, similarly to other studies exploiting this dataset (Fiorini et al., 2017; Breinlich et al., 2020) we only rely on the count of FDI for our empirical analysis.

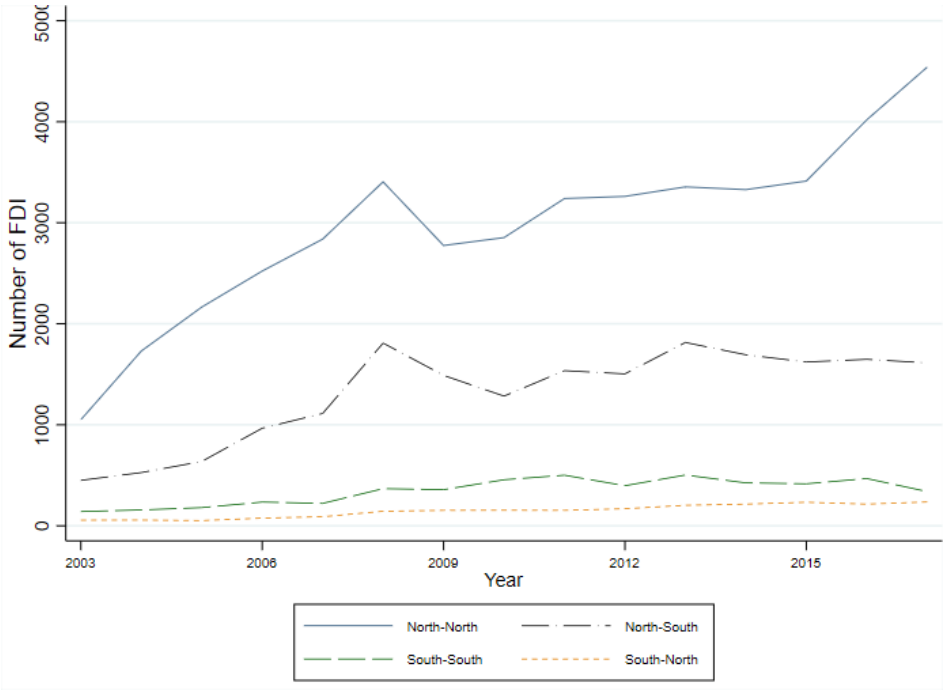
Figure 1 depicts the growth of greenfield FDI in our sample over time. We grouped the investments in four categories of flows, depending on the income per capita of origin and destination countries.[4] This figure allows us to inspect both the composition of the sample under analysis and its changes over time. The bulk of investments are performed among North (high-income) countries, with the second largest group being North-South investments. Investment originating in South (middle and low-

[3] Breinlich et al (2020) estimate the fraction of investment in fDi Markets with information on the value invested to be about 20% of all projects. As the sample in Breinlich et al. includes only investment made by EU firms, this fraction is likely to be even lower in our sample, as we include all investments worldwide.

[4] North countries (high-income) and South countries (middle- and low-income) according to the World Bank classification.

income) countries are considerably fewer. North-North FDI also exhibit the fastest growth, in particular over the period leading up to the 2008-09 financial crisis, and over the last few years included in our data. This stark difference in FDI numbers and trends among these four categories is addressed in our empirical analysis, where we estimate the effect of NTIs on FDI separately by the four FDI groups.

Figure 1. Number of FDI over time, by country groups



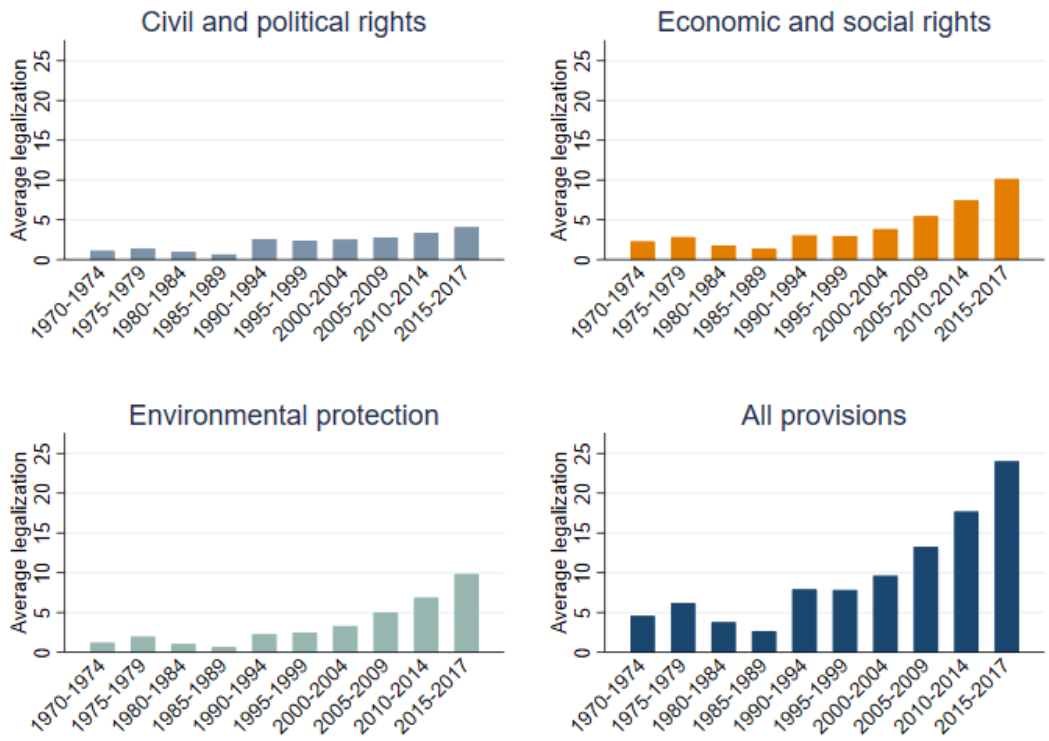
Note: we separate the countries in our data in North countries (high-income) and South countries (middle- and low-income) according to the World Bank classification.

Source: authors' elaboration on fDI Markets data.

Data on non-trade related issues in PTAs are taken from Lechner (2016). Lechner codes the NTI-content of PTAs and derives a score of legalization for each PTA, separately for the three areas of civil and political rights (CPR), economic and social rights (ESR) and environmental protection (EP). The legalization score is constructed following Abbot et al. (2001) and is defined along the three dimensions of *obligation*, *precision* and *delegation* of a PTA in a certain NTI area. *Obligation* refers to the extent to which trading partners are legally bound by rules or commitments; *precision* refers to the degree to which the rules are unambiguous; *delegation* refers to the degree to which third parties have been granted authority to implement, interpret, apply the rules and resolve disputes. For example, among environmental protection provisions, Lecher (2016) identifies whether a PTA contains a clause regulating air pollution, whether this clause is in the main text of the agreement (higher obligation), whether it refers to an international treaty regulating air pollution (higher

precision), and whether the PTA foresees that the parties consult International Organizations, NGOs or experts (higher delegation). Other examples, among ESR provisions, are whether a PTA contain a clause on standards of living, or on minimum age at work, or on prohibition of forced labour.[5] The content of each PTA in terms of *obligation*, *precision* and *delegation* of various types of NTI clauses is coded and a legalization score is assigned by aggregating the three dimensions for each area of CPR, ESR and EP related provisions.[6] A PTA characterized by extensive legalization demands greater commitment towards NTIs. There are alternative data sources on the content of PTAs (e.g. Hofmann et al., 2017), but we opted for Lechner (2016) as she includes information on the Civil and Political rights content of PTAs, which we consider a potentially relevant determinant of FDI, other than providing a continuous legalization score (instead of a binary variable), which allows to measure the degree with which NTIs are covered in PTAs.

Figure 2. Evolution of Non-Trade Issues, by type



Source: authors' elaboration on Lechner (2016).

[5] The data structure of Lechner (2016) is very rich: she codes 262 data points, then aggregated in 126 variables, referring to various CPR, ESR and EP clauses that can be contained in PTAs and their degree of obligation, precision and delegation.

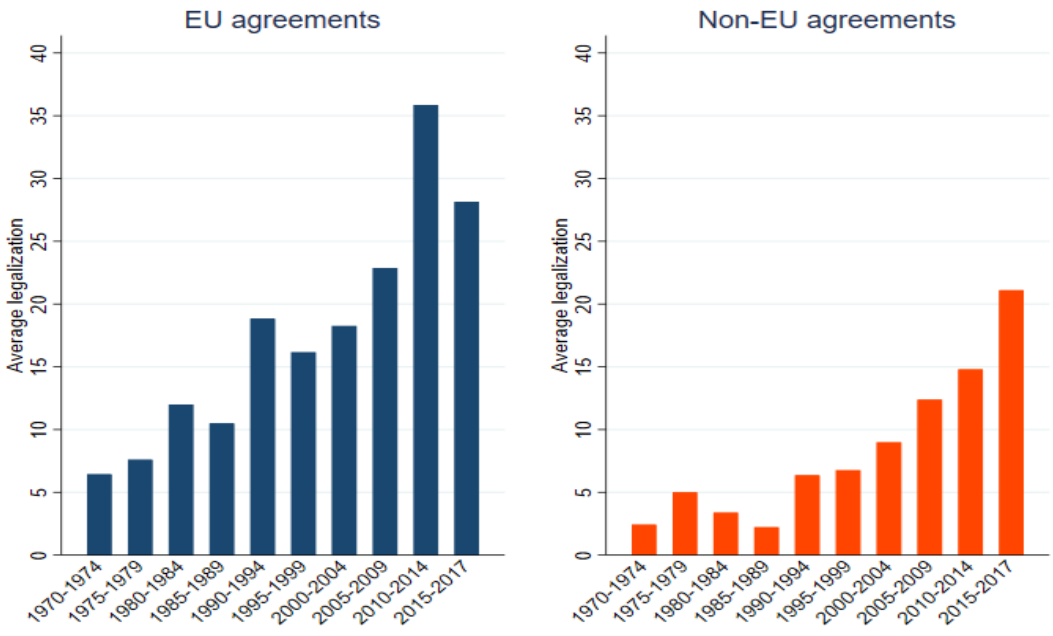
[6] Lechner (2016) produces two types of legalization scores: one is obtained by simply summing across all the variables which relate to a certain NTI area, the other is obtained by applying a latent trait analysis (LTA) to aggregate the various types of provisions in an NTI area. In this paper we exploit the simple sum, for its simplicity, although our empirical results are robust to exploiting also the LTA scores.

We also use data from Design of Trade Agreement (DESTA) database (Dür et al., 2014). In particular, we exploit the Depth Index, which captures the presence of seven different provisions in PTAs: full tariff reductions, provisions on common standards, services trade provisions, competition policy provisions, provisions on public procurement, investment and intellectual property rights. The index ranges from one to seven, depending on how many provisions are present in each trade agreement.[7]

Finally, we use data from UNCTAD on bilateral investment treaties (BITs), from which we are able to distinguish between BITs that were only signed and BITs that actually entered into force[8].

Figure 2 and 3 are constructed exploiting the full data from Lecher[9] (i.e. before matching them with the FDI data). Figure 2 shows the evolution of NTI legalization scores, across the three categories of CPR, ESR and EP. We average the legalization scores across PTAs which entered into force within 5-year intervals, from 1970 up to the most recent ones. All three types of NTIs saw an increase in legalization, in particular since the mid-1990s. The economic-related NTIs, ESR and EP provisions, saw a faster growth in legalization than CPR provisions, possibly signalling a growing tendency of exploiting PTAs to establish a level-playing field among trade partners through these NTIs.

Figure 3. Evolution of Non-trade Issues, by EU and non-EU agreements



Source: authors' elaboration on Lechner (2016).

[7] The Depth Index captures content of PTAs which differs from that of the NTI provisions, with no overlap between the two variables.
[8] We thank Valentino De Silvestre from the World Trade Institute, who compiled and shared the data with us.
[9] These data are available to download at http://www.lisalechner.com/data.html.

The European Union has often been considered a key actor in pursuing non-trade policy objectives within its trade policy (see Borchert et al., 2020 for an analysis of NTIs in EU agreements). This is reflected in Figure 3, which shows the evolution of all NTIs in EU and non-EU PTAs: the average legalization scores are substantially higher in EU PTAs, across the entire time period. However, even if the level of legalization is different, the growth of NTIs' legalization is comparable across EU and non-EU PTAs, with the latter showing a marked increase in the last decade.

Figure 2 and 3 still mask considerable heterogeneity across the various PTAs. Most PTAs, in fact, contain some NTIs, with only 111 agreements out of 663 having an overall legalization score of zero. The share of zero-score legalization agreements, furthermore, decreases sharply over time, with only 16 out of 281 PTA signed after 2000 having a zero score.

Table 1: legalization scores

	(1)	(2)	(3)	(4)
Sample	All FDI	North-North FDI	South-South FDI	North-South/South-North FDI
Mean CPR score	2.89	3.35	2.57	3.44
Mean ESR score	5.25	7.72	4.03	6.37
Mean EP score	4.68	6.97	3.36	5.72
Mean Depth (DESTA)	3.60	5.04	2.69	3.97
No. PTAs	285	68	123	141
No. PTAs with zero legalization	16	1	8	9

Source: authors' elaboration on Lechner (2016) and fDI Markets data.

To provide more insights on NTI heterogeneity across PTAs which is more directly relevant to our empirical analysis, Table 1 provides some summary statistics calculated out the estimation sample.[10] We use data on 285 PTAs, in force between 2003 and 2017: these PTAs have an average CPR score of 2.89, an average ESR score of 5.25, and an average EP score of 4.68. We also report the average depth of these PTAs (DESTA Depth Index), which is 3.6. These average scores vary considerably across agreements. In columns 2-4 of Table 1 we recalculate these statistics distinguishing between PTAs in force across countries belonging to the North-North, South-South and North-South (or South-North)

[10] This sample arises from matching the NTI data from Lecher with the dyadic FDI data from fDI Markets, restricting the observations to country-pairs members of PTAs, and dropping all the observations not used in estimation because of collinearity with the fixed effects. More details on our empirical approach are in section 3.

subgroups[11], with the average CPR, ESR and EP score being highest for the first subgroup, and lowest for the second.

3. Empirical strategy

We exploit a partial equilibrium[12] structural gravity approach to analyse the effect of NTIs in PTAs on the flow of bilateral FDI between the countries part of the agreement. Unlike a recent literature proposing complex models requiring data calibration exercises to explain the interrelation between trade, FDI and multinationals' behaviour (Anderson et al., 2019; Bergstrand and Egger 2007, 2010; Ramondo and Rodriguez-Clare, 2013), we opt for following the approach of Kox and Romagosa (2020) in specifying our estimating equation. The main advantage of this partial equilibrium approach is that we explain bilateral FDI patterns with a very parsimonious model, which is less data demanding, and that can be accurately estimated.[13]

This model explains the main push and pull factors for FDI, which are directly and indirectly linked to countries' GDP, and also accounts for absolute and relative bilateral FDI frictions. An absolute FDI friction is a barrier to FDI inflows in the host country that does not depend on the home country of the firm performing the investment: it's an explicit restriction (e.g. a legal barrier) that constrains FDI. A relative FDI friction is a barrier that favours or hinders FDI in the host country, as opposed to other countries: this can consist in economic or fiscal factors which make a certain destination more or less attractive to foreign investors. The amount of bilateral FDI is expected to increase with lower absolute and relative FDI frictions. NTIs in PTA could either lower both types of frictions, or increase them. Hence, as mentioned above, there is no clear *a-priori* expectation of the impact of NTIs on FDI. This paper provides a first empirical test of this relationship.

We face several choices and challenges in the empirical exercise we perform, due to the nature of the data and, mainly, because of endogeneity concerns that need to be addressed.

[11] Note that PTAs can belong to more than one of these subgroups, as some agreements include groups of countries with heterogenous income. This is evident from the figures at the bottom of Table 1, as the sum across columns 2-4 exceeds the total in column 1. EU agreements are an important example of PTAs entering all subgroups, as Romania and Bulgaria (EU members) are classified as South countries, while other EU members are classified as North countries.

[12] We focus on the direct effect of NTIs in PTAs on FDI, and are not concerned with the trade or the general equilibrium effects (i.e. welfare effect) of PTAs.

[13] The above-mentioned works aim to explain trade and FDI within the same model, which we don't do. We refer the reader to Kox and Romagosa (2020) for a discussion about advantages and shortcomings of large integrated models for trade and FDI.

We exploit a dyadic country-pair-year dataset including a large number of countries, which is an advantage of the fDI Markets dataset. This also implies, however, that there is a large fraction of zero FDI flows in the data, and potentially important heteroskedasticity issues due to the presence of many small countries. We address these issues by estimating our models with a Poisson Pseudo Maximum Likelihood (PPML) estimator (Santos Silva and Tenreyro, 2006), in line with the recent literature (Larch et al., 2019; Yotov et al., 2016). Another obvious reason to exploit a Poisson estimator is that we have a count variable on the left-hand-side of our model.

Next, a positive or negative correlation between NTIs and bilateral FDI could be explained by reverse causality or omitted variable bias. Countries with large FDI flows could decide to sign agreements with a larger NTI content, or vice versa. Alternatively, there could be unobservable factors, either specific to a country or to a country-pair, affecting both the NTIs in a PTA and the flow of FDI. To address these endogeneity issues, we include a restrictive set of fixed effects at the destination country-year, origin country-year and destination-origin pair level, and estimate the model with the recent PPML estimator developed by Correia et al. (2019).[14]

The country-year fixed effects capture any time-variant country characteristic which could affect its FDI inflow and outflow such as its business cycle, labour market regulations, national policies, or the overall level of openness to FDI. Further, these fixed effects also account for the multilateral resistance terms of the gravity equation, which capture the fact that the decisions made by multinationals to invest in a particular destination are not independent on their investment decisions into other countries (Olivero and Yotov, 2012; Kox and Romagosa, 2020).[15]

The country-pair fixed effects control for any country-pair specific time-invariant factor that could affect bilateral FDI, or the NTI-content of a PTA, such as relative operating costs, relative labour costs, distance, former colonial ties, communication (language), or similarity in legal systems. Country-pair fixed effects have been proven to be a better measure of bilateral costs than a set of standard gravity variables (Egger and Nigai, 2015). Importantly, the use of country-pair fixed effects also eliminates or accounts for the time-constant unobservable linkages between the endogenous trade policy covariate (the NTIs) and the error term in gravity regressions (Baier and Bergstrand, 2007; Yotov et al., 2016)[16]

[14]This estimator allows to include these three sets of high-dimensional fixed effect in a PPML estimation.
[15] In other words, the multilateral resistance terms in a gravity equation for FDI capture the attractiveness of alternative locations for investors in a certain country (Fiorini et al., 2017).
[16] There are alternative methods based control functions and instrumental variables to account for endogenous trade policy variables (e.g. Egger et al. 2011, Osnago et al. 2020). However, in our panel data context characterized by a large fraction of zero FDI flows, we considered the option of a PPML estimator with country-pair fixed effect to be the preferred approach.

Although our specification with the three sets of fixed effects just described is already very strict, and absorbs a long list of FDI explanatory factors, we also add country-pair time-varying variables to our estimating equation, in the attempt to control for time-varying factors which could be relevant in explaining FDI patters: a dummy variable identifying country pairs with a bilateral investment treaty (BIT) in force, a dummy variable identifying country-pairs belonging to the EU single market, a dummy for the presence of substantive investment-related provisions in the agreement, and a measure of the depth of the PTA. The two latter controls, taken from DESTA (Dür et al., 2014), are of relevance as we want to avoid the NTI variables to capture the presence of a deeper agreement in general, or an agreement particularly suited at stimulating FDI.[17]

We go beyond adding fixed effects and control variables, and restrict our sample to countries with bilateral PTAs in place. This step is important for two reasons. First, when estimating the effect of NTIs on FDI, we limit the control group to countries with PTAs and, as we use country-pair fixed effect, we allow the effect of NTI on FDI to be identified only within pairs in PTAs whose number of NTIs changes over time. This allows to avoid the reverse causality concerns coming from countries signing PTAs due to a large flow of FDI. Second, given the complex relation between PTA formation and FDI (due to various FDI motives), and the impossibility to separate horizontal from vertical FDI in our data, restricting the sample to countries in PTAs allows to focus on the impact of NTIs on FDI, rather than including also the PTA effect which could be of either sign.

We also account for the effect of national non-discriminatory policies. These are policies which are not bilateral in nature, and might well not explicitly discriminate foreign investments, but might affect the overall level of FDI. To account for these policies, we follow Heid et al. (forthcoming), which estimate the structural gravity model including both international and intra-national trade.[18] We mimic this approach by including in our data intra-national investment flows: as our bilateral FDI flow measure is the number of bilateral investment projects (rather than their value), we proxy domestic investment flows with the total number of FDI received by a country in a year (under the implicit assumption that domestic investment is at least as large as the total inward FDI).[19]

Finally, we estimate our gravity model exploiting (alternatively) contemporaneous and lagged policy variables, as well with yearly FDI, 2-year or 3-year averages of the FDI values. The use of lags is

[17] The depth index from DESTA, ranging from 1 to 7 depending on how many areas are covered in the PTA, is a "count" indicator. This implies that PTAs with the same index value could feature different kinds of provisions. For this reason, we separately control for the existence of investment provisions.

[18] Including both international and intra-national data in a gravity model also provides a theoretically consistent identification of bilateral policies, and resolves the "distance puzzle", as it accounts for both foreign and domestic distances (Yotov et al., 2016).

[19] Exploiting the mean number of inward FDI instead of the total makes no difference to our empirical findings.

intended to address the possibility that FDI flows do not respond immediately to policy changes, but might present a delayed reaction (Trefler, 2004; Olivero and Yotov, 2012); the averages allow to smooth fluctuations in FDI from one year to another which might affect the results (the issue might be more severe for small countries).

Our main estimating equation by which we address all the above-mentioned points is the following:

$$FDI_{i,j,t} = \exp\left(\beta lnNTI_{i,j,t} + \gamma' \mathbf{z}_{i,j,t} + \delta_{i,t} + \vartheta_{j,t} + \varphi_{i,j}\right) + \varepsilon_{i,j,t} \qquad (1)$$

$FDI_{i,j,t}$ denotes the (flow) number of inward greenfield FDI in country *i* from country *j* in year t. As mentioned above, we alternatively exploit yearly FDI, 2 year or 3-year averages. $lnNTI_{i,j,t}$ denotes the (log) number of non-trade related provision in the PTA between *i* and *j*. $\mathbf{z}_{i,j,t}$ denotes a vector of pair-wise time varying variables: the depth of the PTA, a dummy for PTAs with substantive investment provisions, a dummy for the presence of a BIT in force, and a dummy identifying country-pairs belonging to the EU single market. We exploit either the contemporaneous $lnNTI_{i,j,t}$ and policy variables $\mathbf{z}_{i,j,t}$, or their 1- or 2-year lags.[20] $\delta_{i,t}$ and $\vartheta_{j,t}$ denote the country-year fixed effects; $\varphi_{i,j}$ denotes the country-pair fixed effects; $\varepsilon_{i,j,t}$ is an idiosyncratic error term.

4. Results

This section presents the results from estimating specification (1) separately for the three categories of NTIs in our data: civil and political rights, economic and social rights and environmental protection.

Given the variety of aggregations (i.e. yearly data and averages) of the right-hand side FDI variable that we exploit, and the varying timing of the left-hand side variables (contemporaneous or lagged), here we present results with our preferred specification, which features an intermediate setting of both averages and lags: 2-year FDI averages and one-year lag of the policy variables. We believe that this intermediate setting provides the right compromise that allows to smooth some of the volatility of the flow of FDI and account for some of the delayed reaction of FDI to changes in policy, while at the same time retaining a good number of observations and variability in the data.[21]

Table 2 presents the results for the effect of civil and political rights provisions in PTAs on FDI.

[20] The use of various aggregations of the FDI variable and lags of the policy variables implies that we estimate 9 versions of specification (1), in total.

[21] The main results presented in this paper are robust to exploiting either contemporaneous or 2-year lagged policy variables, as well as yearly FDI and 3-year FDI averages. These results are available upon request.

Table 2: FDI and Civil and Political Rights provisions in PTAs

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable			2-year average FDI			
Sample	All	All	All	Manuf.	All	Manuf.
$Ln(CPR)_{t-1}$	**-0.126*** (0.0262)**	**-0.127*** (0.0259)**	**-0.162*** (0.0299)**	**-0.198*** (0.0660)**		
$Ln(CPR)_{t-1}$ * NN					**-0.138*** (0.0389)**	**-0.244** (0.0990)**
$Ln(CPR)_{t-1}$ * SS					**-0.256*** (0.0833)**	**-0.324** (0.144)**
$Ln(CPR)_{t-1}$ * SN					0.0886 (0.108)	-0.362 (0.341)
$Ln(CPR)_{t-1}$ * NS					**-0.219*** (0.0500)**	-0.127' (0.0825)
BIT_{t-1}		0.00450 (0.0624)	0.00546 (0.0624)	0.00502 (0.802)	0.00388 (0.0622)	-0.169' (0.104)
$EU\text{-}pair_{t-1}$		-0.0802 (0.289)	-0.229 (0.305)	0.517 (0.540)	-0.162 (0.282)	0.0549 (0.806)
$Depth_{t-1}$			0.0178' (0.0124)	0.0505* (0.0273)	0.0192' (0.0125)	0.0463* (0.0266)
$Investment_{t-1}$			0.0484 (0.0529)	-0.0853 (0.112)	0.0384 (0.0523)	-0.0775 (0.113)
Destination-year FE	Y	Y	Y	Y	Y	Y
Origin-year FE	Y	Y	Y	Y	Y	Y
Destination-Origin FE	Y	Y	Y	Y	Y	Y
N	15099	15099	15099	7622	15099	7622

Notes: For the CPR variables, we flag in bold the coefficients which are robust to exploiting yearly FDI data, 3-year FDI averages, contemporaneous and two-year lagged policy variables. Robust standard errors clustered at the country-pair level in parenthesis. ' p<0.15, * p < 0.1, ** p < 0.05, *** p < 0.01.

Across all the specifications in Table 2, the effect of CPR provisions is negative. Since the number of CPR provisions is in logs, the coefficients can be interpreted as elasticities: an 1% increase in the number of CPR provisions in a PTA lead to a decrease in the number of bilateral greenfield FDI by 0.13-0.16%. This effect is robust to controlling for the presence of bilateral investment treaties, EU membership, the depth of the PTA and investment provisions in the PTA. The latter controls are not statistically significant, except for the positive PTA depth coefficient: a positive association between deeper agreements and FDI signals a complementarity relation between trade and FDI, arising from input-seeking vertical FDI (Markusen 2002, Osnago et al, 2020). However, since we cannot distinguish between horizontal and vertical FDI in our data, a positive or negative PTA depth coefficient in our results should be interpreted with caution. We also fail to estimate a significant effect of BITs on FDI: this result, apparently at odds with the expectation that BITs should affect FDI positively, is not uncommon in the literature (see Osnago et al., 2020, for instance): Baker (2012) shows that BITs had a positive impact on FDI only until the mid-1990s, in line with our (insignificant) result for the period that we investigate.

In Column 3 of Table 2 we restrict the sample of analysis to FDI whose activity was classified under manufacturing in fDi Markets.[22] Estimating our models separately for investments linked to the actual manufacturing activity might reveal different effects of NTIs, in case the latter affected primarily production operations, or other activities undertaken by foreign investors abroad (e.g. headquarter, logistics, R&D, services). For CPR, it appears that the negative impact on manufacturing FDI is somewhat stronger than the average effect, with the elasticity increasing from 0.16 to about 0.2.

Table 3: FDI and Economic and Social Rights provisions in PTAs

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable			2-year average FDI			
Sample	All	All	All	Manuf.	All	Manuf.
$Ln(ESR)_{t-1}$	**-0.0702*** (0.0202)**	**-0.0704*** (0.0203)**	**-0.101*** (0.0260)**	-0.0730 (0.0537)		
$Ln(ESR)_{t-1}$ * NN					-0.0458' (0.0315)	**-0.126* (0.0691)**
$Ln(ESR)_{t-1}$ * SS					**-0.276*** (0.0746)**	-0.163 (0.115)
$Ln(ESR)_{t-1}$ * SN					-0.0214 (0.102)	-0.402' (0.247)
$Ln(ESR)_{t-1}$ * NS					-0.128*** (0.0391)	0.0184 (0.0700)
BIT_{t-1}		0.000609 (0.0622)	0.000784 (0.0622)	-0.178* (0.105)	-0.00646 (0.0614)	-0.181* (0.105)
$EU\text{-}pair_{t-1}$		0.0728 (0.287)	-0.0174 (0.297)	0.288 (0.785)	-0.0871 (0.303)	0.435 (0.822)
$Depth_{t-1}$			0.0156 (0.0129)	0.0235 (0.0271)	0.00781 (0.0135)	0.0165 (0.0277)
$Investment_{t-1}$			0.0581 (0.0514)	-0.00532 (0.107)	0.0642 (0.0515)	0.0104 (0.107)
Destination-year FE	Y	Y	Y	Y	Y	Y
Origin-year FE	Y	Y	Y	Y	Y	Y
Destination-Origin FE	Y	Y	Y	Y	Y	Y
N	15099	15099	15099	7622	15099	7622

Notes: For the ESR variables, we flag in bold the coefficients which are robust to exploiting yearly FDI data, 3-year FDI averages, contemporaneous and two-year lagged policy variables. Robust standard errors clustered at the country-pair level in parenthesis. ' p<0.15, * p < 0.1, ** p < 0.05, *** p < 0.01.

In the last two columns of Table 2 we investigate whether the effect of NTIs on FDI differs depending on the destination and origin country of the investment. We separate the countries in our data in North countries (high-income) and South countries (middle- and low-income) and construct four mutually exclusive binary variables identifying north-north (NN), south-south (SS), north-south (NS),

[22] fDi Markets classifies each investment project according to its sector, cluster and business activity by using a proprietary industry classification. The business activity, which we exploit to identify manufacturing investments, is defined as the actual function of the investment, regardless of the sector.

and south-north (SN) investments. We then interact these four variables with the number of NTIs and estimate the effect of NTIs separately on the four subgroups of investments. All types of investments are similarly negatively affected by CPR provisions in PTAs, except south-north investments. On the restricted sample of manufacturing investments, the impact of CPR is again found to be slightly stronger than on the aggregate sample, with the effect being significant for north-north and south-south investments only.

Table 3 presents the results for the effect of economic and social rights provisions in PTAs on FDI. Similarly to CPR provisions, also ESR provisions affect negatively the number of bilateral FDI. However, the magnitude of the elasticities is somewhat lower than those for CPR provisions and, importantly, the effect is not statistically significant on the subsample of manufacturing FDI.

Table 4: FDI and Environmental Protection provisions in PTAs

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable			2-year average FDI			
Sample	All	All	All	Manuf.	All	Manuf.
$Ln(EP)_{t-1}$	**-0.0584*** (0.0203)**	**-0.0584*** (0.0203)**	**-0.0755*** (0.0257)**	-0.0884* (0.0525)		
$Ln(EP)_{t-1}$ * NN					-0.0205 (0.0281)	-0.0416 (0.0583)
$Ln(EP)_{t-1}$ * SS					**-0.288*** (0.0734)**	**-0.337*** (0.122)**
$Ln(EP)_{t-1}$ * SN					0.0610 (0.101)	-0.161 (0.275)
$Ln(EP)_{t-1}$ * NS					-0.0947** (0.0461)	0.0287 (0.0850)
BIT_{t-1}		0.00130 (0.0623)	0.00214 (0.0623)	-0.181* (0.105)	-0.00995 (0.0614)	-0.195* (0.103)
$EU\text{-}pair_{t-1}$		0.0177 (0.286)	-0.0591 (0.301)	0.204 (0.789)	-0.118 (0.302)	0.287 (0.795)
$Depth_{t-1}$			0.0101 (0.0131)	0.0312 (0.0267)	-0.00300 (0.0139)	0.000569 (0.0287)
$Investment_{t-1}$			0.0554 (0.0525)	-0.0287 (0.103)	0.0778' (0.0526)	0.0124 (0.104)
Destination-year FE	Y	Y	Y	Y	Y	Y
Origin-year FE	Y	Y	Y	Y	Y	Y
Destination-Origin FE	Y	Y	Y	Y	Y	Y
N	15099	15099	15099	7622	15099	7622

Notes: For the EP variables, we flag in bold the coefficients which are robust to exploiting yearly FDI data, 3-year FDI averages, contemporaneous and two-year lagged policy variables. Robust standard errors clustered at the country-pair level in parenthesis. ' p<0.15, * p < 0.1, ** p < 0.05, *** p < 0.01.

Inspection of column 5 of Table 3, where we disaggregate the effect across the four sub-categories of investments depending on their origin and destination, reveals that the negative impact of ESR

provisions is driven by south-south investments (also the north-south coefficient is negative and significant, but it is not robust to exploiting alternative combinations of FDI aggregations and policy variables lags).

Column 6 of Table 3 confirms that ESR provisions do not affect manufacturing FDI strongly, with a negative and robust coefficient estimated only for north-north investments. Taken together, the results for ESR provisions suggest that it is mostly south-south non-manufacturing FDI to be affected by this kind of provisions.

Table 4 presents the results for the effect of environmental provisions in PTAs on FDI. Also for this NTI area, we find that the introduction of non-trade related provisions affects negatively bilateral FDI flows. The magnitude of the effect is in line with that found for ESR provisions, with the difference that a significant coefficient is estimated also for the manufacturing investments subsample (although this result is not robust to exploiting alternative NTI lags and FDI averages).

For EP provisions we find that the negative impact on FDI is entirely driven by south-south investments and, unlike ESR provisions, that this result is strongly confirmed also for manufacturing investments only.

4.1. Discussion

Overall, the results in this section point to a negative effect of NTI provisions in PTAs on the flow of bilateral greenfield FDI. This is found for all types of NTIs, across a variety of permutations to both the dependent and independent variables, and appears to be driven mostly by investments directed to middle- and low-income countries.

Finding a unique argument which can explain these effects can be challenging, however. The design of NTIs in PTA, in fact, differs not only over time, and across countries (e.g. between agreements signed by the EU with its partners, and he US with its partners), but it differs also within countries across partners. The EU, the US, for instance, have concluded agreements with varying legalization scores across partners, even though the agreements were signed at approximately the same time. The EU-CARIFORUM and the EU-Cote d'Ivoire agreements for instance, both signed in 2008, have a legalization score of 36 and 18, respectively. The US-Jordan and US-Vietnam agreements, both signed in 2000, have a legalization score of 15 and 4, respectively. The heterogeneity in the NTI design continues if one compares the different types of provisions, CPR on one side, ESR and EP on the other: the EU tends to demand the inclusion of more stringent CPR provisions in its agreements with small neighbouring countries such as Moldova, Ukraine and Georgia, mostly for political reasons, while it

tends to negotiate a larger number of economic-related provisions with large trade partners such as Canada, South Korea and Japan.[23]

One possible explanation for the empirical findings in this paper is that non-trade provisions in PTAs deter FDI because they impose higher costs to the operations of foreign multinationals. This argument applies rather easily to ESR and EP provisions, which are likely to increase labour costs and impose adherence to production standards (e.g. they might impose to comply with international treaties against water and air pollution) which could make the destination country a relatively less attractive location for FDI. Foreign multinationals and exporters, in fact, are often seen to lobby against the presence and strictness of NTIs, thereby degrading environmental and social issues in PTAs (Lechner, 2016).

The cost argument could apparently be difficult to sustain in light of the negative impact estimated for CPR provisions, especially since the elasticities for CPR provisions are higher than those for ESR and EP provisions. This result becomes easier to understand if the enforceability of the provisions is considered.

In EU PTAs, which "cover" approximately half of our estimation sample, CPR provisions are considered *essential elements* of the agreements, and their violation can trigger sanctions up to the suspension of the agreement (Borchert et al., 2020). In contrast, ESR and EP provisions are generally included in the so-called *trade and sustainable development* (TSD) chapters of PTAs, with no sanctioning mechanism in place in case of "misbehaviour" on the side of the trade partners.[24] This heterogeneous enforceability across NTIs, as well as their different coverage across trade partners, can help explaining the stronger deterrence effect estimated for CPR provisions: these latter might signal to potential investors a stronger commitment towards the respect of NTIs, especially if included in agreements with partners with a relatively riskier political landscape (e.g. Ukraine, or former-Yugoslavian countries). ESR and EP provisions in TSD chapters, even if likely to be more directly associated with higher costs for MNEs, might instead lack the "necessary vigour" (Marx et al., 2017).

[23] For an in-depth discussion of the design of NTIs in PTAs we refer the reader to Lechner (2016).
[24] An in-depth discussion of the legal aspects concerning NTIs is beyond the scope of this paper. For a discussion of the coverage and effectiveness of NTIs in EU agreements we refer the reader to Borchert et al. (2020).

Table 5: FDI and Environmental Protection provisions in PTAs

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable			2yavg fdi			
Sample	EU	EU	EU	Non-EU	Non-EU	Non-EU
Ln(CPR)t-1	**-0.130** **(0.0552)**			**-0.160***** **(0.0439)**		
Ln(ESR)t-1		**0.0621** **(0.0498)**			**-0.118***** **(0.0290)**	
Ln(EP)t-1		0.0281 (0.106)	**0.0456** **(0.0359)**			**-0.117***** **(0.0345)**
BIT	0.0338 (0.107)	0.0281 (0.106)	0.0286 (0.106)	-0.0844 (0.109)	-0.0945 (0.108)	-0.0926 (0.106)
EU-pair	0.0260 (0.538)	0.726 (0.506)	0.705 (0.507)			
Depth	-0.0292 (0.0373)	-0.115*** (0.0328)	-0.104*** (0.0288)	0.0347 (0.0266)	0.0293 (0.0211)	0.0295 (0.0215)
Investment	0.0465 (0.0591)	0.0625 (0.0603)	0.0694 (0.0611)	0.0175 (0.138)	0.0837 (0.113)	0.0843 (0.114)
Destination-year FE	Y	Y	Y	Y	Y	Y
Origin-year FE	Y	Y	Y	Y	Y	Y
Destination-Origin FE	Y	Y	Y	Y	Y	Y
N	7190	7190	7190	7408	7408	7408

Notes: For the CPR, ESR and EP variables, we flag in bold the coefficients which are robust to exploiting yearly FDI data, 3-year FDI averages, contemporaneous and two-year lagged policy variables. Robust standard errors clustered at the country-pair level in parenthesis. ' p<0.15, * p < 0.1, ** p < 0.05, *** p < 0.01

The arguments contrasting the effectiveness of CPR versus other types of provisions due to their enforceability apply to EU agreements in particular. To provide some empirical support to this discussion, in Table 5 we show results from estimating specification (1) separately for EU and non-EU agreements.

In columns (1)-(3) of Table 5 it indeed appears that, for EU agreements, only CPR provision have a negative impact on FDI, whereas ESR and EP provisions are found to have no effect at all. These results are in line with the enforceability argument. On the other side, for non-EU agreements, all types of provisions are found to have a similarly negative effect on FDI.

5. Country-level effects

The negative effect of NTIs in PTAs on FDI has so far been estimated at the bilateral level. The NTIs contained in each PTA in force between two countries have been matched to the flow of bilateral FDI to estimate specification (1).

However, the NTI-FDI relation might not be purely bilateral, as non-trade related provisions can affect the overall inflow of FDI into a country. For example, more stringent environmental and labour standards contained in a trade agreement, say between the US and Korea, could affect US-Korea FDIs (as shown in section 4), but also FDI from third countries into the partners of the PTA. To explore this rationale, we proceed as follows.

We aggregate the dyadic dataset into a country-year level dataset, summing over the number of FDI a country receives from all the origins in a certain year, and taking the average of the number of NTIs across all agreements a country is a member of in that year. We then estimate the following model:

$$totFDI_{i,t} = \exp\left(\beta ln(avgNTI_{i,t}) + \gamma' \boldsymbol{z}_{i,t} + \sigma' \boldsymbol{f}_{i,t} + \delta_i + \mu_t\right) + \varepsilon_{i,t} \qquad (2)$$

$totFDI_{i,t}$ denotes the sum of inward FDI in country *i* at time *t*. $ln(avgNTI)_{i,t}$ denotes the (log) mean number of NTIs contained in the PTAs country *i* is a member of in year *t*: we compute both a simple average, and an average weighted by the GDP of the partner country, and use them alternatively in estimation. $\boldsymbol{z}_{i,t}$ denotes a set of trade policy variables measuring the average depth of the PTAs (simple or GDP-weighted averages), the number of BITs in force for country *i* in year *t*, and the number of PTAs with substantive investment related provisions country *i* is a member of in year *t*. $\boldsymbol{f}_{i,t}$ denotes a set of controls varying at the country-year level: EU membership, GDP, and GDP per capita. We also add a set of country fixed effects, δ_i and a set of year fixed effects, μ_t. $\varepsilon_{i,t}$ is the error term.

Similarly to the bilateral-level estimates presented in the previous section, we estimate specification (2) exploiting alternatively yearly FDI data, 2-year and 3-year averages, as well as contemporaneous policy variables in $\boldsymbol{z}_{i,t}$, or their 1-year or 2-year lags.[25]

Table 6 presents the results from estimating specification (2) for CPR provisions. The overall picture emerging from table 6 is that, also when the relation between CPR provisions and FDI is estimated at the country level, find again a negative impact of the former on the latter. Results are less conclusive than those obtained with bilateral data. Although the coefficients on the average number of CPR provisions are negative and significant, both for the simple CPR average and the partner GDP-weighted CPR average, they are not always robust to exploiting alternative aggregations of the right-hand-side variables and lags of the policy variables. In particular, this is the case when control variables are added to the regressions (column 2) and when the estimation sample is restricted to investment in manufacturing activities.

[25] In total, the various combinations of averages and lags imply that we estimate 9 versions of specification (2).

Table 6: FDI and civil and political right provisions in PTAs – country level estimates

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable			Yearly-FDI			
Sample	All	All	Manuf.	All	All	Manuf.
Ln(avgCPR)t-1	**-0.211**** **(0.0853)**	-0.191** (0.0882)	-0.130' (0.0796)			
Ln(avgCPR_GDP)t-1				**-0.00742**** **(0.00291)**	**-0.00808***** **(0.00253)**	-0.00478* (0.00285)
Avg $Depth_{t-1}$		-0.0583*** (0.0192)	-0.0192 (0.0408)			
Avg $Depth\_GDP_{t-1}$					-0.00187** (0.000728)	-0.000901 (0.00134)
No. $BITs_{t-1}$		-0.0152** (0.00666)	-0.00471 (0.00628)		-0.0156** (0.00677)	-0.00474 (0.00636)
No. PTA $Inv._{t-1}$		-0.00333 (0.00366)	-0.0126*** (0.00297)		-0.00392 (0.00368)	-0.0131*** (0.00298)
EU_t		-0.754*** (0.157)	-0.548*** (0.110)		-0.793*** (0.163)	-0.573*** (0.115)
$Ln(GDP)_t$	0.440** (0.180)	0.338** (0.147)	0.511*** (0.169)	0.444** (0.185)	0.344** (0.161)	0.525*** (0.174)
$Ln(GDP)pc_t$	-0.972** (0.423)	-0.732** (0.365)	-1.166** (0.457)	-0.974** (0.428)	-0.742* (0.395)	-1.186*** (0.458)
Destination FE	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
N	2758	2758	2548	2758	2758	2548

Notes: For the CPR variables, we flag in bold the coefficients which are robust to exploiting 2-year and 3-year FDI averages, contemporaneous and two-year lagged policy variables. Robust standard errors clustered at the country level in parenthesis. ' p<0.15, * p < 0.1, ** p < 0.05, *** p < 0.01.

Similar results are obtained for ESR provisions, as shown in Tables 7. A larger average number of ESR provisions in PTAs appears to lead to a lower total number of FDI at the country level, although the coefficients that we estimate are not robust. Results are statistically significant when exploiting the GDP-weighted average number of ESR provisions but, again, they are not confirmed when we exploit alternative FDI averages and policy variables lags.

Finally, Table 8 presents the estimates for EP provisions, with results in line with those obtained for CPR and ESR provisions. The effect of a larger mean number of environmental protection provisions on FDI is negative, although weakly significant and not robust to exploiting alternative lags and averages combinations.

Overall the results in this this section suggest that, one on side, a larger (average) number of NTI provisions across the PTAs a country is a member of appear to affect negatively its overall inflow of FDI. This would lend support to the intuition that NTIs could indeed have an effect beyond the bilateral dimension and affect FDI originating in third countries too. On the other side, the negative effect of NTIs on FDI at the country level is not nearly as robust as that estimated with the dyadic data structure. We cannot, therefore, take a strong stance on the "third-country effect" of NTIs.

Table 7: FDI and economic and social rights provisions in PTAs – country level estimates

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable			Yearly-FDI			
Sample	All	All	Manuf.	All	All	Manuf.
$Ln(avgESR)_{t-1}$	-0.107*	-0.0812'	-0.0248			
	(0.0583)	(0.0546)	(0.0493)			
$Ln(avgESR\_GDP)_{t-1}$				**-0.00921*** **	-0.00995***	-0.00642**
				(0.00307)	(0.00271)	(0.00264)
$Ln(Avg\ Depth)_{t-1}$		-0.0559***	-0.0197			
		(0.0181)	(0.0420)			
$Ln(Avg\ Depth\_GDP)_{t-1}$					-0.00185**	-0.000815
					(0.000739)	(0.00132)
No. $BITs_{t-1}$		-0.0156**	-0.00459		-0.0158**	-0.00476
		(0.00673)	(0.00640)		(0.00681)	(0.00640)
No. PTA $Inv._{t-1}$		-0.00355	-0.0130***		-0.00379	-0.0130***
		(0.00372)	(0.00299)		(0.00370)	(0.00301)
EU_t		-0.726***	-0.532***		-0.790***	-0.572***
		(0.166)	(0.121)		(0.163)	(0.114)
$Ln(GDP)_t$	0.416**	0.323**	0.528***	0.417**	0.316**	0.506***
	(0.168)	(0.138)	(0.179)	(0.178)	(0.155)	(0.173)
$Ln(GDP)pc_t$	-0.913**	-0.696**	-1.207**	-0.919**	-0.680*	-1.142**
	(0.394)	(0.341)	(0.475)	(0.418)	(0.386)	(0.459)
Destination FE	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
N	2758	2758	2548	2758	2758	2548

Notes: For the ESR variables, we flag in bold the coefficients which are robust to exploiting yearly 2-year and 3-year FDI averages, contemporaneous and two-year lagged policy variables. Robust standard errors clustered at the country level in parenthesis. ' p<0.15, * p < 0.1, ** p < 0.05, *** p < 0.01.

Table 8: FDI and environmental protection provisions in PTAs – country level estimates

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable			Yearly-FDI			
Sample	All	All	Manuf.	All	All	Manuf.
$Ln(EP)_{t-1}$	-0.138*	-0.117*	-0.0750			
	(0.0714)	(0.0648)	(0.0690)			
$Ln(EP\_GDP)_{t-1}$				**-0.00893*** **	**-0.00982*** **	-0.00639**
				(0.00292)	**(0.00259)**	(0.00252)
$Ln(Avg\ Depth)_{t-1}$		-0.0548***	-0.0191			
		(0.0189)	(0.0419)			
$Ln(Avg\ Depth\_GDP)_{t-1}$					-0.00185**	-0.000823
					(0.000739)	(0.00131)
No. $BITs_{t-1}$		-0.0162**	-0.00505		-0.0159**	-0.00479
		(0.00662)	(0.00640)		(0.00679)	(0.00638)
No. PTA $Inv._{t-1}$		-0.00269	-0.0122***		-0.00375	-0.0130***
		(0.00373)	(0.00295)		(0.00369)	(0.00300)
EU_t		-0.733***	-0.532***		-0.795***	-0.574***
		(0.160)	(0.114)		(0.163)	(0.115)
$Ln(GDP)_t$	0.398**	0.303**	0.498***	0.418**	0.315**	0.507***
	(0.171)	(0.138)	(0.173)	(0.180)	(0.157)	(0.173)
$Ln(GDP)pc_t$	-0.882**	-0.647*	-1.125**	-0.920**	-0.677*	-1.143**
	(0.408)	(0.344)	(0.457)	(0.422)	(0.391)	(0.459)
Destination FE	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
N	2758	2758	2548	2758	2758	2548

Notes: For the EP variables, we flag in bold the coefficients which are robust to exploiting 2-year and 3-year FDI averages, contemporaneous and two-year lagged policy variables. Robust standard errors clustered at the country level in parenthesis. ' p<0.15, * p < 0.1, ** p < 0.05, *** p < 0.01.

Conclusion

This paper explores the impact of non-trade related provision in PTAs (or non-trade issues – NTIs) on the flow of bilateral greenfield FDI. In a rigorous structural gravity setting, we find that the flow of FDI appears to be affected negatively by the degree of legalization of PTAs concerning civil and political rights (CPR), economic and social rights (ESR), and environmental protection (EP). The effects are comparable in magnitude across the three types of provisions, although they are more robust and statistically strongest for CPR, and weakest for ESR provisions.

A plausible explanation for the negative impact of NTIs on FDI can be found in the higher operation costs that a stronger legalization in non-trade issues in PTAs imposes on multinational enterprises. This is particularly evident and easy to explain for ESR and EP provisions, imposing the adherence to international labour and environmental regulations, which might decrease the relative attractiveness of a foreign country as a production location. In support of this hypothesis, we find that the negative NTI-FDI relation appears to be driven by investments directed to middle- and low-income countries, especially for EP provisions. CPR provisions instead (related to human rights and democracy, among other things) can instead exert a negative impact of FDI because they can signal a strong commitment to pursuing NTIs by a trade partner. This is particularly evident in EU PTAs, where those related to CPR are the only enforceable NTI clauses: in case of their violation a trade agreement could be suspended altogether. In support of this important role of CPR provisions in EU agreements, as opposed to ESR and EP provisions, we find that only the former have a negative impact of FDI.

Finally, we explore whether the negative impact of NTIs on FDI estimated at the bilateral level extends to third countries. Higher NTI legalization of a PTA, which translates into changes in the national legislation could, in fact, affect not only FDI from the PTA partner, but also from other countries. We explore this rationale by estimating the NTI-FDI relation with data aggregated at the country level, but do not find strong support for the third-country-effect hypothesis.

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Appendix

Table A1 presents a few basic descriptive statistics of our estimation sample.[26]

Variable	Observations	Mean	Standard Dev.	Minimum	Maximum
No. FDI	29,004	2.47	8.58	0	181
No. CPR provisions	29,004	5.39	3.21	0	12
No. ESR provisions	29,004	7.89	4.37	0	21
No. EP provisions	29,004	5.49	3.71	0	19
Depth	29,004	4.21	2.42	1	7
BIT	29,004	.433	.495	0	1
Investment provisions	29,004	.381	.485	0	1

[26] This sample arises from restricting the observations to country-pairs members of PTAs, and dropping all the observations not used in estimation because of collinearity with the fixed effects. More details on our empirical approach are in section 3.