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The effect of the European structural and investment funds on net FDI inflows

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Abstract

This paper examines what effect the European structural and investment funds have on net FDI inflows of European member states in the period of 2005 to 2016. The aim of the paper is to fill the gap in research relating to if the EU funds are successful in attracting private investments, in the form of FDI inflows. The paper uses a fixed effects model with country level panel data to estimate the aggregate effect of all the funds as well as each fund separately. The country level data puts a limitation on the paper since the EU funds objective is to help poor regions catch up to the richer regions. To reduce this problem the paper analyses both the entire sample as well as a subgroup of the poorest EU member states. The paper finds no effect of the EU funds for the entire sample. But when looking at the subgroup of the poor countries there is an effect on FDI inflows from the European agricultural and rural development fund as well as the European regional development fund.

Keywords: European Union, European structural and investment funds, Foreign direct investment inflows, Cohesion fund, European agricultural and rural development fund, European regional development fund, European social fund

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Table of Contents

- 1. Introduction4
- 2. Literature review5
- 3. European structural and investment funds background and purpose7
- 4. Data, variables and methodology9
 - 4.1. Data and variables9
 - 4.2. Methodology.....17
- 5. Results21
- 6. Discussion26
- 7. Summary and conclusion27
- 8. References29
- 9. Appendix33

1. Introduction

With the development and expansion of the European Union and the Union's intention of creating unity among the European countries there was a need for helping less developed regions catch up to the rest of the EU (European Commission, 2019a). With the Lisbon Strategy in 1999 the European Union set up what would later be called the cohesion policy which has set the investment policies of the EU funds from 2000 up to 2020. The Lisbon Strategy sets up objectives on how to help these poorer regions catch up. One goal is to attract private investment to co-finance the projects of the European structural and investment funds (European Parliament, 2019).

There is little research on the relationship between the European structural and investment funds and how they affect FDI inflows. Some research has been done on how the funds might affect private investments, but these have their main focus on economic growth and not in particular on private investments. One such study is the study by Dall'ebra and Le Gallo (2008). However, most of the studies are completely focused on economic growth and convergence. Other studies which look at FDI flows are looking broadly at what determinants there are for FDI flows.

There is some research done on how aid affect FDI flows, such as a paper by Kimura and Todo (2010). Kimura and Todo conclude that the ability to attract private investments is highly dependent on the aim of the aid. However, their report focusses on developing countries where the aid not necessarily aims at attracting private investments whereas the subject of this report is the EU funds having a pronounced objective of attracting private investments. In addition, the membership of the EU might facilitate private investments due to the larger market accessibility lacking in developing countries.

In this paper I investigate how the European structural and investment funds affect net FDI inflows into the EU member states in the period of 2005 to 2016. The model used is a fixed effects panel data model.

The results for the entire sample show that there is no effect of European structural and investment funds on the net FDI inflows to member states of the EU. Looking at a subgroup of the poor countries there is an effect for the two funds, European agricultural and rural development fund as well as the European regional development fund. It is likely that the difference between the results of the entire sample and the subgroup is because the EU funds work at a region level while the data is on country level. This causes the effects of the EU funds

on FDI inflows at country level to be much smaller in the wealthier countries compared to the poor countries.

The structure of the paper will be as follows. Section 2 is a review of previous literature of areas which are close to this paper's research subject. Section 3 gives a short background and introduction to the goals of the European structural and investment funds. Section 4 reviews the data, variables and methodology used in the econometric model. Section 5 is a presentation of the results of the regressions. Section 6 is a discussion of the results relating other research. Section 7 is a summary and conclusion of the paper.

2. Literature review

There are almost no articles looking at the relationship between EU funds and private investment or FDI inflow. The articles either look at EU funds and economic growth or more generally what affect private investments or FDI inflows. The articles investigating how EU funds affect economic growth and convergence are often based in classic economic growth theories or more recent econometric model studies.

Ederveen et al. (2002) presents an overview over the studies investigating how EU funds and policies have affected economic growth and convergence. They find that different research models end up giving different results without being able to determine which one is correct. In their meta-analysis Ederveen et al. divide the studies into three groups; case studies, simulation models and econometric models. They also explain how a lack of econometric evidence have led both their own and previous research to unreliable conclusions.

The case studies are research using a single or a small group of projects to make simulations how the EU funds impact economic growth in the regions. These studies are studies which are more of an evaluation of the programs. One example is a study by Huggins (1998) in which he evaluates how a project in industrial South Wales provided jobs by road building and how it alleviated some of the effects of the economic crisis in the region. This study does not discuss how effective the EU funds were or how long-term growth might have been affected. Dignan (1995) uses a wide range of case studies of the EU funds as a base for his analysis when he concludes that the original European regional development fund was ineffective because it was too uncoordinated and might not have invested in right projects.

Studies using simulation models are based on the theoretical framework from convergence theories. One such paper is the paper written by Dall'èrba and Le Gallo (2008). In their paper they investigate the impact of European structural funds on regional absolute convergence. Dall'èrba and Le Gallo find that the EU funds have a mixed effect, some regions show signs of convergence while others do not.

Among the econometric studies one study is of particular interest for this paper. The paper is written by Garcia-Milà and McGuire (2001) who investigates how the cohesion policy have affected regional economic growth in Spain. They argue that Spain need private investments to sustain economic growth but find no evidence that the EU funds stimulate private investments in the Spanish regions.

The papers investigating what has an effect on private investments or FDI flows are, in general, one of two types of papers. They either look at how public spending might cause a crowding-in or crowding-out effect on public investments. Or they look at what effects FDI flows. The public spending articles are usually from the 90ies and use macroeconomic theories, such as the Ricardian equivalence, together with econometric models to investigate the effect of public spending on private spending or investments. The papers on FDI flows are econometric models which try to find determinants to FDI flows.

The effect of public expenditures on private investments is, investigate by Argimón et al. (1997), Laopodis (2001) and Miyazaki (2018). Argimón looks at 14 industrialized countries between 1979 and 1988 and find that there is a crowding-in effect of private investment by public investments in infrastructure and some crowding-out effects from public consumption. Laopodis do a case study of Greece, Ireland, Portugal and Spain in which he studies each country's political reforms and some cultural differences. He concludes that the results are different for the different countries. In Spain a marginally higher public consumption leads to much lower private investment while higher capital spending has a small positive effect on investment. In the other three countries higher public expenditure has led to an increase in private investments. Finally, Miyazaki uses data from Japanese prefectures between 1980 and 2009 and analyses capital investments in different regions and sectors. He finds that crowding in and crowding out is different in different sectors and also that different policies between the different prefectures have a large impact on the result.

Two papers focusing on FDI flows specifically are the papers by Sharma and Bandara (2010) as well as Walsh and Yu (2010). Both papers identify variables which determines FDI flows. Sharma and Bandara look at Australia to find what determines how much and to which countries Australian foreign direct investment flow. They find that a large domestic market, an open trade regime and a similar language and culture as Australia are the most significant determinants. Walsh and Yu look at FDI inflows to the primary, secondary and tertiary sectors, they find that some determinants which can seem insignificant when not dividing the economy into sectors are significant when only studying one of the three sectors.

While these articles border to the research of this papers, none of them look at how large public foreign investments, such as the European structural and investment funds, into countries affect FDI inflows to these countries.

3. European structural and investment funds background and purpose

There are currently five European structural and investment funds (ESIF); European regional and development fund (ERDF), European social fund (ESF), Cohesion fund (CF), European agricultural fund for rural development (EAFRD) and the European maritime and fisheries fund (EMFF). The ESIF funds mainly focus on five areas; research and innovation, digital technologies, supporting the low-carbon economy, sustainable management of natural resources as well as small and medium businesses. Each of the five funds has their own area of responsibility, some of the areas overlap but they each have their own main focus (European Commission, 2019a).

The European regional development fund was created 1975 and was the first fund to be created. The fund was created to balance development between the different regions in the European Union. In 1988 the European Union started an overarching cohesion policy which integrated a large range of projects into the European structural funds, as with the regional development fund the purpose was to balance development between countries and regions (European Commission, 2019a).

In the period of 1993 to 1999 the structural funds began to resemble what the fund looks like today. In 1993, through the Maastricht Treaty the Cohesion fund, an extension of the cohesion

policy, was created. The purpose of the Cohesion fund was to focus on developing the poorest countries of the EU. The same year projects relating to fishery started to get funding by the structural funds and with the implementation of the cohesion policy, employment related projects began to receive funding. During this period the budget for the structural and cohesion funds were doubled to a third of the total EU budget (European Commission, 2019a).

For the two project periods 2000 to 2006 and 2007 to 2013 the focus of the structural funds and cohesion policy changed, the “Lisbon Strategy” year 2000 set the priorities of the cohesion policy on growth, jobs and innovation. Later, in the period 2007 to 2013 the European Union earmarked 30% of the funding for environmental infrastructure and for projects to combat climate change (European Commission, 2019a).

During the current period, 2014 to 2020, the focus is at large the same as the two first periods of the 21th century but with the addition of a focus on what is called the urban dimension and social inclusion which is an integration project for cities and support of marginalised communities (European Commission, 2019b).

The EU’s investment policy is mainly focused on regional policy to balance and develop the different regions in the EU. The funding is mainly going through the European regional development fund, with the rest going through the remaining four funds (European Commission, 2019c).

Regional policy and the investment plan are meant to balance regional development and increase solidarity between the regions and countries. The expectation is that the financial impact is not to be solely through the European structural and investment funds but also to increase public funding and private funding in the regions. Private investments are thought to increase because the public funding and investments are thought to create investor confidence (European Commission, 2019c).

4. Data, variables and methodology

4.1. Data and variables

Data

The dataset variables are collected from various sources and contain annual observations for the time period of 2003 to 2016. The dataset includes macroeconomic variables for most of the 28 European membership countries. A full list of all variables and their sources can be found in the appendix table 8. The countries included are; Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden and United Kingdom. The countries which has been excluded due to a lack of observations are Bulgaria, Croatia, Cyprus, Malta and Romania. You find a table of the membership countries, their joining date and their inclusion or exclusion from the sample in the appendix table 7.

The period 2003 to 2016 was selected because there is data available for net FDI inflows, EU fund data as well as a number of covariates. With more data available a longer period could have been used since the data of EU funds stretch as far back as 1994. One issue with using a longer time period, however, is that several countries entered the European union year 2004. In addition, increasing the time period would also increase the risk for changes in unobservable. The regression, as discussed further down in the paper, will be on the time period of 2005 to 2016 because inflation is a three-year moving average and several of the covariates are measured as changes between years. The countries which had yet to enter the union 2003, and which are included into the data set still did receive money from the EU funds even before they joined in 2004.

To get a more detailed insight into the data both the entire sample as well as a subgroup was studied. This subgroup consists of the countries eligible for funding by the CF for the entire period of 2003 to 2016. To be eligible for funding from the CF the country needs to have 90% or less of the average GNI of the European Union (European Commission, 2019d; European Commission, 2019e; European Commission, 2019f). The countries included in this data set who receive funding from the CF are; Czech Republic, Estonia, Greece, Hungary, Ireland, Latvia, Lithuania, Poland, Portugal, Slovakia and Slovenia. For the remainder of this text I will refer to this group of countries as the “poor” group. The rest of the countries will be called “not-poor”.

European structural and investment funds

The European structural and investment fund contain five funds. This paper will make use of four of these funds; the Cohesion fund (CF), the European Agricultural and rural development fund (EARDF), the European regional development fund (ERDF) and the European social fund (ESF). The fifth fund, EMFF, is not included in the original dataset from the dataset provided by the “European Commission – DG Regional policy” and thus not included in this paper. In table 1 below you can see a table listing the included EU funds and how much money they each pay out the countries included in this study for the period 2005 to 2016.

Table 1

Total payments of EU funds to countries in the data set for the period 2005 to 2016

EU fund	Total payments in million	
	USD	Percent
Cohesion fund	101,722,445,284	15%
European agricultural and rural development fund	122,267,800,099	18%
European regional development fund	314,345,605,713	46%
European social fund	138,250,763,837	20%
Aggregate of all EU funds	676,586,613,092	100%

Figure 1 below displays how much each fund has paid to the countries in the period of 2005 to 2016, the rightmost first bar is the aggregate of all the funds.

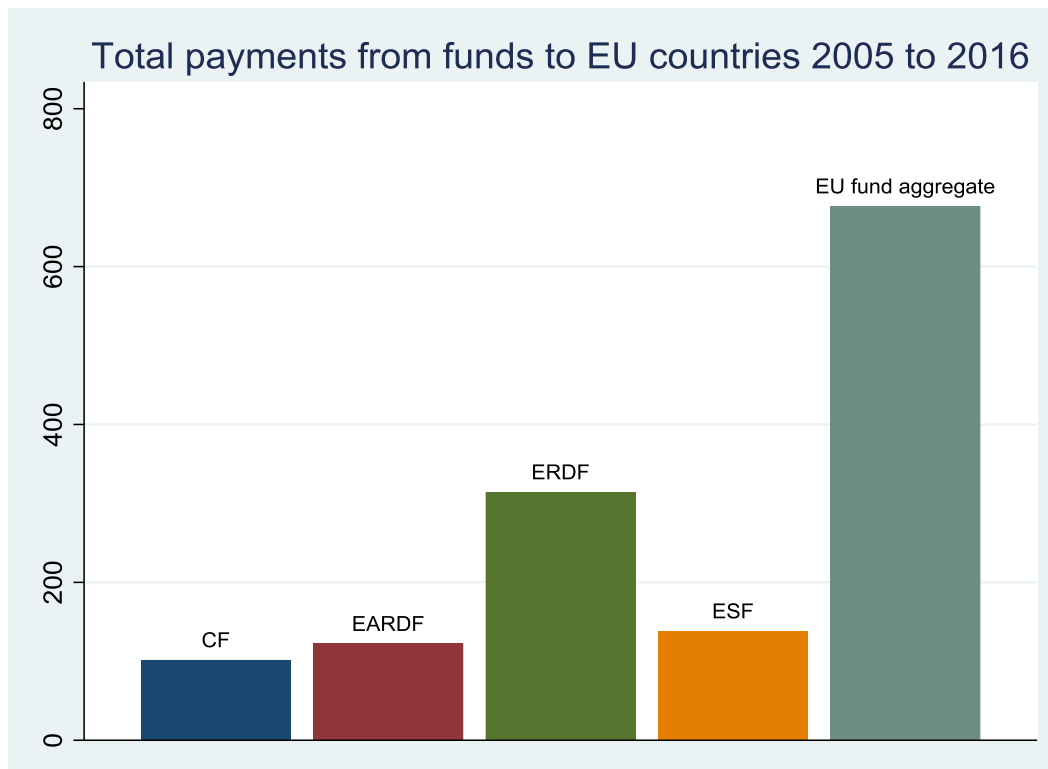


Figure 1: Total payments from each EU fund to EU countries 2005 to 2016 in billion current USD

Cohesion fund

Cohesion funding is available for countries which has less than 90% of the EU average GNI per capita (European Commission 2019f). The CF is funding projects relating to transport and environment, the environment projects can be related energy or transport as long as it is of benefit for the environment. In the data the total amount of payments from the CF is 102 billion current USD which is 15% of the total payments.

European agricultural and rural development fund

Funding from the Agricultural and rural development fund go to all the EU countries. The member states use the funding to subsidise agricultural projects and rural development projects such as food chain organisation or promoting rural inclusion. Some of the money are ear marked for each country, in the 2014 to 2020 period it is set to 30% (European Commission, 2019g). In the data the total amount of payments from the EARDF is 122 billion current USD which is 18% of the total payments.

European regional development fund

The European regional development fund's aim is to strengthen economic and social cohesion among regions and countries of the member states. This is done by focusing on four so called "thematic concentration" areas; Innovation and research, the digital agenda, support for small and medium enterprises and the low carbon economy. Depending on how developed a region is the funding will have certain percent of the funding ear marked to these areas as well as a certain percent ear marked to the low-carbon economy projects. Richer regions have larger percentages ear marked compared to poorer regions (European Commission, 2019h). In the data the total amount of payments from the ERDF is 314 billion current USD which is 46% of the total payments.

European social fund

The European social fund is funding projects relating to jobs such as vocational training and boosting the adaptability of workers (European Commission, 2019i). The ESF always work with co-financing which means that between 50% and 85% of the project costs are financed by public or private money. The percentage of financing by public or private money depend on the relative wealth of the region (European Commission, 2019j). In the data the total amount of payments from the ESF is 138 billion current USD which is 20% of the total payments.

Poor countries

The poor countries are the countries who receive funding from the CF for the entire period covered in this paper. These countries are; Czech Republic, Estonia, Greece, Hungary, Ireland, Latvia, Lithuania, Poland, Portugal, Slovakia and Slovenia.

Figure 2 displays the relative sizes of the payments from each fund to the poor countries.

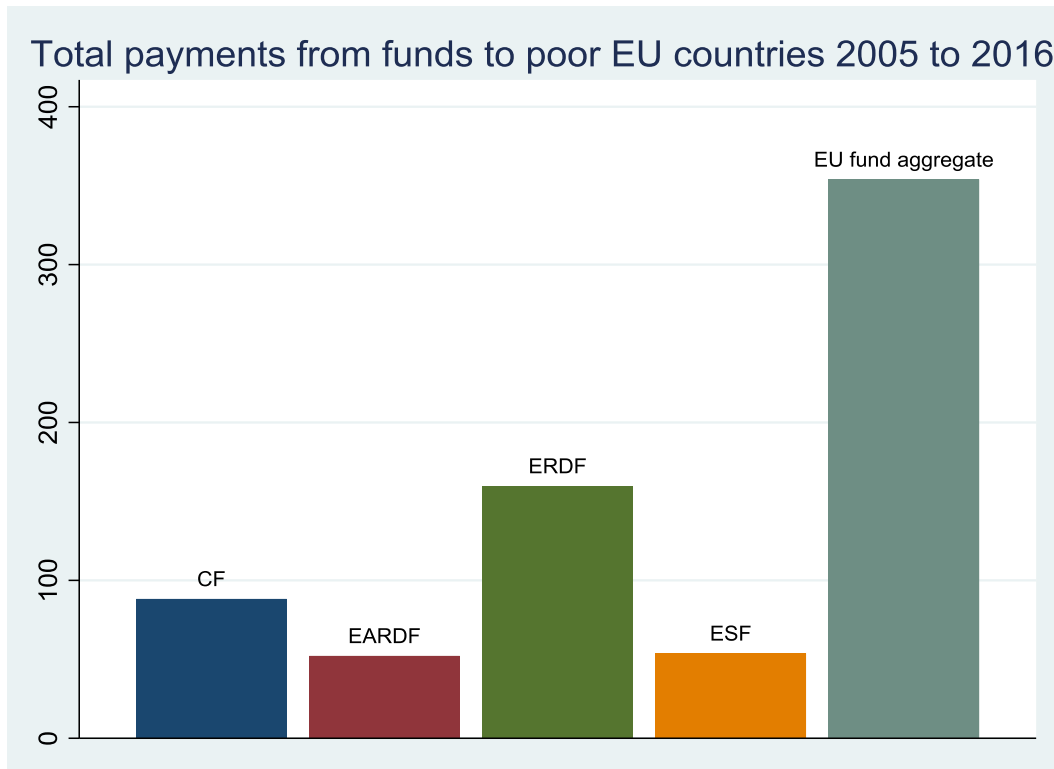


Figure 2: Total payments from each EU fund to poor EU countries 2005 to 2016 in billion current USD

Figure 2 demonstrates that around half of all the payments are addressed to the poor countries. Relative to the other funds the poor countries receive a larger part of their total payments from the CF which is not surprising since they are the only recipients for payments from the CF. The other three funds direct roughly half of all payments to the poor countries.

Variables

Table 2 displays the variables used in the regression model. The explanatory variables, only one at a time or the aggregate of all of the single EU funds, are payments from the ESIF; CF, EARDF, ERDF and the ESF. All funds have been recalculated from Euro to current USD using average yearly exchange rates provided by OECD. All variables and a description are provided in table 2. A more extensive table containing the original variables, from which the regression variables are created, is provided in the appendix table 8.

Table 2
Definition of variables used in the paper

Variable	Abbreviation	Description
Dependent variable		
Net FDI inflow as percent of GDP	ifdi	The net Foreign Direct Investment Inflow as percent of GDP, both in current USD
Explanatory Variables		
European structural and investment funds	diff_ESIF	The difference between this year and previous year aggregate of all the single EU funds
Cohesion fund	diff_CF	The difference between this year and previous year of the European Cohesion fund
European Agricultural and rural development fund	diff_EARDF	The difference between this year and previous year of the European agricultural and rural development fund
European Regional Development Fund	diff_ERDF	The difference between this year and previous year of the European regional development fund
European Social Fund	diff_ESF	The difference between this year and previous year of the European social fund
Covariates		
Fund control variable	diff_(EU fund)	Every fund except for the ESIF (the aggregate of the EU funds) have a control which is the aggregate of all funds except for itself. This is used to control for possible substitution effects between the funds.
Stock as a percent of GDP	fdistock	The accumulative net FDI inflow as percent of GDP
Capital formation	gfcf	Gross fixed capital formation
3 Year average inflation	inflation	Moving average of this and the past two years
Real effective exchange rate	reer	Real exchange rate measured by comparing a country's currency against a country's trading partners. This variable is based on 172 trading partners
Population employment ratio	popemp	The ratio of total number in work force divided by the total population in a year
Human capital	hc	Index based on years of schooling
FDI restrictions	fdirestrict ¹	Between 0 and 1, 1 is closed
Trade	trade	The sum of absolute values of import and export as percent of GDP
Real GDP per capita growth	growth_rgdpcc	Growth of real GDP per capita as percent

¹ Missing observations for FDI restrictions have been estimated using the previous value if available and if not available the closest value in the future.

Table 3 displays the descriptive statistics for the panel data for years 2005 to 2016 with the countries discussed above included.

Table 3
Descriptive statistics, entire sample

Variable	Obs.	Mean	Sd. Dev.	Min	Max
year	276	-	-	2005	2016
country	276	-	-	-	23
ifdi	276	8.316	23.264	-73.627	293.964
diff_ESIF	276	-0.020	0.417	-1.790	1.865
diff_CF	276	-0.002	0.161	-0.737	0.832
diff_EARDF	276	-0.003	0.074	-0.270	0.474
diff_ERDF	276	-0.010	0.234	-1.022	1.262
diff_ESF	276	-0.005	0.093	-0.464	0.406
fdistock	245	49.739	56.355	8.375	406.747
gfcf	276	21.865	4.136	11.544	36.740
inflation	276	0.142	0.671	-0.307	6.271
reer	276	98.491	7.895	43.347	116.739
popemp	276	46.308	6.480	36.452	71.508
hc	276	3.236	0.308	2.230	3.767
fdirestrict	276	0.039	0.028	0.004	0.178
trade	276	118.326	50.961	41.569	283.064
growth_rgdpcc	276	2.095	4.473	-16.491	35.982

Dependent and explanatory variables

Data for ifdi, net FDI inflow, is the dependent variable and the data originates from World Bank development indicators but is recalculated as a percent of GDP in the dataset. This is done to make it comparable over space and time.

The diff_ESIF variable is the aggregate payments of all the single other EU funds. The EU funds are the explanatory variables and are the difference between the current year and the previous year's payments from the European structural and investment funds as a percent of GDP. Below is an example of how one observation has been calculated.

$$diff_CF_{1\ 2005} = \left(\frac{CF_{1\ 2005} - CF_{1\ 2004}}{GDP_{1\ 2005}} \right) * 100$$

The left-hand side is the observation of country one for year 2005. The right-hand side is the difference between year 2005 and 2004 in payment levels of the CF for the same country divided by GDP for year 2005. All of its measurements are specified in current USD. The right-hand side ratio is multiplied by 100 to convert it to percentages of GDP. The reason for doing this is to remove some of the autocorrelation and make the variables comparable over space and time, this will be discussed further in the methodology chapter.

The data is retrieved from the European Commission – DG Regional Policy, which is tasked with compiling data for the regional level, and is recalculated into current USD from Euro using average yearly exchange rate provided by the OECD. The rest of the variables are covariates which is briefly described on table 2. All the variables are more extensively explained in the appendix table 8.

Covariates

The covariates are selected after consulting the IMF working paper Determinants of Foreign Direct Investments by Walsh and Yu (2010). They investigate which variables have an effect on inflow FDI and find that openness measured as trade and restrictions on FDI inflow, real effective exchange rate, GDP growth, FDI stock, 3-year-average inflation and something they call qualitative variables has the largest effect. Qualitative variables are variables such as political stability and institutions. They define institutions as how good governance is which is indicated by things such as corruption. To measure this, they look at a long range of variables such as labour market flexibility, infrastructure quality, judicial independence, legal system efficiency, financial depth, school enrolment. When investigating available measurements of judicial independence, I found that not expected to vary much over a shorter time period and hence does not need a specific variable outside of a dummy which means that the fixed effects model will cancel it out.

FDI restrictions and trade are both a measurement of openness, FDI restrictions measure financial openness and trade measures trade openness. It is fairly reasonable to assume that both variables tend to follow each other over time. Aizeman and Noy (2009) found that there is a link between trade openness and financial openness but at the same time they argue that financial openness would lead to trade openness.

Considering that trade openness and financial openness both seem to affect each other and that it might be an underlying variable which affects both variables one could be concerned with using both variables in the same model. One argument for using both variables at the same time in this paper would be that investors who decide whether or not to invest in a country considers a country with more trade openness as a potentially more lucrative market and financial restrictions decide how much and how easily they can invest in the country. This would then mean that both variables are interesting from the point that the investors would consider and be affected by both variables separately.

All variables which are measured in money have been converted into ratios of GDP. The reason for this is that comparing money over both time and space does not have a universally accepted method. This is discussed further in the methodology chapter in the discussion of the panel data model.

4.2 Methodology

To be able to determine how the European structural and development funds affect net FDI inflows this paper uses a fixed effects panel data model with lagged explanatory variables and several lagged covariates. To clarify, it is not a dynamic model with a lagged dependent variable. This is a deliberate choice since a lagged dependent variable would very likely violate the strict exogeneity assumption and create autocorrelation as can be seen from the following formulas.

$$\Delta Y_{it} = \beta \Delta Y_{it-1} + \Delta \varepsilon_{it} \quad (1)$$

$$\Delta Y_{it-1} = \beta \Delta Y_{it-2} + \Delta \varepsilon_{it-1} \quad (2)$$

We need $\Delta \varepsilon_{it}$ to be uncorrelated with the regressor, ΔY_{it} , from previous period. By looking at the covariance between ΔY_{it-1} and $\Delta \varepsilon_{it}$, which we want to be zero, we find the term $Cov(\Delta \varepsilon_{it-1}, \Delta \varepsilon_{it})$ which is not very likely to be uncorrelated.

Panel data models provide an attractive advantage in that the comparable sample size can be increased since it is possible to compare observations both over space and time. In macroeconomics this can be very useful since it can be hard to find enough observations only analysing one of the dimensions. The issue which appears when using macroeconomic variables such as GDP or FDI flows, is how to make them comparable over both space and time. Variables

can be adjusted for PPPs or inflation to make either one of the dimensions space or time comparable, but they cannot be easily combined (Schreyer and Koechlin, 2002). To get around this problem variables, which have this issue of comparability, has been converted into percent of GDP which then makes them comparable over both space and time. Several other papers such as Walsh and Yu (2010), Abiad et al. (2016) as well as Herzer and Grimm (2012) use this approach, even though they do not explain why.

Model

The model is a regression of either the combined EU funds or one of the funds as percent of GDP on net FDI inflow as percent of GDP.

$$ifdi_{it} = \beta_0 + \beta_1 EUfund_{it} + \beta_2 EUfundControl + Covariates_{it} + \mu_i + \varepsilon_{it}$$

Where the EUfund refers to one of the variables for EUfund as described in table X. The EUfundControl is the aggregate of all the other EU funds except for the specific EU fund in the EUfund variable. *Covariates* are the covariates discussed in the data section, μ_i is country specific effects dummy, which is time-invariant and ε_{it} is random and time-varying.

Since the EUfund variable is measured as the difference between this year and the previous year as a percent of GDP focus will be on the sign of the coefficient and not on the exact numeric value.

To be able to analyse the relationship between net FDI inflows and the EU funds, this paper will first use the model to look at the entire sample and then divide the sample into two subgroups, poor and not-poor. There will be 5 regressions run for each group, one for the aggregate of the EU funds and then one for each of the EU funds.

Heterogeneity

Cross-section data gives, as mentions above, advantages due to the possibility of using a larger sample size. The risks with using cross-section data is that there is unobserved heterogeneity across the cross-sections. The cross-sectional unobserved heterogeneity has been mediated in the model by adding a country specific dummy through the panel data fixed effect. The errors to the normal standard errors have been accounted for by using robust standard errors which cluster the standard errors to the countries.

Autocorrelation

Using time series data opens up for the issue of the data having autocorrelation. The first step in reducing autocorrelation is within the construction of the variables. Since all the right-hand side variables, that are measured in money, are calculated as differences between years the accumulation of errors over the years should be removed.

The second step was to reduce autocorrelation in the dependent variable FDI flows. Since this variable might be affected by the accumulation of previous FDI into the country, capital stock is used as a control. To test for autocorrelation in the model this paper uses Wooldridge's test², a serial correlation test for linear panel-data. Table 4 demonstrates the results of the test for the regressions of the different funds on the entire sample and on the subgroup poor.

² Wooldridge's test tests for the null hypothesis that there is no autocorrelation. It looks at the coefficient on a regression of the lagged residuals on the current residuals to determine if there is autocorrelation. For further details look at Drukker (2003) and Wooldridge (2002).

Table 4

F-statistics and P-values for test of autocorrelation for the period 2005 to 2016

Fund	F-statistics	P-value	Autocorrelation
A. Both poor and not-poor			
Aggregate EU funds	55.483	0.0000	No
Cohesion fund	55.781	0.0000	No
Agricultural fund	55.267	0.0000	No
Regional development fund	55.630	0.0000	No
Social fund	55.989	0.0000	No
B. Poor			
Aggregate EU funds	13.015	0.0048	No
Cohesion fund	12.405	0.0055	No
Agricultural fund	13.665	0.0041	No
Regional development fund	13.230	0.0046	No
Social fund	11.855	0.0063	No
C. Not-poor			
Aggregate EU funds	662.295	0.0000	No
Cohesion fund	654.146	0.0000	No
Agricultural fund	600.542	0.0000	No
Regional development fund	650.336	0.0000	No
Social fund	523.772	0.0000	No

For the entire sample, group A, the test cannot reject the null hypothesis of no autocorrelation at a 1% level. Group B, the poor countries which have been defined as countries which have 90% or less of EU average GNI, can not reject the null on 1% for any of the funds. The last group C, which is the rest of the sample, excluding the poor countries, cannot reject the null hypothesis at 1% level. According to Wooldridge's test there seem to be no issue with autocorrelation in the model.

5. Results

Table 5 displays the panel data estimates on the whole data set for European structural and development funds, the aggregate of all separate funds, as well as each fund. It is important to remember that the EU funds are measured as the difference between this year and the previous year as a percent of GDP per capita. Taking regression 1 as an example, it means that a decrease of 1.5% in the growth of the EU funds' payments lead to an increase of FDI inflows as percent of GDP. Considering how broad the economic development of the countries in the sample are the sign of the coefficient should be the main interest and not exactly how large increase is needed.

Table 5
The effect of the European structural funds on net FDI inflow for the entire sample

Variables	(1) Aggregate Funds	(2) Cohesion Fund	(3) Agricultural Fund	(4) Regional Fund	(5) Social Fund
Aggregate EU funds	-1.473 (2.702)	-	-	-	-
Cohesion fund	-	-6.366 (4.590)	-	-	-
Agricultural fund	-	-	-5.995 (13.455)	-	-
Regional development fund	-	-	-	0.716 (2.119)	-
Social fund	-	-	-	-	2.362 (6.127)
Control for fund	-	0.574 (2.746)	-1.057 (2.067)	0.716 (2.119)	-2.018 (2.976)
Stock as percent of GDP	0.022 (0.134)	0.018 (0.134)	0.023 (0.132)	0.020 (0.134)	0.022 (0.134)
Capital formation	0.391 (0.519)	0.444 (0.517)	0.401 (0.532)	0.411 (0.522)	0.414 (0.518)
3-year-average inflation	-1.446 (2.436)	-1.151 (2.528)	-1.482 (2.403)	-1.264 (2.486)	-1.476 (2.420)
Real effective exchange rate	0.106 (0.433)	0.096 (0.438)	0.109 (0.428)	0.102 (0.435)	0.106 (0.434)
Population employment ratio	-0.948 (1.191)	-1.054 (1.187)	-0.969 (1.235)	-1.009 (1.226)	-0.972 (1.186)
Human capital	-45.897 (42.221)	-44.094 (41.696)	-47.285 (45.218)	-46.620 (42.700)	-45.261 (42.228)
FDI restrictions	-6.253 (100.379)	-4.452 (100.261)	-6.006 (100.429)	-6.280 (100.744)	-4.870 (100.931)
Trade	0.244 (0.273)	0.254 (0.275)	0.243 (0.271)	0.250 (0.275)	0.244 (0.273)
Real GDP per capita growth	0.248 (0.582)	0.265 (0.579)	0.231 (0.613)	0.255 (0.579)	0.236 (0.588)
FE	Yes	Yes	Yes	Yes	Yes
Observations	245	245	245	245	245
R-squared	0.066	0.068	0.066	0.067	0.066
Number of countries	23	23	23	23	23

Be advised: ***, **, * represents a statistical significance at the 1%, 5%, 10% level respectively.
Standard errors are displayed within the parenthesis and are robust

Performing a regression analysis on each fund for the entire sample did not reveal any significant effect of any of the EU funds on FDI inflows. The negative coefficient of the Cohesion fund is

most likely related to how the variable is coded in the data set. Since the Cohesion fund only makes payments to poor countries it means that it pays zero to all others. This in turn implies that the richer countries do not receive any money from the fund while the poor countries do. So, the data makes it look like there is a negative relationship between receiving money from the CF. The negative coefficient for the Agricultural fund is more puzzling since all countries receive money from the fund but considering that the result is not significant the coefficient effect might not even be correct.

Since there are no effects found for the entire sample, the subgroup of the poor European countries is studied. Instead of running the regression on the entire sample the regressions are run on only the poor countries. The results are displayed in table 6 below.

Table 6

The effect of the European structural and development funds on net FDI flows for poor countries

Variables	(1) Aggregate Funds	(2) Cohesion Fund	(3) Agricultural Fund	(4) Regional Fund	(5) Social Fund
Aggregate EU funds	1.531 (0.898)	-	-	-	-
Cohesion fund	-	-2.670 (3.568)	-	-	-
Agricultural fund	-	-	9.472** (4.116)	-	-
Regional development fund	-	-	-	1.870* (0.890)	-
Social fund	-	-	-	-	5.957 (4.878)
Control for fund	-	3.347* (1.515)	0.888 (0.887)	1.192 (1.228)	0.910 (1.433)
Stock as percent of GDP	0.201*** (0.049)	0.197*** (0.045)	0.202*** (0.050)	0.200*** (0.049)	0.200*** (0.048)
Capital formation	-0.636* (0.347)	-0.591* (0.311)	-0.673* (0.367)	-0.633* (0.349)	-0.600* (0.317)
3-year-average inflation	1.057 (1.542)	1.443 (1.663)	1.269 (1.543)	1.088 (1.542)	1.027 (1.479)
Real effective exchange rate	-0.103 (0.180)	-0.124 (0.179)	-0.129 (0.179)	-0.104 (0.180)	-0.099 (0.177)
Population employment ratio	1.167 (0.751)	1.059 (0.690)	1.238 (0.770)	1.155 (0.762)	1.124 (0.721)
Human capital	-21.133** (9.232)	-18.825** (7.853)	-18.935* (9.242)	-21.301** (9.062)	-19.243** (8.106)
FDI restrictions	196.605 (123.861)	208.576 (130.918)	195.228 (121.046)	197.108 (124.524)	203.709 (131.551)
Trade	0.091 (0.128)	0.108 (0.135)	0.098 (0.129)	0.092 (0.128)	0.089 (0.125)
Real GDP per capita growth	0.376 (0.291)	0.389 (0.290)	0.404 (0.287)	0.377 (0.292)	0.363 (0.305)
FE	Yes	Yes	Yes	Yes	Yes
Observations	132	132	132	132	132
R-squared	0.396	0.413	0.404	0.397	0.403
Number of countries	11	11	11	11	11

Be advised: ***, **, * represents a statistical significance at the 1%, 5%, 10% level respectively.
Standard errors are displayed within the parenthesis and are robust

From table 6 we can see that looking at the poor European countries we find significance for both the Agricultural fund, which is the European agricultural and rural development fund, with a significance on the 5% level as well as the Regional fund, which is the European regional development fund, with a significance level on 10%. We also see that the effects of the funds are now positive except for the Cohesion fund where we can see that the coefficient is still negative. It is important to remember that both the EU funds and the FDI inflows are expressed in percent of GDP which means that the coefficient for the EU funds is a percent increase of the EU funding as percent of GDP which will lead to an one percent increase of FDI flows as a percent of GDP .

Looking at regressions 3 and 4, which has significant explanatory variables, we see that there are two significant covariates, stock as percent of GDP and human capital. Stock as percent of GDP has a positive coefficient and a significance level at the 1% level which seem logical since it is the accumulative net FDI inflows and hence, when there is a history of net FDI inflows it is most likely because it is a good opportunity to invest in the country. Human capital has a negative coefficient and a significance at the 5% level. This does not seem in line with what could be expected since it implies that a country with higher level of education would receive less FDI.

Regressions conditioned on the not-poor group can be found in the appendix table 9. The regressions do not add very much to the discussion since all of them are insignificant which is expected after seeing the regressions for the entire sample and the poor group.

An issue with a fixed effects panel data model is that a time specific shock might lead to a violation of the strict exogeneity assumption. This might cause an overestimation or underestimation of the result. One such shock might be the financial crisis of 2008. To test if this problem does exist with the model a regression on the poor countries for a time period excluding the crisis is run. The result of these regressions shows increased significance for the overall results. A table of the regressions can be found in the appendix, table 10. In the table you can see that the ERDF is more significant for the shorter time period, at the 5% level, and has a slightly higher coefficient. The EARDF is no longer significant at the 10% level but has the same coefficient. The aggregate of all the EU funds show a significance at the 5% level and a positive coefficient.

Even though the results are not the same as for the longer time period they do not weaken the overall results of the longer time period. In the event of a financial crisis the FDI flows are expected to decrease which means that the results of the model for the entire time period are

underestimated. This test proves that the model is unable to properly compensate for the crisis and need to be improved. The Wooldridge test for the regressions for the period 2009 to 2016 for the poor group show that there is no autocorrelation for regression 1, 2, 3 and 4 at a 5% level and for regression 5 no autocorrelation at a 10% level. The table of the F-statistics and P-values can be found in the appendix table 11.

6. Discussion

The Lisbon Treaty set up a set of goals which intended to be reached through co-financing with private investors (European Parliament, 2019). The purpose of attracting private investment is still relevant for the current 2014 to 2020 period (European Commission, 2019c). Since the funds has a goal to increase private investment then net FDI inflows should increase as investments from the funds increase.

Looking at table 5, which presents the regressions of the aggregate of all funds as well as each fund separately for all countries in our sample, we find no significant effect on FDI inflows from any of the single EU funds. Even more confusing is that the aggregate of all the funds show a negative coefficient. One reason for this might be that the funds are investing in the poor regions which means that their effect might not be observable at country level with both rich and poor countries in the sample.

Since the data is on country level the best solution is to look at countries where many regions or even the entire country receives funding from the EU funds. This is done by using the European Commission's own classification of countries in need of extra aid. To be eligible for funding from the CF, the country needs to have a GNI lower than 90% of the EU average.

In table 6, which displays the same regressions as table 5 but for only the poor countries, the result show that the effect from both the Agricultural fund (EARDF) and the Regional development fund (ERDF) is positive and significant. Surprisingly the Cohesion fund (CF) is not significant and even shows a negative coefficient. This is not promising since the CF is the fund which is supposed to specialize in helping these poorer countries develop.

In a paper on how foreign aid affect FDI to less developed countries Kimura and Todo (2010) found little evidence on aid having a positive effect on FDI. However, they do find that investments into infrastructure seem to have some effect on FDI. Hopefully most of the

infrastructure differences will be controlled for using the capital formation variable. But it is possible that it has not managed to catch the effect properly. With Kimura's and Todo's findings in mind it could be argued that ERDF is positive for the same reason since the fund is funding infrastructure projects. But then the CF should also be positive since it is also funding infrastructure projects which makes it unlikely that infrastructure investments are the reason for the ERDF being significant and positive while CF is negative and not significant.

Another possibility is that infrastructure attract private investments because private investors consider infrastructure as a sound investment with spill-over effects on economic growth. The positive relationship between sound infrastructure investments and private investments has been studied by Laopodis (2001) who look at military and non-military investments and find that military investments does not increase private investments. Considering Laopodis' findings is possible that foreign private investors see the ERDF projects which focus on SMEs as more reliable to get return on their money compared to the CF investing mostly in infrastructure which might yield return at a much later stage.

7. Summary and conclusion

This paper investigates the effect of payments from the European structural and investment funds (ESIF) on net FDI inflows between 2005 and 2016. In the paper I look at previous literature and find that there are several studies on the effect of EU funding on economic growth and what determines FDI flows. But to the best of my knowledge there are no studies that specifically look at how the funds affect FDI inflows.

The model is a panel data model with fixed effects and robust standard errors clustered on countries. Control variables are selected after consulting previous research on determinants of FDI. All variables which are measured in money are changed into percentages of GDP to make them comparable over both space and time. The model is run, first on the entire sample and then on the subgroup poor countries. I run five regression on both the entire sample and the subgroups, one for the aggregate of all funds and one for each of the four funds. When running a test for autoregression on all the regressions I find no significant results.

The result shows that there is no significant relationship between any of the ESIF and FDI inflows for the entire sample. Looking at the poor countries I find that the European agricultural and rural development fund (EARDF) and the European regional development fund (ERDF)

show significant and positive results. The results show that increasing funding from EARDF by 10,5% of GDP would increase net FDI inflows by 1% of GDP. Increasing the support from ERDF by 1,9% would increase net FDI inflows by 1%. It is somewhat alarming that there seem to be no significant effect from the Cohesion fund since the Cohesion fund is supposed to be the fund specializing on the poorest countries.

In conclusion, there seem to be a positive relationship between the EU funds, EARDF and ERDF, and FDI inflows in the poor countries while surprisingly the CF does not seem to have an effect on FDI inflows. This could be due to differences in investment priorities, but it might also be a problem with the data. Since the funds look at regions when they invest and not countries it would be interesting to see if other or more detailed conclusions could be drawn using data on a regional level.

It would be interesting to see the results from studies using region level data. Using region level data might give different results for covariates such as human capital is which in this study is found to be both significant and negative to FDI inflows. Looking at regions might also make other data models available which could strengthen the validity of the study. The largest obstacle to use regional data is the availability of FDI flows at regional level. There are databases which have information on investments between companies, but you would need access to these databases and the possibility of extracting and linking the data to regions.

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9. Appendix

Table 7

List of EU members, date of entry and whether they are included or excluded from the sample

Countries	Year of Entry
<u>Included</u>	
Austria	1995
Belgium	1958
Czech Republic	2004
Denmark	1973
Estonia	2004
Finland	1995
France	1958
Germany	1958
Greece	1981
Hungary	2004
Ireland	1973
Italy	1958
Latvia	2004
Lithuania	2004
Luxembourg	1958
Netherlands	1958
Poland	2004
Portugal	1986
Slovakia	2004
Slovenia	2004
Spain	1986
Sweden	1995
United Kingdom	1973
<u>Excluded</u>	
Bulgaria	2007
Croatia	2013
Cyprus	2004
Malta	2004
Romania	2007

Source: European Commission (2019)k

Table 8
Extended variable table with description and sources

Variable	Explanation	Source	Methodology
Variables that model variables are based on			
base_ifdi	Foreign Direct Investment net inward flow	World Bank (2019)a	FDI statistics are reported in local currency and then converted into current USD by the yearly average exchange rate.
base_ESDF	European structural and development Fund	European Commission - DG Regional Policy (2019)	Measured in EU payments in current Euro on yearly aggregate level.
base_CF	European cohesion Fund	European Commission - DG Regional Policy (2019)	Measured in EU payments in current Euro on yearly aggregate level.
base_EARDF	European agricultural and rural development fund	European Commission - DG Regional Policy (2019)	Measured in EU payments in current Euro on yearly aggregate level.
base_ERDF	European Regional Development Fund	European Commission - DG Regional Policy (2019)	Measured in EU payments in current Euro on yearly aggregate level.
base_ESF	European social	European Commission - DG Regional Policy (2019)	Measured in EU payments in current Euro on yearly aggregate level.
base_gfcf	Gross Fixed Capital Formation	OECD (2019)a	This indicator is in million USD at current prices and PPPs. All OECD countries compile their data according to the 2008 System of National Accounts (SNA).
base_fdirestrict	Foreign Direct Investment Restrictivness	OECD (2019)b	FDI restrictiveness is an OECD index gauging the restrictiveness of a country's foreign direct investment (FDI) rules by looking at four main types of restrictions: foreign equity restrictions; discriminatory screening or approval mechanisms; restrictions on key foreign personnel and operational restrictions. Implementation issues are not addressed and factors such as the degree of transparency or discretion in granting approvals are not taken into account. The index here shows the total and nine component sectors taking values between 0 for open and 1 for closed.

base_emprate	Employment Rate	OECD (2019)c	Employed people are those aged 15 or over who report that they have worked in gainful employment for at least one hour in the previous week or who had a job but were absent from work during the reference week. The working age population refers to people aged 15 to 64. This indicator is seasonally adjusted and as a percentage of working age population.
base_fdistock	Foreign Direct Investments stock inward	OECD (2019)d	FDI statistics are reported in AUD millions and converted into USD millions using yearly average exchange rates at current prices and current PPPs for FDI transactions and using end of period exchange rates for FDI positions.
base_inflation	Inflation rates	OECD (2019)e	Inflation rates for the countries
base_reer	Real Effective Exchange Rate	Darvas, Z. (2012)a; Darvas, Z. (2012)b	Annual consumer price index based reer for 178 countries plus the euro area
cpi2010	Consumer Price Index (2010 = 100)	World Bank (2019)b	Consumer price index reflects changes in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly. The Laspeyres formula is generally used. Data are period averages.
base_hc	Human Capital	Feenstra, Robert C., Robert Inklaar and Marcel P. Timmer (2015)	Index based on Years of Schooling
base_pop	Population in millions	Feenstra, Robert C., Robert Inklaar and Marcel P. Timmer (2015)	
base_emp	Number of people engaged in millions	Feenstra, Robert C., Robert Inklaar and Marcel P. Timmer (2015)	
base_csh_x	Share of merchandise exports at current PPPs	Feenstra, Robert C., Robert Inklaar and Marcel P. Timmer (2015)	
base_csh_m	Share of merchandise imports at current PPPs	Feenstra, Robert C., Robert Inklaar and Marcel P. Timmer (2015)	

base_gdp	Gross Domestic Product in million USD	OECD (2019)f	GDP is reported in local currency millions and converted into USD millions using yearly average exchange rates at current prices and current PPPs
base_lcusd	Exchange rates of Local Currency to USD	OECD (2019)g	Yearly averages
Model Variables		Calculation method	
ifdi	FDI inflow as percent of GDP	Calculated from base_ifdi and base_gdp	
diff_ESIF	EU fund difference between years percent of gdp, Aggregate	Calculated from the sum of all other EU funds, recalculated from Euro to USD using base_lcusd and then to percent of gdp. Finally taking the difference between this year and previous year.	
diff_CF	EU fund difference between years percent of gdp, CF	Calculated from base_CF, recalculated from Euro to USD using base_lcusd and then to percent of gdp. Finally taking the difference between this year and previous year.	
diff_EARDF	EU fund difference between years percent of gdp, EARDF	Calculated from base_EARDF, recalculated from Euro to USD using base_lcusd and then to percent of gdp. Finally taking the difference between this year and previous year.	
diff_ERDF	EU fund difference between years percent of gdp, ERDF	Calculated from base_ERDF, recalculated from Euro to USD using base_lcusd and then to percent of gdp. Finally taking the difference between this year and previous year.	
diff_ESF	EU fund difference between years percent of gdp, ESF	Calculated from base_ESF, recalculated from Euro to USD using base_lcusd and then to percent of gdp. Finally taking the difference between this year and previous year.	
Fund Control Variable	The control variable used for all single EU funds	Four variables, one for CF, EARDF, ERDF and ESF. It's calculated the same way as diff_ESIF but excluding the EU fund it is the control for.	
fdistock	Capital stock as percent of GDP	Calculated from base_fdistock and base_gdp	
gfcf	Capital Formation as percent of GDP	Calculated from base_gfcf and base_gdp	
inflation	3 year average inflation	Calculated from base_inflation using the two previous years plus current year divided by three	
reer	Real effective exchange rate	Exactly the same as base_reer	
popemp	Population employment ratio	base_emp as a ratio of base_pop	
hc	Human capital	Exactly the same as base_hc	
fdirestirect	Fdi restrictions	Based on base_fdirestirect but empty years are estimated using previous or future value	
trade	Total trade as percent of GDP	Calculated as absolute values from base_cash_x and base_cash_m and base_gdp	
growth_rgdppc	Real GDP per capita growth	Calculated from base_gdp, cpi2010	

Table 9
The effect of the European structural and development funds on net FDI flows for not-poor countries

Variables	(1) Aggregate Funds	(2) Cohesion Fund	(3) Agricultural Fund	(4) Regional Fund	(5) Social Fund
Aggregate EU funds	-22.905 (25.469)	-	-	-	-
Cohesion fund	-	-108.485 (104.944)	-	-	-
Agricultural fund	-	-	-26.432 (52.841)	-	-
Regional development fund	-	-	-	-25.521 (21.058)	-
Social fund	-	-	-	-	-12.018 (36.414)
Control for fund	-	-23.669 (26.112)	-20.956 (21.635)	-21.122 (35.422)	-26.493 (30.126)
Stock as percent of GDP	-0.352 (0.227)	-0.351 (0.229)	-0.351 (0.228)	-0.352 (0.229)	-0.352 (0.229)
Capital formation	6.040 (3.623)	6.041 (3.640)	6.060 (3.728)	6.034 (3.654)	6.073 (3.684)
3-year-average inflation	-666.979 (635.669)	-661.719 (638.064)	-668.281 (644.753)	-665.295 (641.805)	-663.983 (632.305)
Real effective exchange rate	-0.082 (0.419)	-0.080 (0.421)	-0.084 (0.429)	-0.083 (0.421)	-0.088 (0.432)
Population employment ratio	-6.886* (3.685)	-6.902* (3.712)	-6.900* (3.773)	-6.885* (3.706)	-6.924* (3.763)
Human capital	-83.751 (78.355)	-83.636 (78.641)	-84.194 (80.906)	-83.438 (79.030)	-83.874 (78.981)
FDI restrictions	-224.520 (179.058)	-224.105 (179.587)	-223.670 (174.308)	-224.847 (179.268)	-223.282 (176.966)
Trade	0.824 (0.490)	0.824 (0.492)	0.824 (0.494)	0.824 (0.493)	0.825 (0.492)
Real GDP per capita growth	-2.059 (2.535)	-2.054 (2.547)	-2.060 (2.553)	-2.059 (2.548)	-2.061 (2.546)
FE	Yes	Yes	Yes	Yes	Yes
Observations	113	113	113	113	113
R-squared	0.219	0.219	0.219	0.219	0.219
Number of countries	12	12	12	12	12

Be advised: ***, **, * represents a statistical significance at the 1%, 5%, 10% level respectively.
Standard errors are displayed within the parenthesis and are robust

Table 10
The effect of the European structural and development funds on net FDI flows for poor countries
for the time period 2009 to 2016

Variables	(1) Aggregate Funds	(2) Cohesion Fund	(3) Agricultural Fund	(4) Regional Fund	(5) Social Fund
Aggregate EU funds	2.012** (0.751)	-	-	-	-
Cohesion fund	-	-1.593 (2.730)	-	-	-
Agricultural fund	-	-	10.303 (6.044)	-	-
Regional development fund	-	-	-	2.521** (1.034)	-
Social fund	-	-	-	-	5.130 (4.666)
Control for fund	-	3.792** (1.566)	1.445* (0.698)	1.513 (0.950)	1.624 (1.058)
Stock as percent of GDP	0.284*** (0.043)	0.261*** (0.040)	0.273*** (0.042)	0.282*** (0.045)	0.279*** (0.036)
Capital formation	-1.299** (0.440)	-1.143** (0.367)	-1.260** (0.422)	-1.289** (0.452)	-1.247*** (0.365)
3-year-average inflation	-1.269 (1.764)	-0.296 (2.148)	-0.948 (1.792)	-1.139 (1.706)	-1.217 (1.817)
Real effective exchange rate	-0.044 (0.322)	-0.085 (0.324)	-0.055 (0.321)	-0.051 (0.321)	-0.045 (0.322)
Population employment ratio	1.936* (0.962)	1.822* (0.864)	2.056* (1.009)	1.912* (0.985)	1.895* (0.893)
Human capital	-34.719 (20.075)	-31.903 (17.921)	-30.850 (18.844)	-35.489 (19.928)	-31.740 (18.283)
FDI restrictions	61.037 (129.059)	90.709 (125.953)	73.415 (138.589)	59.018 (128.084)	82.474 (118.535)
Trade	-0.012 (0.061)	-0.002 (0.061)	0.001 (0.058)	-0.011 (0.062)	-0.012 (0.059)
Real GDP per capita growth	0.451 (0.271)	0.502* (0.269)	0.492 (0.276)	0.457 (0.272)	0.445 (0.279)
FE	Yes	Yes	Yes	Yes	Yes
Observations	88	88	88	88	88
R-squared	0.547	0.565	0.556	0.548	0.552
Number of countries	11	11	11	11	11

Be advised: ***, **, * represents a statistical significance at the 1%, 5%, 10% level respectively.
Standard errors are displayed within the parenthesis and are robust

Table 11

F-statistics and p-values for test on serial correlation for the time period of 2009 to 2016

Fund	F-statistics	P-value	Autocorrelation
Aggregate EU funds	9.127	0.0129	No
Cohesion fund	7.787	0.0191	No
Agricultural fund	9.417	0.0119	No
Regional development fund	9.425	0.0118	No
Social fund	13.129	0.0047	No