

# The impact of the EU preferential trade agreements on foreign direct investment (FDI)

**Paola Cardamone**

Department of Economics and Statistics, University of Calabria  
([p.cardamone@unical.it](mailto:p.cardamone@unical.it))

**Margherita Scoppola**

Department of Economic Development Studies, University of Macerata,  
([scoppola@unimc.it](mailto:scoppola@unimc.it))

# Motivation(1/2)

- There is a host of papers about the trade impact of the EU Preferential Trade Agreements (PTAs), while **evidence about their impact on FDI is poor**.
- More recent EU PTAs differ from their predecessors because of : a) the introduction of ***reciprocal***, rather than ***unilateral***, ***preferences*** and b) the inclusion of non-trade provisions in areas such as investments, services, competition policy, intellectual property rights, standards and dispute settlements (***deep integration***).

## Motivation (2/2)

- Prospects of a preferential access to the EU market together with deep integration commitments should promote FDI in the preferred countries both from outside and inside firms (*investment creation*).
- **But:** PTAs may also displace existing FDI in the preferred countries (*investment diversion*) if, following the reduction of the tariffs, multinational firms find it profitable to exploit economies of scale by concentrating plants in one partner country from which to export to all the others.

# The key questions

- Is the FDI creation effect of the EU PTAs prevalent on the FDI diversion effect, or the opposite is true?
- Does the nature of the preferences - unilateral *versus* reciprocal – matter as for their impact on FDI?
- What are the effects of the deep integration provisions?

## With respect to the existing literature on the impact of PTAs on FDI:

- **An indicator of bilateral tariffs** (we do not use *dummies*): it becomes possible to draw conclusions on the impact of different trade liberalization options (i.e. unilateral *versus* reciprocal)
- **Deep integration**: included in the model through the use of dummies
- **Dynamic panel data model (1995-2005)**: to take into account the likely impact that previous EU outward stocks of FDI have on current FDI and the fact that deep integration provisions may have appreciable impacts mainly in the long-run

# The empirical model

- An empirical model based on the knowledge-capital theory of the multinational enterprise (Markusen, 2002; Bergstrand, Egger, 2007) is used to estimate the impact of both trade and deep integration provisions of PTAs on the outward stocks of FDI of the EU.
- The study covers **all third countries and all PTAs signed by the EU** or already in force during the examined period.

# Expected effects of variables on the basis of the theoretical and empirical literature

	Horizontal FDI	Vertical FDI
Market size	+	0
Market size differences	-	0 / -
Differences in factor endowments	0	+
Host country tariffs	+	0 / -
Home country tariffs	0	-
		PTA
reciprocal trade liberalization	-	+
unilateral trade liberalization	0	+
deep integration	?	?

## Specification used in this paper:

$$\begin{aligned}\ln(FDI_{jt}) = & \beta_0 + \beta_1 \ln(\text{sumGDP}_{jt}) + \beta_2 \ln(\text{relGDP}_{jt}) + \beta_3 \ln(\text{relSKILL}_{jt}) + \\ & + \beta_4 \ln(\text{host tariff}_{jt}) + \beta_5 \ln(\text{eu tariff}_{jt}) + \beta_6 \text{deep signed}_{jt} + \\ & + \beta_7 \text{deep force}_{jt} + \delta_0 \text{trend}_t + \alpha_j + u_{jt}\end{aligned}$$

with  $j=1,2,\dots,173$  host countries and  $t=1995,\dots,2005$  years.

The empirical model used in this paper is more parsimonious than the one proposed by Carr *et al.* (2001) and used by Markusen and Maskus (2002) to test the knowledge-capital theory because those models do not seem to fit well with panel data model (Egger, Merlo, 2007).



## Variables (1/3)

- ***FDI***: *EU outward stocks of FDI* (Eurostat)
- ***sumGDP***: the sum of GDPs of the host country and of the EU (WDI 2008)
- ***relGDP***: *EU-to-host relative GDP* (WDI 2008)
- ***relSKILL***: *EU-to-host relative skilled-labour endowment* (WDI 2008)

## Variables (2/3)

- *Deep signed* is a dummy variable equal to one if a PTA contains deep integration provisions and the agreement has been signed and zero otherwise;
- *Deep force* is a dummy variable equal to one if a PTA contains deep integration provisions and the agreement is in force and zero otherwise.

## Variables(3/3)

- *Host tariff* indicates the tariff applied to the EU exports by the host country
- *Eu tariff* indicates the tariff applied by the EU to imports from the host country
  - Weighted average of bilateral tariffs at HS-6 digit level with weights equal to the share of imports from the group the exporter belongs to, as in MacMap (Bouet *et al.*, 2004). In this way, the endogeneity bias due to the use of bilateral imports in the weighting procedure is reduced (Cipollina and Salvatici, 2008).

## Estimation methods (1/2)

- **Fixed Effects** ( $\alpha_j$ ): OLS could raise the problem of heterogeneity bias due to observable and non-observable factors specific for each country  $j$ . From an econometric perspective, the omission of such factors may produce biased and inconsistent estimates.
- **Arellano Bond** (1991): past bilateral FDI affects current bilateral FDI (Egger, 2001). Thus, a dynamic specification could be more appropriate.

## Estimation methods (2/2)

- Econometric studies assessing the trade impact of PTAs have found evidence of endogeneity
- As regards EU FDI, there is no evidence to date on the direction of the causality relationship between FDI and tariffs which, in principle, may also run in both directions, from tariffs to FDI and *vice versa*.
- We tested the hypothesis of endogeneity of host and EU tariffs by using the Davidson-Mackinnon exogeneity test. The resulting p-value is equal to 0.08 and, thus, we reject the null hypothesis of exogeneity at the 10% level of significance.

## Results. Dependent Variable: FDI stocks (1995-2005).

	Fixed Effects			Arellano-Bond (1991)			Expected Signs	
							HFDI	VFDI
<b>FDI(t-1)</b>				0.297	(.01)	***	+	+
<b>sumGDP</b>	34.822	(3.)	***	21.673	(.79)	***	+	0
<b>relGDP</b>	-2.499	(.46)	***	-5.611	(.25)	***	-	0/-
<b>relSKILL</b>	1.121	(.43)	***	3.568	(.13)	***	0	+
<b>HOST tariff</b>	-0.070	(.1)		0.077	(.03)	***	+	0/-
<b>EU tariff</b>	-0.051	(.01)	***	-0.005	(.)	***	0	-
<b>DEEP signed</b>	0.037	(.18)		-0.309	(.04)	***	?	?
<b>DEEP force</b>	0.414	(.19)	**	0.709	(.06)	***	?	?
<b>Trend</b>	-0.558	(.08)	***	-0.395	(.02)	***		
<b>Costant</b>	-1178.32	(102.49)	***					
<b>Observations</b>	743			509				
<b>R-squared</b>	0.6323							
<b>Wald-Chi Square</b>				36691.99				
<b>Hansen test</b>				62.74				
<b>(p-value)</b>				(.59)				
<b>AR(1) test</b>				-3.72				
<b>(p-value)</b>				(.)				
<b>AR(2) test</b>				-1.18				
<b>(p-value)</b>				(.24)				
<b>Long-run coefficient DEEP signed</b>				-0.440	(.06)	***		
<b>Long-run coefficient DEEP force</b>				1.008	(.08)	***		14

## Implications:

- Findings suggest that the EU PTAs have both an investment creation and an investment diversion effect.
- Unilateral reduction of the EU tariffs should encourage FDI in the host countries.
- Conversely, with a symmetric bilateral reduction of tariffs we should expect that investment diversion more than offsets investment creation.

EU FDI in host countries may be encouraged more by unilateral liberalization by the EU, than by reciprocal liberalization.

## Results for total sample: *deep integration*

- Deep integration commitments affect negatively investment by EU firms if the agreement is signed but not yet in force, and positively when the PTA is in force.

- We have also estimated their long-run impact:

$$\beta_{deep} / (1 - \beta_{FDI_{t-1}})$$

- The long-run coefficients are significant and confirm that deep integration positively affects FDI also in the long-run only if the agreement is in force.



## Results for developing countries with a PTA with the EU.

Dependent variable: FDI stocks (1995-2005). Estimation method: Arellano-Bond (1991)

	Developing countries with a PTA			Others			Expected Signs	
							HFDI	VFDI
<b>FDI(t-1)</b>	0.299	(.02)	***	0.303	(.05)	***	+	+
<b>sumGDP</b>	24.601	(.93)	***	16.310	(2.61)	***	+	0
<b>relGDP</b>	-4.295	(.29)	***	-3.101	(1.58)	*	-	0/-
<b>relSKILL</b>	2.659	(.11)	***	1.193	(.61)	*	0	+
<b>HOST tariff</b>	0.146	(.07)	**	-0.070	(.16)		+	0/-
<b>EU tariff</b>	-0.061	(.)	***	0.008	(.)	*	0	-
<b>DEEP signed</b>	-0.242	(.07)	***	0.094	(1.21)		?	?
<b>DEEP force</b>	-0.640	(.1)	***	1.883	(1.)	*	?	?
<b>Trend</b>	-0.435	(.02)	***	-0.268	(.05)	***		
<b>Observations</b>	355			154				
<b>Wald-Chi Square</b>	24643.72			2032.05				
<b>Hansen test</b>	47.34			17.41				
<b>(p-value)</b>	(.62)			(1.)				
<b>AR(1) test</b>	-3.33			-1.79				
<b>(p-value)</b>	(.)			(.07)				
<b>AR(2) test</b>	-1.53			-0.72				
<b>(p-value)</b>	(.13)			(.47)				
<b>Long-run coefficient DEEP signed</b>	-0.345	(.1)	***	0.135	(1.73)			
<b>Long-run coefficient DEEP force</b>	-0.913	(.15)	***	2.702	(1.4)	*		

## Results for developing countries with a PTA with the EU (1/2)

- Results confirm the general findings for both groups of countries as for the size of joint markets, difference in labour skills, and for relative GDP.
- **Host tariffs** positively affect EU FDI in countries with a PTA with the EU, while **EU tariffs** have a negative impact; coefficient of host tariffs is much higher than that observed for the EU tariffs → same implications as for the total sample.

## Results for developing countries with a PTA with the EU (2/2)

- The coefficients of **deep integration** variables are significant but **negative for developing countries which have a PTA with the EU**. This result contrasts with previous studies possibly because they have considered different and smaller groups of countries.
- The negative impact of deep integration provisions on FDI in PTA countries is even greater in the long-run.
- On the contrary, for **the other group of countries** deep integration has a significantly **positive** influence on FDI if the PTA is in force.

## Results by level of income of countries.

Dependent variable: FDI stocks (in logarithm) (1995-2005). Estimation method: Arellano-Bond (1991)

	High and upper-middle income			Low and lower-middle income			Expected Signs	
							HFDI	VFDI
<b>FDI(t-1)</b>	0.227	(.02)	***	0.370	(.04)	***	+	+
<b>sumGDP</b>	17.130	(1.23)	***	19.718	(1.99)	***	+	0
<b>relGDP</b>	-4.517	(.35)	***	-0.001	(.77)		-	0/-
<b>relSKILL</b>	4.238	(.29)	***	1.321	(.34)	***	0	+
<b>HOST tariff</b>	-0.050	(.09)		-0.338	(.06)	***	+	0/-
<b>EU tariff</b>	0.006	(.)		-0.038	(.01)	***	0	-
<b>DEEP signed</b>	0.678	(.16)	***	-0.710	(.13)	***	?	?
<b>DEEP force</b>	2.307	(.25)	***	-1.583	(.23)	***	?	?
<b>Trend</b>	-0.282	(.03)	***	-0.266	(.07)	***		
<b>Observations</b>	313			196				
<b>Wald-Chi Square</b>	3132.43			1732.23				
<b>Hansen test</b>	33.88			28.01				
<b>(p-value)</b>	(.92)			(.46)				
<b>AR(1) test</b>	-2.44			-2.86				
<b>(p-value)</b>	(.02)			(.)				
<b>AR(2) test</b>	-0.68			-1.52				
<b>(p-value)</b>	(.5)			(.13)				
<b>Long-run coefficient DEEP signed</b>	0.876	(.21)	***	-1.127	(.21)	***		
<b>Long-run coefficient DEEP force</b>	2.984	(.34)	***	-2.511	(.46)	***		

# Results by level of income of countries (1/2)

- Low and lower-middle income countries: both EU and host country **tariffs** reductions always **positively affect FDI**; this is possibly because of the prevalence of vertical type multinational firms and the lack of horizontal FDI.
- Hence, for these countries, **bilateral liberalizations may encourage more FDI** than unilateral ones.

# Results by level of income of countries (2/2)

## Deep integration

- For low and lower-middle income countries it has a significantly negative effect on the EU FDI, confirming the evidence found for countries with a PTA with the EU.
- For high and higher-middle income countries the effect is significantly positive

# Deep integration provisions: robustness check

- We have estimated the model by including a dummy variable for each deep integration provision (investment liberalization, service liberalization, standard recognition, protection of IPR, competition, dispute settlement) one by one.
- The coefficients are all negative and significant for developing countries and significantly positive for the other groups of countries.

Hence, these results confirm that deep provisions negatively affect EU FDI in lower income countries and countries with a PTA with the EU.

# Conclusions

- Results show that the pattern of the EU FDI is a mix of vertical and horizontal FDI. These findings are in line with previous empirical studies.
- By including bilateral tariffs we have found very different values between the **elasticities** (in both sign and magnitude) **of FDI to the EU tariffs and that to host tariffs.**



## Tariffs:

- Results suggest that **unilateral preferences are more effective** in increasing EU FDI than reciprocal ones; this is confirmed when the sample is split into **countries with a PTA with the EU** and others.
- However, **for low-and lower-middle income countries**, we found **no investment diversion**; hence, **reciprocal liberalization is expected** to increase FDI more than unilateral liberalization.

## Deep integration provisions:

- They have a **negative effect** on the EU FDI in **low and lower-middle income countries**, and a positive impact in high and upper-middle income countries.
- Overall, this suggests that foreign firms prefer a less stringent and standardized legal framework in low income countries.
- Deep integration, in order to encourage FDI, needs a certain level of economic development of the host country.

# Further research

- The effects of PTAs have been assessed here only for the EU FDI; however, PTAs may attract multinational firms from third countries. To fully address this issue, data on bilateral stocks of FDI from non-EU countries would be necessary (.....)
- A further extension would be considering PTAs of host countries with other countries different from the EU.
- This paper has only examined the outward stocks of EU FDI, because its focus was the impact on FDI in host countries; however, EU PTAs obviously affect EU inward stocks of FDI as well.