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Marina Azzimonti

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Abstract

I analyze the effects of political uncertainty on foreign direct investment flows to the US using a novel indicator, the partisan conflict index (PCI). Partisan conflict is relevant for the evolution of cross-border capital flows because the expected returns on investment projects are less predictable when the timing, size, and composition of fiscal policy is uncertain. The partisan conflict index tracks the evolution of political disagreement among policymakers as reported by the media. Using aggregate quarterly data from 1985 to 2015, I show that an innovation of the PCI is associated with a significant decline in FDI flows to the US. The magnitude of the effect is similar when disaggregated data from a panel of parent countries is considered instead.

JEL Classification: F3, E3, H3, E6.

1 Introduction

Direct investment positions in the US have grown considerably over the past decade, as shown in Figure 1. Moreover, direct investment flows constitute a considerable fraction of cross-border transactions. For example, U.S. direct investment flows in 2013 composed about half of the total U.S. net acquisition of foreign financial assets, and foreign direct investment flows were about 20 percent of the total foreign net acquisition of U.S. financial assets.[1] There is an extensive empirical literature studying the determinants of capital inflows, that has mostly centered on macroeconomic conditions, monetary and exchange rate policy, geographic proximity, and institutional factors (see Faeth, 2009 for a survey of the literature). In this paper, I focus on political uncertainty instead. More specifically, I study whether partisan conflict deters foreign direct investment.

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[1]See Table F.106 of the September 2014 publication of the Federal Reserve Board Statistical Release Z.1, "Financial Accounts of the United States."

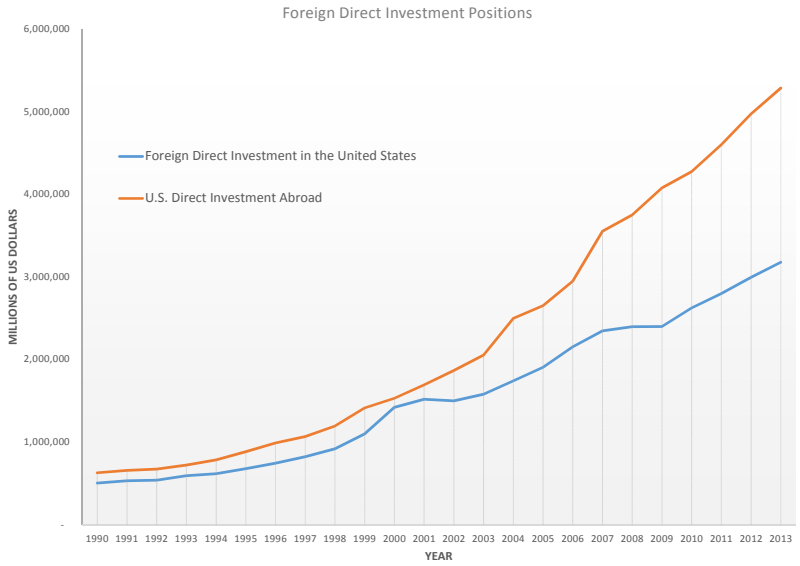

Figure 1: Direct Investment Positions (annual, in millions of US dollars).

Source: Federal Reserve Board Statistical Release Z.1, "Financial Accounts of the United States" (September 18, 2014).

Partisan conflict is relevant for the evolution of foreign direct investment flows to the US because the expected returns of investment projects become less predictable when policy is uncertain. Foreign direct investors typically have a long time horizon when operating abroad. They are less informed about the policy environment and may be treated differently than domestic investors (Battacharya, Galpin, and Haslem 2007). Moreover, FDI cannot be easily reversed without paying large costs (Rivoli and Salorio, 1996). Hence, forward-looking foreign investors must be constantly anticipating how political uncertainty could affect the expected returns of their investments and/or their barriers to exit.

Following the large contraction in cross border investment flows during the 2008 Financial Crisis and its unusually slow recovery from the Great Recession (see Figure 2), the detrimental effects of policy uncertainty gained interest as an alternative explanation (Julio and Yook, 2014). The standard approach in this literature uses the timing of elections to measure variations in policy uncertainty (see Durnev, 2010 and Julio and Yook, 2012, 2014). While this provides a quasi-natural experiment in a panel of countries, it may confound the effects of uncertainty with those that naturally arise under the 'political business cycle' (Nordhaus, 1975). According to the original theory, policymakers have incentives to stimulate the economy prior to an election. If investors are naive, they would increase investment in response. If they are forward-looking—as suggested by more recent theories—they may reduce investment in expectation of higher taxes used to pay for the stimulus policy after elections take place. Regardless of the direction, this potential response makes it difficult to disentangle the effect of uncertainty from that of the political cycle around elections. In this paper, I use a different identification strategy. Rather than using the timing of elections, I focus on the underlying cause of political uncertainty: the degree of conflict between actors determin-

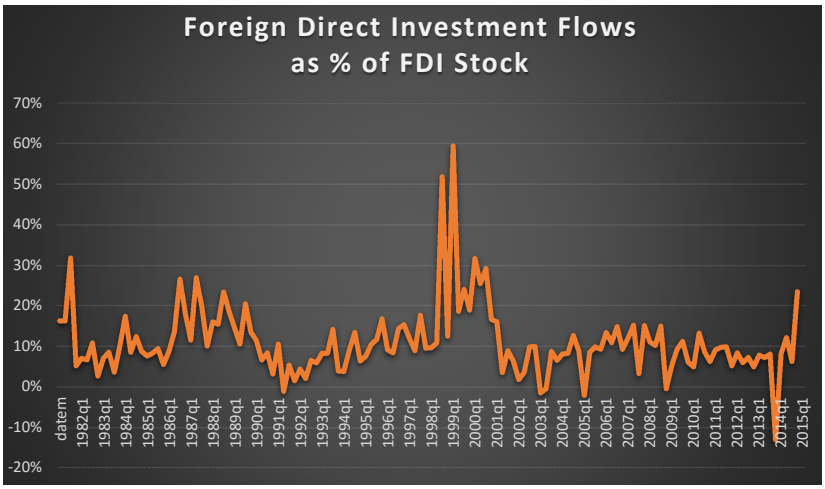

Figure 2: Foreign Direct Investment Flows as % of FDI Stock .

Source: Federal Reserve Board Statistical Release Z.1, "Financial Accounts of the United States" (September 18, 2014).

ing policy itself. In the empirical analysis, I use the Partisan Conflict Index (PCI) recently developed by Azzimonti (2015), which tracks the frequency of newspaper articles reporting political disagreement in a given month. Higher index values indicate greater conflict among political parties, Congress, and the President. The index rises not only when elections take place, but also around well-known policy debates such as those surrounding the debt-ceiling and the fiscal cliff (see Azzimonti 2015). Hence, it is a more comprehensive measure of political uncertainty than the timing of elections or political turnover. Because it is measured at the monthly level, it allows us to identify the effects of uncertainty at shorter frequencies than alternative uncertainty proxies. Relative to other short-frequency measures—such as the economic policy uncertainty (EPU) index developed by Baker, Bloom, and Davis (2015)—it has the advantage of capturing uncertainty derived from political factors rather than that caused by monetary policy. The EPU is constructed using inflation expectations and does not distinguish between fiscal policy uncertainty and monetary policy uncertainty. Finally, since the measure is based on political disagreement as reported by the media, it is potentially a good summary statistic of the information used by foreign investors to make decisions and update their expectations.

The first empirical model aims at estimating the effect of PCI on foreign direct investment from the rest of the world as a percentage of domestic GDP. I include standard control variables, such as trade openness, changes in the exchange rate, the level of inflation, the growth rate of GDP and whether Presidential elections or Midterm elections are held. I find that a one standard deviation increase in PCI at a given quarter results in about 35% decline in investment flows to GDP ratios in the following quarter. When considering FDI flows as a percentage of the total positions in the US, I find that a one-standard deviation increase in PCI results in a 25% decline instead. Both coefficients are statistically significant and robust to alternative specifications of the model (such as first differences). While the analysis

suggests that there is a robust relationship between partisan conflict and FDI inflows, the benchmark specification may suffer from omitted variable bias. To address this issue, I study investment flows to the US disaggregated by country of origin (e.g parent country).[2] The second model specification includes country specific control variables (such as the growth rate of the parent country, its inflation rate and the degree of trade openness), pair-specific variables (such as the bilateral exchange rate and bilateral trade with the US), and country specific fixed-effects (to control for time invariant country characteristics such as geographic and language proximity). The size of the coefficient is smaller when all these controls are taken into consideration, but still negative and statistically significant. I find that a one-standard deviation increase in PCI is associated with a 21% decline in FDI flows as a percentage of the positions in the US. This is well in line with the 25% estimated response using aggregate data.

The result is consistent with predictions from the theoretical literature studying the effects of policy uncertainty on aggregate investment (Bernanke, 1983; Bloom, 2009; Fernández-Villaverde and Rubio-Ramírez, 2010; Stokey, 2013; Bloom, Bond, and Van Reenen, 2007; Pindyck and Solimano, 1993). These theories suggest that in periods of high variability of fiscal policy, economic agents delay hiring, investment, and production decisions. Canes-Wrone and Park (2011) connect increases in policy uncertainty with the electoral cycle, arguing that agents have incentives to delay decisions subject to large reversibility costs before polarized elections. Azzimonti and Talbert (2013) suggest that political disagreement affects economic decisions. They show that polarization increases induce policy uncertainty, causing long run investment to decline. Azzimonti (2015) shows a similar result under imperfect information on the degree of partisan conflict. While most of these studies center on domestic investment, their logic can be easily extended to a framework of foreign direct investment. Rodrik (1991) models FDI choices explicitly under political uncertainty in an environment where agents face uncertainty about the success of a political reform. He shows that foreign investors delay investing until the uncertainty is resolved. This paper contributes to the literature by showing an empirical relationship between political uncertainty, proxied by the PCI, and foreign direct investment.

This is not the first paper relating political risk to cross-border investment flows. Basi (1963) was among the first to show that political stability is one of the most important determinants of FDI flows. Schneider and Frey (1985) document that political instability significantly affects cross-border flows in developing countries, whereas Singh and Jun (1995) show that political risk affects countries that have attracted high foreign direct investment flows in the past. Wei (2000) finds that the degree of corruption in the parent country reduces FDI flows significantly, Loree and Guisinger (1995) show political stability affects FDI outflows, and Li and Resnick (2003) that democratic institutions affect FDI flows in a

[2]Reverse causality is typically an issue in models trying to address the effects of political uncertainty on domestic investment, as policymakers may disagree about economic policy (which implies high levels of the PCI) in periods where investment is low because of its effects on the government budget. This is less likely to be a problem with FDI, as foreign investment does not significantly affect government revenues. It is even less likely that changes in foreign investment from a specific parent country would consistently affect the aggregate level of disagreement across policymakers in the US.

panel of countries.[3] More recently, Busse and Hefeker (2007) show that government stability, internal and external conflict, corruption and ethnic tensions, law and order, democratic accountability of government, and quality of bureaucracy are highly significant determinants of foreign investment inflows. Finally, Julio and Yook (2014) show that FDI flows from US companies to foreign affiliates drop significantly during the period just before an election is held in the destination country. While this paper complements the results of this literature, there are two main departures. First, I focus on the effect of political uncertainty in the US to FDI inflows, whereas most of the literature centered attention on outflows to other countries experiencing uncertainty. Second, I use a novel and high-frequency indicator of political uncertainty constructed from newspaper articles. The partisan conflict index is a more suitable measure of the type of uncertainty faced by foreign investors, than proxies previously used in the literature such as political stability (e.g. turnover of the party in power), corruption, or political risk (e.g. risk of expropriation).

The paper is organized as follows. Section 2 analyzes the effects of political uncertainty on the aggregate inflows of foreign direct investment to the US. Data and sources are described in Section 2.1, the empirical model summarized in Section 2.2 and the results described in Section 2.3. Section 3 studies investment flows to the US by country of origin. Section 4 concludes.

2 Aggregate FDI inflows

2.1 Data Description

This study considers investment flows to the US by foreign investors from the rest of the world in the form of foreign direct investment. The analysis comprises the period 1985 to 2015, with data measured at the quarterly level.

Foreign Direct Investment

The FDI dataset is obtained from the Flow of Funds, Balance Sheets, and Integrated Macroeconomic Accounts compiled by the Board of Governors of the Federal Reserve System (US). The information is contained in Table S.9.q of the 'Integrated Macroeconomic Accounts for the United States,' in statistical releases 'Z.1 Financial Accounts of the United States.' This dataset is based on internationally accepted set of guidelines for the compilation of national accounts, and tries to harmonize the BEA National Income and Product Accounts (NIPAs) and the Federal Reserve Board Flow of Funds Accounts (FFAs). Foreign direct investment in the U.S. refers to ownership by a foreign country's residents of at least ten percent of a business in the US. The direct investor is known as a parent, and the parent's foreign business is known as a US-affiliate. The flow of foreign direct investment in the United States will be referred to as *FDIUS* in the remainder if the analysis. These flows capture the funds that foreign parents provide to their US-affiliates including equity investment, intra-company loans, and reinvested earnings. FDI positions, which are reported annually, measure the stock of

[3] An exception to these studies is Grosse and Trevino (1996), who find that political risk in the parent country does not effect FDI inflows to the US.

foreign direct investment in the US at the end of a given year. It corresponds to cumulative FDIUS, and will be referred to as *Positions* in the analysis. See Appendix 5.1 for a direct link to the historical series of these variables.

Table 1 summarizes FDI flows and levels in the US by the rest of the world (in US millions). The quarterly average FDI inflow to the US is $ 136,498 million dollars, constituting 12.44% of quarterly GDP and about 0.11% of the stock of FDI in the country (about $1,404,632 million dollars).

Table 1: Foreign Direct Investment in the US

Variable	Label	Mean	Std. Dev.	Min	Max
FDI flow	$FDIUS$	136,498	137,976	-410,744	793,256
FDI stock	$Position$	1,404,632	960,567	228,407	3,466,463
FDIUS/Position[t-1]	FDI_t^P	0.11 %	0.09%	-0.133 %	0.59 %
FDIUS/GDP[t-1]	FDI_t^G	12.44	10.13	-24.22	59.59

Notes: $FDIUS$ corresponds to foreign direct investment flows in the United States by the rest of the world (in millions of US dollars, seasonally adjusted annual rate). $Position$ refers to the stock of foreign direct investment in the US at the end of a given year (in millions of US dollars, not seasonally adjusted). GDP is gross domestic product (seasonally adjusted, annual rate). See Appendix 5.1 for variables and sources.

The evolution of FDIUS as a percentage of GDP can be seen in Figure 3. Even though FDI net inflows have been positive for most of the sample, we see a large disinvestment in the first quarter of 2014 (of around 24% of GDP). Note that negative values of FDIUS represent net inflows where divestment was greater than investment in a given quarter.

Partisan Conflict

The measure of political uncertainty is the Partisan Conflict Index (PCI) obtained from the Real-time Data Research Center of the Federal Reserve Bank of Philadelphia. It tracks the degree of political disagreement among U.S. policymakers by measuring the frequency of newspaper articles reporting it in a given month.[4] Higher index values indicate greater conflict among political parties, Congress, and the President. Azzimonti (2015) shows that periods of elevated partisan conflict are associated with high degrees of economic policy uncertainty, where investors have a hard time predicting fiscal policy. Spikes in the monthly series are observed in periods surrounding Obamacare, the fiscal cliff and the debt ceiling debates, and Midterm and Presidential elections. Its long run trend is positively associated with other measures of political polarization and divided government, and negatively related with Congress approval ratings.

Figure 4 depicts the evolution of the partisan conflict index between 1985:Q1 and 2015:Q1, constructed by averaging monthly observations. The mean value of PCI in the sample is 101, with a standard deviation of 23. The lowest value of 67 was recorded in the third quarter of 2001, following the 9/11 terrorist attacks. Azzimonti (2015) notes that the index is typically

[4]See Azzimonti (2015) for more details about the index construction.

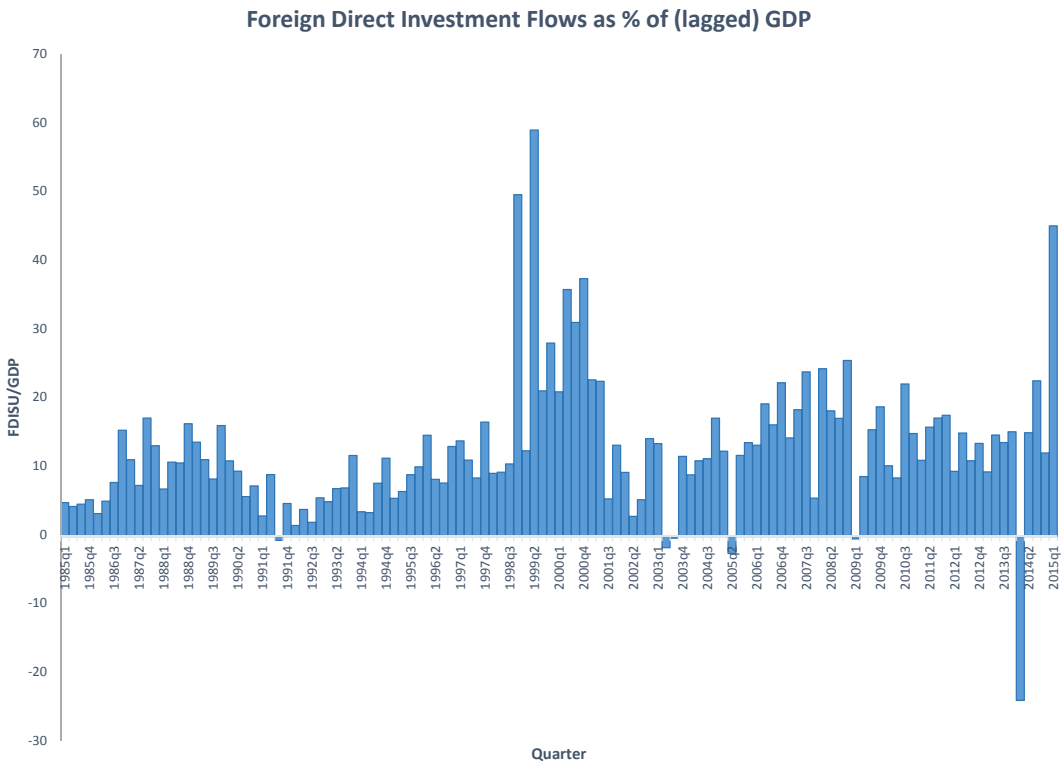

Figure 3: Foreign Direct Investment Flows as a % of GDP (quarterly), from Q1: 1985 to Q1:2015.

Source: Federal Reserve Board Statistical Release Z.1, "Financial Accounts of the United States."

lower than average in periods of war and national security threats, suggesting a rally-around-the-flag. The highest value of 177 was observed in the last quarter of 2013, and coincides with the 2013 government shutdown. Interestingly, negative FDI inflows were observed in the quarter that followed, perhaps suggesting a reaction of foreign investors to domestic political turmoil. We can also see that the PCI fluctuates around a constant mean until the outset of the Great Recession in 2007, where it exhibits a structural break to what appears to be a higher mean thereafter.

Other control variables

Following the literature, I consider a set of variables capturing the evolution of macroeconomic and institutional characteristics of the US. ALFRED, the electronic database maintained by Federal Reserve Bank of St. Louis is the primary source of these variables, which include: (i) GDP growth, to proxy for the state of the business cycle; (ii) the inflation rate, (iii) the exchange rate—computed from the trade weighted U.S. dollar index against major currencies—, (iv) exports, and (v) imports. Summary statistics are included in Table 2.

In the estimation, I will also control for the arrival of elections. While the realization

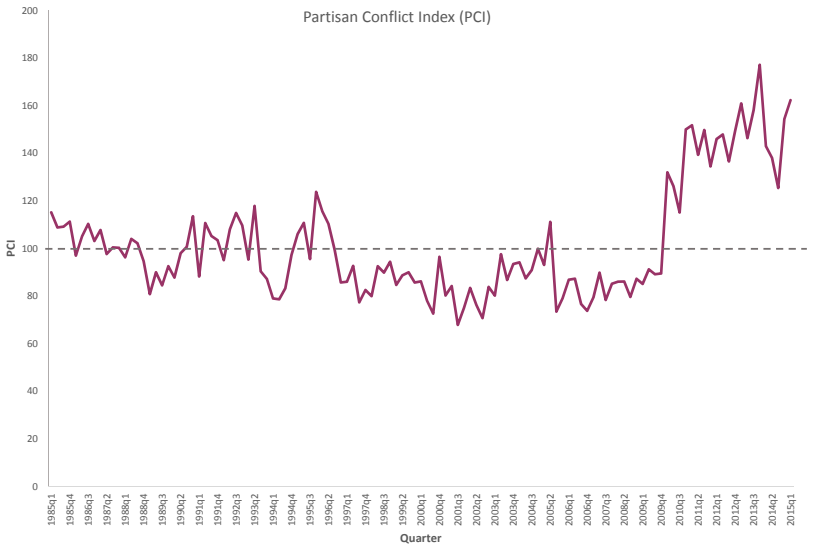

Figure 4: Partisan Conflict Index (quarterly, 1990=100).

Source: Real-time Data Research Center of the Federal Reserve Bank of Philadelphia.

Table 2: Macroeconomic indicators for the US

Variable	Label	Mean	Std. Dev.	Min	Max
GDP Growth %	$GDPgr$	0.64	0.59	-2.16	1.85
Inflation	π	0.66	0.51	-2.3	1.7
Exchange Rate	FX	89.81	13.36	69.53	142.01
Export	X	1131	611	297	2360
Import	I	1463	819	397	2894

Notes: X and M in billions of dollars, seasonally adjusted. Inflation computed using the consumer price index. GDP growth computed from quarterly seasonally adjusted GDP. The exchange rate FX is Exchange rates, Trade Weighted U.S. Dollar Index: Major Currencies. See Appendix 5.1 for a description of variables and sources.

of these political shocks is uncertain for investors, the timing in which these shocks occur is not, as elections are held at regular intervals of time. To this end, I construct two indicator variables: (i) $PresE$, which takes a value of 1 when a Presidential election is held in the US and 0 otherwise and (ii) $MidE$ which equals one when mid-term elections in the US are held.

2.2 Model Specification

This section describes the benchmark model used to estimate the effects of domestic political discord on FDI inflows to the US. I will consider two measures of foreign direct investment. The first measure, FDI_t^G, is similar to that used by Froot and Stein (1991). It corresponds to the ratio of FDI flows to the U.S. by the rest of the world (in quarter t) to GDP in the previous quarter.

$$FDI_t^G = \frac{FDIUS_t}{GDP_{t-1}}.$$

The second measure of foreign direct investment FDI_t^P follows Baker, Foley and Wurgler (2009). It corresponds to FDIUS (in a given quarter) scaled by the cumulative FDI position in the US at the end of quarter $t-1$,

$$FDI_t^P = \frac{FDIUS_t}{Position_{t-1}}.$$

The benchmark specification is as follows

$$FDI_t^i = \alpha_0 + \alpha_1 PCI_{t-1} + \mathbf{X}'\theta + \epsilon_t, \tag{1}$$

where $i \in \{G, P\}$ denotes the alternative measures of FDI described above, PCI stands for the partisan conflict index (lagged one period), and $\mathbf{X}$ denotes a set of control variables, with $\mathbf{X}_t = \{GDPgr_t, \Delta FX_t, \pi_t, Trade_t, MidE_{t+1}, PresE_{t+1}\}$. GDP growth, $GDPgr$, controls for the state of the domestic economy; we expect FDI inflows to be higher during booms than in recessions. Changes in the exchange rate, ΔFX, affect the relative wealth levels of foreign and domestic investors, leading to changes in foreign investors' relative purchasing power (see Klein and Rosengren, 1994). Good monetary policy that leads to low inflation is likely to reduce the risk premium for foreign investment, and hence boost FDI inflows. Inflation is introduced to control for other forms of policy distortion such as monetary imbalances (see Busse and Hefeker, 2007). Trade openness, measured as $\frac{X+I}{GDP}$, can affect FDI inflows in two ways. First, trade openness facilitates the import of foreign inputs needed for production in the US and makes it easier to export the final product to other countries (increasing potential demand and hence the returns to FDI). There are also externalities, as suggested by Lipsey and Weiss (1984), by which a firm may expect its production presence in the US to generate demand for other products of this firm (even if they were to be produced aborad). These factors suggest that trade openness promotes FDI. Second, as noted by Markusen (1995) and others, trade barriers may cause a substitution away from exports towards FDI. The intuition is that the higher the tariff, for example, the more likely a foreign firm is to supply the US market from US-affiliates rather than through exports. These factors suggest that trade openness discourages FDI. Similarly to PCI, Presidential and mid-term elections introduce policy uncertainty, and may discourage FDI inflows (see Julio and Yook, 2014). Because the timing of elections is known ex-ante, I introduce it as an additional control.

2.3 Empirical Results

Table 3 reports the results. The first row denotes the estimated coefficient, while robust standard errors (corrected for autocorrelation) are reported in parenthesis. Specification (1) corresponds to the regression equation 2.3, where the dependent variable is the ratio of FDI to lagged GDP. PCI has a negative and significant coefficient, -0.181, indicating that an increase in political discord as reported by the media results in a reduction of FDI inflows. To put this number in perspective, note that a one-standard deviation increase in PCI results in a decline of FDI_t^G of 4.1, corresponding to about 35% decline in the ratio of FDI inflows to GDP in a given quarter. This number is calculated as $0.35 = -0.181 \times 22.62/11.64$, where -0.181 is the estimated coefficient, 22.62 is a one-standard deviation in the PCI, and 11.64 corresponds to the average value of FDI_t^G over the sample. Trade openness attracts FDI to the US, as suggested by the large and statistically coefficient. Other control variables are statistically insignificant.

The second specification considers FDI flows as a percentage of the stock of FDI in the previous quarter. I also find that partisan conflict discourages FDI using this measure. The coefficient of -0.00122 suggests that a one-standard deviation shock to PCI results in a 25% decline of FDI flows as a proportion of their stock. This number is calculated as $0.25 = -0.00122 \times 22.62/0.11$, where -0.00122 is the estimated coefficient, 22.62 is a one-standard deviation in the PCI, and 0.11 corresponds to the average value of FDI_t^P over the sample. These results are robust to considering lags of GDP growth and inflation, rather than contemporaneous effects, and to excluding election dummies from the regression.

For robustness, Specifications (3) and (4) consider first differences as follows

$$\Delta FDI_t^i = \alpha_0 + \alpha_1 \Delta PCI_{t-1} + \mathbf{Z}_t'\theta + \epsilon_t,$$

where $\mathbf{Z}_t = \{\Delta GDPgr_t, \Delta FX_t, \Delta\pi_t, \Delta Trade_t, MidE_{t+1}, PresE_{t+1}\}$. Changes in PCI are also negatively related to changes in FDI, regardless of whether FDI is measured as a percentage of GDP or FDI positions (see columns 3 and 4). Trade openness encourages FDI inflows according to these specifications. Interestingly, the effects of elections is positive and significant suggesting that FDI inflows accelerate the period before a mid-term or Presidential election is held (conditional on a given degree of political disagreement). These results are robust to considering lags of changes in GDP growth or inflation, and to excluding both election dummies from the regression.

While this analysis suggests that there is a robust relationship between partisan conflict and FDI inflows, the specifications above may suffer from omitted variable bias, since other factors not controlled for may be correlated with partisan conflict and also be affecting investment flows. To address these issues, the next section studies investment flows to the US disaggregated by country of origin (e.g parent country).

3 FDI flows by country

Using country-specific data on foreign direct investment, it is possible to further identify the effects of political dysfunction on FDIUS inflows. The main advantage of this approach is

Table 3: Regression Results

Dependent Var	FDI_t^G (1)	FDI_t^P (2)	ΔFDI_t^G (3)	ΔFDI_t^P (4)
PCI_{t-1}	-0.181**	-0.00122**	-0.212***	-0.00124***
	(0.0754)	(0.000501)	(0.0716)	(0.000482)
$Trade_t$	111.4***	0.257	240.7***	1.694***
	(27.54)	(0.325)	(66.01)	(0.587)
π_t	1.241	0.0191	0.449	0.00572
	(1.689)	(0.0139)	(1.248)	(0.0101)
$GDPgr_t$	8.865	0.449	115.2	1.780
	(155.3)	(1.291)	(144.2)	(1.248)
ΔFX	0.123	0.00231	0.0846	0.000815
	(0.353)	(0.00358)	(0.135)	(0.00139)
$MidE_{t+1}$	2.810	0.0169	9.429***	0.0871***
	(3.055)	(0.0244)	(3.181)	(0.0300)
$PresE_{t+1}$	-0.345	-0.00341	4.199**	0.0402***
	(1.749)	(0.0136)	(1.742)	(0.0155)
Model Wald test	181	152	44	62
Observations	118	118	118	118

Notes: Sample period 1985:Q1 to 2015:Q1. The dependent variable in Specification (1) is FDI_t^G, the independent variables are lagged PCI, trade openness, inflation, GDP growth, and changes in the exchange rate. Specification (2) includes the same set of explanatory variables but considers FDIUS as a percentage of FDI positions FDI_t^P. Specifications (3) and (4) considers first differences instead, so first differences in lagged PCI, trade openness, inflation, GDP growth are included. Robust standard errors corrected for autocorrelation (with 2 lags) are shown in parentheses. Significance denoted as: *** p<0.01, ** p<0.05, * p<0.1

that we can better control for omitted variables bias by including country fixed-effects and country-specific control variables. The main disadvantage is that the time-interval is shorter, and that disaggregated information is not available for all countries.

3.1 Data on country-specific FDI

The sample includes information from 22 countries on foreign direct investment to the US, over the interval 1994:Q1-2015:Q1. The dataset is obtained from the Survey of US Direct Investment Abroad, undertaken quarterly by the US Bureau of Economic Analysis.[5] As in the previous section, direct investment in the U.S. refers to ownership by a foreign country's residents of at least ten percent of a business in the US. FDI inflows from country i, $FDIUS_i$, are measured quarterly and reported in millions of US dollars. The third and fifth columns of Table 4 summarize the average $FDIUS_{it}$ per country of origin. The average quarterly FDI

[5]Foreign Direct Investment in the U.S.: Balance of Payments and Direct Investment Position Data, Financial transactions without current-cost adjustment, quarterly data.

inflows range from a low of $31.69 million from New Zealand to a high of $6.5 billion from the United Kingdom. The second and fourth columns of Table 4 report FDI_t^P, the average FDI inflows from country i as a ratio of the (lagged) stock of FDI from country i in the US. That is,

$$FDI_{it}^P = \frac{FDIUS_t}{Position_{t-1}^{i \to US}},$$

where following Julio and Yook (2014), the denominator corresponds to cumulative FDI positions in the US from country i. This variable is reported annually and measure the total outstanding level of country i's direct investment in the US at year-end. Positions have been converted to a quarterly frequency through linear interpolation of annual data.

Table 4: FDI inflows per parent country

Country	FDI_{it}^P	$FDIUS_{it}$	Country	FDI_{it}^P	$FDIUS_{it}$
Australia	0.029	539.22	Japan	0.017	3624.83
Austria	0.015	56.23	Korea	0.1672	640.56
Belgium	0.035	716.98	Luxembourg	0.057	4418.64
Germany	0.035	4003.25	Mexico	0.057	305.34
Denmark	0.036	195.52	Netherlands	0.030	4684.01
Finland	0.032	168.44	Norway	0.021	239.45
France	0.033	3423.11	New Zealand	0.054	31.69
Ireland	0.042	462.58	Spain	0.039	588.47
Israel	0.026	106.14	Sweden	0.032	691.04
Italy	0.037	380.34	United Kingdom	0.033	6502.33
India	0.089	182.56	Switzerland	0.036	3981.29

Notes: Sample period 1994:Q1 to 2015:Q1. The second and fourth columns show average foreign direct investment (FDI) inflows from country i to the US in a given year as a percentage of lagged positions in that country. The third and fifth columns display FDI inflows in millions of US dollars. See the Appendix 5.1 for variable descriptions and sources.

Following Busse and Hefeker (2007), I will also consider the following log transformation of FDI flows:

$$lnFDI_{it}^P = \ln\left(FDI_{it}^P + \sqrt{\left(FDI_{it}^P\right)^2 + 1}\right)$$

Because FDI is measured on a net basis, many country-quarter observations have negative values. This transformation allows us to consider a non-linear relationship between FDI and partisan conflict while at the same time preserving observations with negative values.

Table 5: Summary statistics of quarterly FDI measures

Variable	Label	Obs	Average	Std. Dev.	Min	Max
Flow ($ millions)	$FDIUS_{it}$	1728	1,706	6,920	-122,241	152,535
Flow/Position	FDI_{it}^{P}	1686	0.0427	0.159	-2.054	2.169
Busse-Hefeker	$lnFDI_{it}^{P}$	1686	0.0412	0.138	-1.468	1.517

Notes: Sample period 1994:Q1 to 2015:Q1. See the Appendix 5.1 for variable descriptions and sources.

Summary statistics, averaged over our sample of 22 countries, are presented in Table 5. Average FDI inflows to the US per parent country are $1,706 million dollars each quarter, or 4.3% of the total position already in the country.

3.2 Country Characteristics

In order to estimate the effects of partisan conflict on FDI inflows to the US, it is important to control not only for the state of the domestic economy, but also for characteristics of the parent country. In particular, I will consider: (i) parent country trade openness, measured as $\frac{X_i+I_i}{GDP_i}$, where i denotes the parent-country; (ii) bilateral trade, measured as $\frac{X_i^{US}+I_i^{US}}{GDP_i}$, where M_i^{US} and X_i^{US} denote US imports and exports, respectively, from/to country i, (iii) percentage changes in the bilateral exchange rate, measured as National Currency/US dollar; (iii) country i's real GDP growth, and (iv) parent-country's inflation rate, measured as the percentage change in the country's GDP deflator. All variables are obtained from ALFRED, the electronic database maintained by the Federal Reserve Bank of St. Louis. Table 6 summarizes the characteristics of the 22 countries in our sample.

Table 6: Parent country characteristics

Variable	Mean	Std. Dev.
GDP growth, %	0.59	1.11
Trade Openness, %	84	57
Bilateral Trade, %	6.8	13
% Change in Bilateral Exchange Rate	0.27	5.7
Inflation Rate, %	0.5	2.7

Notes: Sample period 1994:Q1 to 2015:Q1. See the Appendix 5.1 for variable descriptions and sources.

Trade openness, measured as the ratio between the sum of exports and imports and GDP, averages 84% of GDP across countries. This is in line with Julio and Yook (2014)'s value of around 80 %. Bilateral trade represents around 6.8 % of the country's output in the sample. The mean growth in real GDP has been 0.59 %, with a standard deviation of around 1 %. The average inflation rate has been mild on average for parent-countries during this time interval.

3.3 Model specification and empirical results

Exploiting the panel structure of the data, I will compute a fixed-effects regression of the form

$$FDI_{it}^{P} = \gamma_i + \alpha_1 \ln PCI_{t-1} + \mathbf{X}_{it}'\theta + \epsilon_t, \tag{2}$$

where FDI_{it}^{P} is FDI flows from country i as a ratio of lagged positions in the US. As before, PCI stands for the partisan conflict index in the US (lagged one period and transformed to natural logarithms), and $\mathbf{X}$ denotes a set of country-specific control variables, $\mathbf{X}_t = \{\Delta FX_{it}, \Delta Trade_{it}, \Delta Bilateral_{it}, GDPgr_{it}, \pi_t\}$. Economic conditions of the parent country are captured by the growth rate of its GDP, $GDPgr_{it}$, changes in the relative wealth of foreigners by ΔFX_{it}, changes in the degree of trade openness by $\Delta Trade_{it}$, and the parent country's inflation rate by π_{it}. In addition, I control for time-invariant country characteristics that may affect FDI flows by including country fixed-effects, denoted by γ_i. Examples are geographic and language proximity and legal origin (see Daude and Fratzscher (2008)) or the degree of financial liberalization, which is mostly invariant over this time period.

Table 7 summarizes the main results. The first column reports the regression coefficients corresponding to specification equation 2. Standard errors are clustered by parent country, and corrected for heteroskedasticiy and autocorrelation (in parenthesis). The magnitude of the effect is in line with that computed in the benchmark specification presented in Section 2.3. The estimated coefficient of -0.038 implies that a one standard deviation in the natural logarithm of the PCI is associated with a 21% decline in FDI flows (as a percentage of positions in the US). This number is calculated as $0.21 = -0.038 \times 0.25/0.11$, where -0.038 is the estimated coefficient, 0.25 is a one-standard deviation in log-PCI, and 0.043 corresponds to the average value of $Flow/Position$ across parent countries over the sample.

The dependent variable in the second column corresponds to the transformation of FDI developed by Busse and Hefeker (2007), $lnFDI_{it}^{P}$. The estimated coefficient indicates that a one percent increase in PCI is associated with a 0.339% decline in FDI flows. Notice that the PCI increased 19% during the last quarter of 2013, which would have implied a 7% decline in FDI/Flow during the first quarter of 2014. This corresponds to about half of the actual drop in aggregate FDI flows during that quarter.

We can see that the main result of this paper, namely that increases in partisan conflict are associated with lower FDI inflows to the US, is also robust when a panel of parent-countries is considered. Potential omitted variable bias present in the aggregate specification of Section 2 is addressed by including country fixed effects and other country-specific control variables.

4 Conclusion

This paper analyzed the effects of political uncertainty on foreign direct investment flows to the US. The main departure from existing literature lies on using a novel measure of political uncertainty: the partisan conflict index. The index, obtained from the Real-time Data Research Center of the Federal Reserve Bank of Philadelphia, tracks the frequency of newspaper articles discussing disagreement between policymakers. Using aggregate data on

Table 7: Summary statistics of quarterly FDI measures

Dependent Var	(1) Flow/Position	(2) Busse-Hefeker
$\ln PCI_{t-1}$	-0.038*	-0.034**
	(0.019)	(0.016)
$\Delta Trade_{it}$	0.16*	0.15
	(0.091)	(0.088)
$\Delta Bilateral_{it}$	-0.35**	-0.30**
	(0.13)	(0.11)
π_t	-0.61	-0.59
	(0.44)	(0.42)
ΔFX_{it}	0.00015	0.00014
	(0.00094)	(0.00088)
$GDPgr_{it}$	0.0010	0.00074
	(0.0028)	(0.0028)
$GDPgr_{US,t-1}$	0.0089	0.0069
	(0.0098)	(0.0082)
Observations	1,425	1,425
R-squared	0.10	0.13
Number of ccode	22	22

Notes: Sample period 1985:Q1 to 2015:Q1. The dependent variable in Specification (1) is FDI_t^P, the independent variables are lagged natural logarithm of PCI, change in trade openness, change in bilateral trade, inflation, changes in the exchange rate, GDP growth of parent country, lagged US GDP growth, and country fixed-effects. Specification (2) includes the same set of explanatory variables but considers the Busse-Hefeker measure $lnFDI_{it}^P$. Robust standard errors, clustered by country, and corrected for autocorrelation are shown in parentheses. Significance denoted as: *** p<0.01, ** p<0.05, * p<0.1

investment flows, I find that a one-standard deviation increase in the PCI results in about 25% decline in FDI flows as a percentage of positions in the country. I also consider FDI flows by parent country, which allows to better control for omitted variable bias, and find a similar response. The results are robust to alternative specifications of the model, such as non-linear a relationship between FDI and PCI.

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5 Appendix

5.1 Variables and Sources

Below is a list of variables used and sources. Aggregate variables are quarterly and range from 1981:Q1 to 2015:Q1. Bilateral data is quarterly and ranges from 1994:Q3 to 2015:Q1.

- *FDIUS*: Foreign direct investment in U.S. (Flow) from the rest of the world. In millions of dollars, seasonally adjusted (annual rate). Source: Board of Governors of the Federal Reserve System (US). Series id: ROWFDIQ027S, retrieved from ALFRED, Federal Reserve Bank of St. Louis https://alfred.stlouisfed.org/series?seid=ROWFDIQ027S.
  - $FDIUS_i$: Foreign direct investment in U.S. (Flow) from country i, in million of dollars. Source: Bureau of Economic Analysis, under Foreign Direct Investment in the U.S.: Balance of Payments and Direct Investment Position Data, Financial transactions without current-cost adjustment.

    Data retrieved from http://www.bea.gov/international/di1fdibal.htm
- *Position*: Foreign direct investment in U.S. (Levels) from the rest of the world. In millions of dollars, not seasonally adjusted. Source: Board of Governors of the Federal Reserve System (US). Series id: ROWFDNQ027S, retrieved from ALFRED, Federal Reserve Bank of St. Louis https://alfred.stlouisfed.org/series?seid=ROWFDNQ027S.
- *FX*: Exchange rates, Trade Weighted U.S. Dollar Index: Major Currencies, Index Mar 1973=100, Quarterly, Not Seasonally Adjusted. Series id: DTWEXM. Retrieved from ALFRED, Federal Reserve Bank of St. Louis https://alfred.stlouisfed.org/series?seid=DTWEXM.
  - FX_i: Exchange rates, Country i National Currency / U.S. Foreign Exchange Rate. Retrieved from ALFRED, Federal Reserve Bank of St. Louis
- *GDP*: Gross Domestic Product. In billions of dollars, seasonally adjusted (annual rate). Series id: GDP, retrieved from ALFRED, Federal Reserve Bank of St. Louis https://alfred.stlouisfed.org/series?seid=GDP.
- *RGDP*: Real GDP, Gross Domestic Product by Expenditure in Constant Prices, Index Number, Seasonally Adjusted. Base varies from country to country, retrieved from ALFRED, Federal Reserve Bank of St. Louis.
- *GDPgr*: GDP growth, computed as $\frac{GDP_t - GDP_{t-1}}{GDP_{t-1}}$.
- *M*: Imports of Goods & Services. In billions of dollars, seasonally adjusted (annual rate). Series id: IMPGS, retrieved from ALFRED, Federal Reserve Bank of St. Louis https://alfred.stlouisfed.org/series?seid=IMPGS.
- *X*: Exports of Goods & Services. In billions of dollars, seasonally adjusted (annual rate). Series id: EXPGS, retrieved from ALFRED, Federal Reserve Bank of St. Louis https://alfred.stlouisfed.org/series?seid=EXPGS.

- *Trade*: Sum of exports X and imports M scaled by GDP, $\frac{X+M}{GDP}$.
  - $Trade_i$: Sum of country i's total exports X_i and imports M_i scaled by GDP of country i, $\frac{X_i+M_i}{GDP_i}$. Retrieved from ALFRED, Federal Reserve Bank of St. Louis
  - $Bilateral\,Trade_i$: Sum of US exports to country i X_i^{US} to i and US imports from i, M_i^{US} scaled by GDP of country i, $\frac{X_i^{US}+M_i^{US}}{GDP_i}$. Imports and exports in millions of U.S. dollars on a nominal basis, not seasonally adjusted. Obtained from the US Census, Table U.S. 'Trade in Goods by Country' https://www.census.gov/foreign-trade/balance/index.html
- π: Inflation, Consumer Price Index for All Urban Consumers: All Items, Percent Change, Seasonally Adjusted. Series id: CPIAUCSL_PCH, retrieved from ALFRED, Federal Reserve Bank of St. Louis https://alfred.stlouisfed.org/series?seid=CPIAUCSL_PCH.
  - π_i: GDP Implicit Price Deflator, Index Number, Base varies from country to country, retrieved from ALFRED, Federal Reserve Bank of St. Louis.
- PCI: Partisan Conflict Index. Retrieved from Federal Reserve Bank of Philadelphia https://www.philadelphiafed.org/research-and-data/real-time-center/partisan-conflict-index.
- $PresE$: Indicator variable which equals 1 when there is a Presidential election in the US and 0 otherwise.
- $MidE$: Indicator variable which equals 1 when there is a midterm election in the US and 0 otherwise.
- $GGDP$: Growth rate of GDP, computed as $\frac{GDP_t-GDP_{t-1}}{GDP_{t-1}}$.