In protectionism we trust?

Exploring the effects of the 2009 EU antidumping case

Master Thesis International Economics

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This paper researches both the economic as well as the political effect of the 2009 antidumping (AD) measures imposed by the EU on Chinese steel imports. First, I use Eurostat data to show that the protected industry (NACE 24) did not fully recover its production levels after the AD. Secondly, European Social Survey data from 2002 to 2016 is analyzed to investigate the effect of the measures on the trust in the European Parliament. Matching workers in NACE 24 to comparable workers in other industries and conducting a difference-in-difference analysis shows that this trust significantly declined after the intervention. Regional externalities also seem to exist, as regions that contained a higher share of NACE 24 workers showed a significantly lower trust in the European Parliament over time than less affected regions. The declined trust could originate from the increased unemployment in the NACE 24 sector after the AD measures were imposed, as the industry lost 10 to 23 percent of its jobs in France and Spain respectively. These results suggest that less effective protective trade policies could deteriorate the trust in the institution implementing such policy.

Contents

I. Introduction

Since the start of Donald Trump's presidency of the United States in January 2017, tariffs and antidumping measures are dominating the front pages of the news. One of the most recent highlights was in March 2018, when Trump announced sanctions against China adding up to more than 50 billion USD (The New York Times, 2018). Tariffs have been widely used over the last centuries, but their effectiveness is highly debated (see e.g. Reuters, 2018 for a discussion of Trump's tariffs on steel and aluminum and Read, 2005 for a review of the tariffs imposed by the Bush government). On the other hand, tariffs are favored by workers in trade-exposed industries (Mayda & Rodrik, 2005) and known as effective to win votes and therefore frequently used in the political debate (see e.g. Brock & Magee, 1987 for theory and Petulla, 2018 for a recent study).

The EU is not unfamiliar with the use of tariffs either. One of its sectors that is particularly known for the presence of protectionist measures is the steel industry. Back in 2009, at the start of the European debt crisis, the EU imposed antidumping (AD) measures[1] on certain types of steel from China (European Commission, 2009). These measures were further expanded to other types of steel in 2011 and are still in place at the current date. The aim of this paper is to investigate the effects of these 2009 EU antidumping measures related to Chinese steel imports on the relevant industry's production and potential changes in the trust in the European Parliament resulting from these measures. In general, the trust in the EU fell considerably in the last decade and since early 2010 more citizens distrust than trust the EU as an institution (Eurobarometer 89.1, 2018). If the AD was in line with citizens' preferences and its effect on the industry was positive, citizens' trust in the EU could have improved since then. Hence, both the economic as well as the political aspects of AD are explored in this paper.

I use industry data from Eurostat and eight rounds of survey data (2002-2016) from the European Social Survey (ESS) to explore the economic and political effect of the antidumping measures. A well-known technique to estimate the potential effect of a policy change is the difference-in-difference approach, which compares the treatment group with a similar control group. I follow the same approach in this paper and compare the trend of the relevant industry (basic steel manufacturing, coded as NACE 24[2]) with two comparable industries. This method also allows me to filter out common shocks such as the 2009 crisis, as both the treatment and control groups are assumed to be similarly affected. In addition, I use propensity score

[1] Antidumping measures are a specific type of import tariff, used when the exporter undercuts the 'fair' market price of the relevant good. The aim of this tariff is to raise the exporter's product price back to the market level.
[2] The NACE system is Europe's industry classification system. Each industry has its own NACE code.

matching to match individuals in the protected industry on a set of demographic characteristics to similar persons in comparable industries, to see whether the measures have any influence on the trust in the European Parliament. I also explore possible political externalities of the AD measures, by investigating the effect of a higher *regional* share of NACE 24 workers on the regional trust in the European Parliament. This will show whether there are spillovers of the AD actions to people who are not directly involved in NACE 24.

The aim of this research is to fill the existing gap in the political economy literature when it comes to estimating the effects of protective trade policies on the trust in the implementing institution. Extensive research on trade policies and trust in institutions exists, but both topics have not been linked before. In general, trade theory suggests that rising imports lead to increased competition and a subsequent risk of job losses in the affected industries (Trefler, 2004). To protect the domestic industry and possibly win votes, a protective trade policy is often implemented. The economic benefits of these policies, however, are frequently debated (see e.g. Gallaway, Blonigen and Flynn (1999), discussed later). This research shows that the economic benefit of the 2009 AD measures is negligible, as the production in the protected industry did not recover up to pre-intervention levels and a substantial amount of jobs was lost. Furthermore, workers' trust in the European Parliament in the relevant industry declined since 2009 and possible regional externalities exist. Regions with a higher share of NACE 24 workers experienced a steeper decline in trust than the control regions. These results could indicate that ineffective protective trade policies may deteriorate the trust in the institution implementing such policy. This is important for politicians and policymakers to take into consideration, before implementing new (protective) trade policies.

The rest of this paper is organized as follows. I start by outlining the background of the antidumping measures imposed in 2009 and follow with a discussion of the literature on trade, jobs, import competition and political economy. Next, I discuss the data obtained from Eurostat and the ESS. I follow by explaining the statistical methods used for the industry performance analysis and the perceptions' study and the matching technique. Subsequently, I present the results and follow with several robustness checks. At last, I end with the conclusions and some avenues for further research.

II. Background on the antidumping measures

European Commission investigation

Just before Europe was confronted with the 2009 debt crisis, the domestic steel tubes industry was suffering from increased import competition from Chinese producers. When comparing the Chinese price for steel tubes with the normal market value, the so-called Defence Committee of the Seamless Steel Tubes Industry of the European Union (representing more than 50% of the total EU producers) concluded that the Chinese products were sold below normal market value and therefore, a complaint was sent to the European Commission (the Commission) in May 2008. In July 2008, an official antidumping proceeding was initiated by the Commission.

As common EU procedure, the Commission took an analogue (comparable) country, the US, to compare the steel manufacturing industry's characteristics and market prices. Consequently, the Commission found dumping margins ranging from 35 to 51 percent of the Chinese products and followed by investigating the specific EU firms active in the relevant industry. Within the EU, the relevant products are manufactured by 23 producers, of which 15 producers (adding up to 90% of the total production) cooperated in the Commission's investigation. Seven of these producers were included in the Commission's sample to investigate the firm's performance. The Commission concluded that Chinese imports increased by more than 20 times from 2005 to 2007 and grew from a 1.0% market share up to 14.9%. It is important to note that the same EU industry was already protected by AD actions from Croatian, Russian, Romanian and Ukrainian imports since 2006.[3] As the employment, production and profitability of the sample producers increased since then, the Commission concluded that this protection was rather successful. However, to make sure that the EU industry would fully recover from the past dumping and considering that the EU market share dropped, prices rose and Chinese producers undercut prices, the Commission decided that additional AD measures were necessary. The EU consumption was also expected to decrease by at least 30% (partly due to the crisis) and production was forecasted to decrease by 20-35 percentage points by the end of 2009. Therefore, since the Commission determined that the weighted average price undercutting margin was 24%, a duty rate of 24.2% was imposed for almost all Chinese companies.[4] These provisional AD measures were set on 8 April 2009 and

[3] These measures were in force until July 2017. See for the definitive measures imposed in this case European Commission (2006).

[4] Only Hubei Xinyegang Steel Co., Ltd (15.6%), Shandong Luxing Steel Pipe Co., Ltd (15.1%) and other companies cooperating with the investigation (22.3%) were subject to lower duty rates.

after further investigations became definitive on 6 October 2009. The expiry review five years later led to the Commission's decision of maintaining the measures in December 2015.[5]

Imports from China

Next to the conclusions from the Commission, I investigate Eurostat trade data to obtain more insights into the trade flows of the products affected by the AD measures. Figure 1 below shows the combined import volumes of AD-affected products for intra- and extra-EU trade and China specifically. The figure clearly shows that imports from China rose steadily between 2006 and 2008, although most trade is intra-EU.[6] As mentioned before, the market share of Chinese imports rose to 14.9% in 2007. After the 2009 crisis and the initiating of AD measures in 2009 (denoted by the reference line), the market share of Chinese imports fell back to just a few percent of total imports. However, the figure also shows that the *total* imports of the AD products (the intra- and extra-EU lines combined) almost recover up to pre-intervention levels after 2009 and remain quite high.

Figure 2 on the right shows the volume of *Chinese* imports of AD products per country. According to the data, Italy, Belgium and Spain are the largest importers. This figure also shows that Chinese imports reduce to a minimum after the AD measures were imposed, which could indicate that the measures were rather effective. I will now turn to the economic literature to summarize the main effects of trade liberalization on domestic competition and jobs.

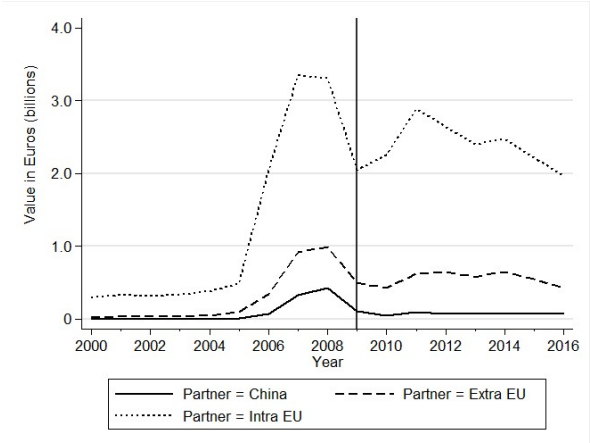

Figure 1: total EU imports and partner countries for affected AD products

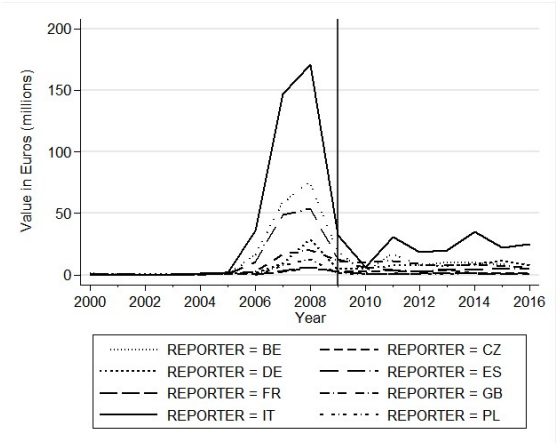

Figure 2: total AD imports from China per country

[5] See appendix 1 for a timeline of the AD case and the relevant products codes, defined at the 8-digit level under the Combined Nomenclature (CN) system. Related Commission documents are in the bibliography.
[6] These intra-EU flows also contain products that came originally from China and could thus be upward biased.

III. Related literature

Trade liberalization, competition and jobs

A first glimpse at trade theory learns that free trade is supposed to increase welfare. The generally supported neoclassical theory builds on Ricardo's (1891) comparative costs advantages theory, which explains how nations can benefit from free trade by specializing in production that requires relatively fewer factor imports. The Heckscher-Ohlin theory (1933) extends this model and argues that countries tend to export goods that require factor inputs (such as labor, capital or land) they have in abundance. As supporters of this theory, the GATT and subsequently the WTO were established as international organizations to promote free trade.

Free trade, however, comes hand in hand with increased competition. Narrowing down to the literature on trade and firms, Melitz showed in his famous 2003 paper that the effect of trade liberalization was heterogeneous among firms with different levels of productivity. Increased trade liberalization forces the least productive firms to exit the market and simultaneously increases total industry productivity. Trefler (2004) confirms these theoretical predictions when investigating the Canada-US Free Trade Agreement and finds an employment reduction of 12 percent due to market exit in the industries that experienced the deepest tariff cuts. On the other hand, industry labor productivity rose with 15 percent due to the trade liberalization.

When focusing on the employment losses resulting from increased imports, most literature relates to the US. Autor et al. (2014) find that substantial labor adjustment costs exist (in terms of earnings, time worked and employment in the manufacturing industry) from increased Chinese import competition and that these costs are unevenly distributed among workers. Especially workers who initially have a lower wage and lower tenure face larger losses in earnings. On the contrary, high skilled workers seem to be better at switching between employers and minimizing their income loss. The local labor market adjustments were also found to be slow and finding employment gains in export-oriented tradables or in nontradables was difficult (Autor, Dorn, & Hanson, 2013, 2016).

Diving further into the literature, Acemoglu et al. (2016) also researched the increased import competition from China and concluded that this was an important factor behind the US manufacturing employment reduction and the weakened US job growth in general. Hence, it is evident that there exists a downside from trade liberalization as well. Since the US and EU

steel markets do not differ significantly[7], the increased steel imports from China to the EU could in theory jeopardize the jobs of steel manufacturing worker as well. This could be an argument in favor of a protective trade policy.

Protectionism and antidumping measures

Looking at the Commission reports and the literature discussed, it is clear that jobs in the EU steel manufacturing industries could be at risk because of increased Chinese imports. Chinese steel dumping resulted in intense competition for the EU firms and AD measures have potential to be an effective instrument to tackle these dumping practices. Reviewing the literature on protectionism and AD measures specifically, the implementation of the measures seems to be consistent with the economic conditions in 2009. For example, Irwin (2005) puts the US antidumping activity in historical perspective and finds that the number of AD cases filed is positively associated with the unemployment level and the exchange rate (appreciation). Irwin's findings are confirmed in a more recent paper by Bown and Crowley (2014), who find that temporary trade barriers have a counter-cyclical relationship with macro-economic shocks such as real exchange rate fluctuations. Besides, falling production and increased import volumes of allegedly dumped products determine AD decisions (Moore, 1992). When reviewing the Eurostat industry data of our industry of interest[8] in figure 3, the general labor input (in hours) and wages decline and production conditions seriously deteriorate for the NACE 24 industry around 2009. This does provide arguments to protect the EU industry from increased Chinese imports and puts the AD measures in line with the findings in the literature. After the crisis and the AD actions (reference line, April 2009), none of the industry indicators except for the wage seem to recover up to pre-intervention levels.

[7] Both markets are well-developed and open to trade. Also recall that the Commission considered the US a comparable country when investigating the steel manufacturing industry.

[8] As Eurostat works with the European industry standard classification system NACE, I converted the relevant HS codes in the Commission's documentation to the NACE system (see table B1 in the appendix). Besides, I note that the share of the products affected by the AD (specifically; NACE 24.2) makes up for 9.2% of the turnover and 12.3% of the added value in NACE 24 (EU-MERCI, 2012). However, I conduct the analysis in this paper at the NACE 2-digit level, using NACE 24 as treatment industry. This is required for consistency, as ESS data is only available on the NACE 2-digit level. Both the NACE 24 industry and its sub-industry NACE 24.2 follow the same trend in terms of production and prices (figure C1 in the appendix), making this analysis at the more aggregate level possible. The risk of this analysis at a more aggregate level would be a bias towards zero in the results. Any results found are therefore considered as lower bound.

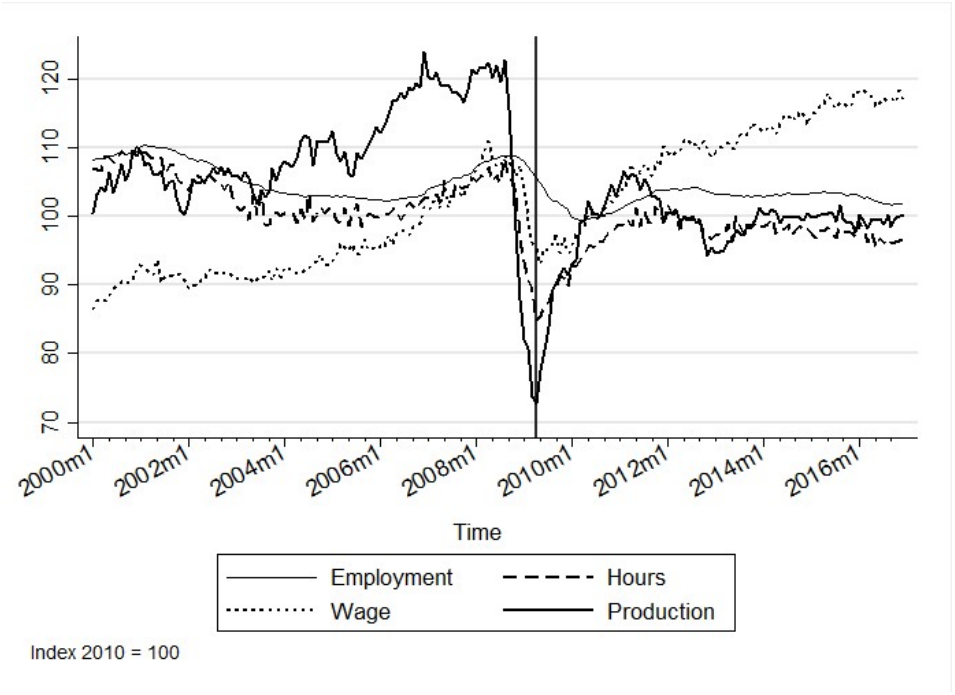

Figure 3: NACE 24 industry conditions, Euro area

Although AD measures are widely used, a few remarks should be made. As Gallaway, Blonigen and Flynn (1999) discuss, these measures can have negative welfare effects since they provide foreign producers with incentives to raise their prices.[9] In addition, downstream companies and subsequently domestic consumers are confronted with higher prices.[10] Moreover, the level of competition decreases and less productive firms are able to stay in the market, which can be considered as a reversed-Melitz effect. Another phenomenon which could make the effects of the measures negligible is trade diversion (imports shifting away from the AD-affected country to other countries not bound to tariffs), making the AD intervention rather ineffective (Brenton, 2001). This is usually a sign that the domestic industry is not competitive with the world market in general. Konings & Vandenbussche (2001), however, argue that the risk of trade diversion for European AD is rather small, mainly because EU protection levels are lower and the decision-making process is less transparent compared to the US.

An illustrating recent example of AD measures that turned out to damage the domestic economy is the steel import tariffs imposed by the Bush administration in 2002. These tariffs were the result of the deteriorated international competitive position of the US steel industry,

[9] As an example; in theory Chinese producers could raise their prices with 24% on average to reach the market price as determined by the EU and sell their products again.
[10] See also the classic paper on the welfare costs of tariffs by Tullock (1967) for an interesting theoretical analysis.

followed by an increased import penetration in 1990s (Read, 2005). The AD imposed turned out to have substantial negative side-effects and Francois and Baughman (2003) calculate that employment losses caused by higher steel prices during 2002 add up to 200,000 jobs. The report stated striking that *"the analysis shows that American steel consumers have borne heavy costs from higher steel prices caused by shortages, tariffs and trade remedy duties, among other factors."* Furthermore, Read (2005) summarizes several other studies in his paper and concludes that the aggregate impact on US GDP and employment was negative. Again, as the US and EU industries are comparable, these effects are not unlikely to occur in the 2009 AD case as well.

Taking the theoretical findings in the literature and the results of the recent AD cases into consideration, the effect of AD measures on the protected domestic industry is not unconditionally positive. Especially since the imports of AD products in the 2009 case almost recovered up to pre-crisis levels (figure 1), which led to a persistent high level of competition in the NACE 24 industry, I expect the economic effect of the AD imposed by the EU to be negligible (*hypothesis 1*).

Political economy

As shown above, there appears to be a discrepancy between the economic trade literature and actual trade policy. A possible explanation of these discrepancies can be found in the political economy literature. I start this short review with the work of Hillman (1982), who argues that authorities choose protection levels based on political support motives, rather than economic rationale. Hence, personal gains seem to play a role in deciding what industries receive what protection. In a related paper, Findlay and Wellisz (1982) argue theoretically that tariffs increase as the import-competing industry's lobby gets stronger, which indicates that lobbying could be fruitful and might reward politicians with votes and financial support. Read (2005) broaches this subject too with respect to the 2002 steel import tariffs imposed by president Bush. These measures were adopted right before the mid-term elections for the US House of Representatives in November 2002, where Bush had to win the key steel-producing states of Ohio and Pennsylvania. According to Read, the AD actions could therefore be considered as a political move to secure these swing states.

When shifting to voters' personal preferences, Mayda and Rodrik (2005) find that pro-trade preferences are positively correlated with the individual's level of human capital and negatively with the level of trade exposure of the sector in which the individual is employed.

Individuals employed in an industry not involved in trade tend to be the most pro-trade. Moreover, a relatively high economic status is positively associated with pro-trade attitudes, whereas nationalistic beliefs are associated with protectionist tendencies.[11] It is therefore important to control for these socioeconomic factors when investigating people's beliefs about political topics. Hence, I created a variable from the ESS data for the worker's socioeconomic status (SES).[12] This is particularly important since Autor et al. (2014) mention that the individual's job-switching ability positively depends on the worker's SES. Workers with a lower SES might therefore be disproportionately affected by increased import competition, which could lead to an even lower trust in the European Parliament (EP)[13]. To investigate the situation for the industry of interest, NACE 24, I plot the relation between the SES and the trust in the EP over all ESS rounds grouped by industry in figure 4 below.

Looking at the figure, clear differences exist between the different industry sectors and their employees' SES. Furthermore, it is evident that there is a correlation between the respondent's SES and their trust in the EP. Workers in the basic steel manufacturing industry (NACE 24) have a slightly lower SES than the average survey respondent, which could make it harder to switch jobs when import competition increases. In addition, they are characterized by a lower trust in the EP. The average SES and trust in EP of the control groups[14] NACE 20 (manufacture of chemicals and chemical products) and 23 (manufacture of other non-metallic mineral products) are also shown with the black diamond. NACE 23's SES appears to be slightly lower with a higher trust in EP than the treatment group, whereas NACE 20 shows both a higher SES and higher trust in the EP.

When these results are linked to Mayda and Rodrik's (2005) paper and the fact that the industry is relatively trade-exposed, I expect the workers in the NACE 24 industry to be more in favor of protectionism. This is strengthened by their lower SES, compared to other industries. Fiorina (1978) moreover finds empirical proof that the personal economic condition matters for the individual's voting decision and Hetherington (1996) argues that perceptions about the economy matter substantially for voting behavior and sometimes differ from the real state of the economy, making this an import factor to control for.

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[11] The majority of these results was also found in a study by Scheve and Slaughter (2001) on the determinants of trade-policy preferences in the US.

[12] The SES variable is measured on a 1-5 scale based on the individual's income (converted to a 5-point scale), education and health level in each period, so that: $SES_{it} = \frac{1}{3}\ (Income_{it} + Education_{it} + Health_{it})$.

[13] The trust in the EP functions as proxy for the trust in the EU, as discussed later.

[14] I explain in the data section why these two industries function as the control group.

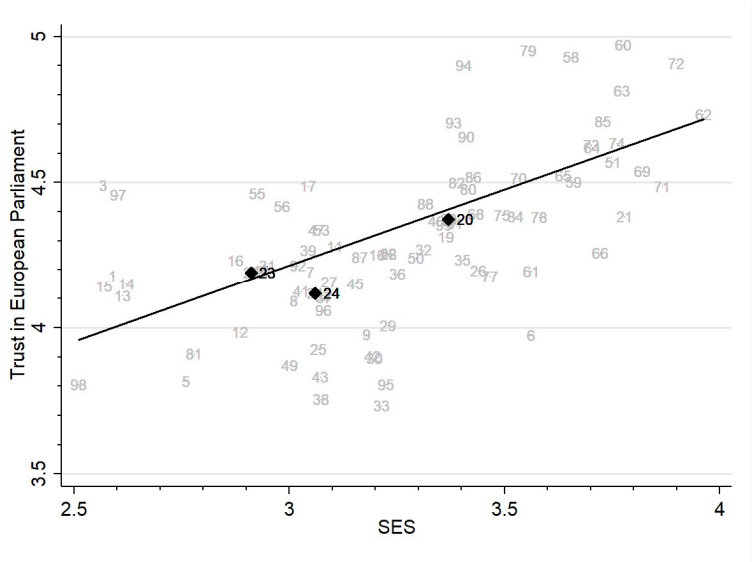

Figure 4: Relationship between SES and trust in the European Parliament by NACE

Fitted line: coef. = 0.52, robust SE = 0.00, $R^2 = 0.48$

Looking at the effect of import competition on US electoral outcomes, Autor et al. (2016a) find a positive effect of rising Chinese import competition on Republican vote share gains and a working paper by the same authors states that increased import penetration contributes to polarization of US politics (Autor et al., 2016b). The increased Chinese imports to the EU could thus initiate a shift on the political spectrum in the affected regions too. On the other hand, things could settle down once the AD measures were imposed and the industries are protected.

When looking for factors that influence an individuals' 'trust' in the EU, two main mechanisms can be found: (i) the logic of rationality and (ii) the logic of extrapolation. Harteveld et al. (2013) concluded that the latter mainly drives EU perceptions, although evidence for the first mechanism is also found. This means that *national* events and policies also shape trust in the EU, which could bias the results in this paper. However, since I am mainly interested in *changes* in perceptions, an upward or downward bias would not jeopardize the results, if this applies equally to all citizens of a particular country. Moreover, the identification strategy (explained later) will filter out common trends and shocks in the trust.

To the best of my knowledge, no literature exists on the perceptions of individuals employed in sectors protected by import tariffs. I found one paper that studied the other side of the AD measures; namely the household responses of people working in the foreign AD-affected industry. These households faced slower income growth and reallocated their

investments towards other industries (e.g. from fishing to agricultural tools) (Brambilla, Porto, & Tarozzi, 2012).

Although I do not expect an economic effect of the imposed AD measures, workers in the steel manufacturing industry face their jobs at risk because of Chinese imports. Therefore, they could be more in favor of protective trade policies and their trust in the European Union and European Parliament could consequently increase after the measures were imposed. Taking these considerations together, the effect of the AD measures on the trust in the European Parliament is expected to be positive (*hypothesis 2*).

IV. Data

General approach

Anticipating on my identification strategy, the most important assumption of the difference-in-difference method is the common trend between treatment and control groups. Therefore, I carefully select control industries for the first part of the analysis that show a similar production trend as the treatment industry NACE 24. After comparing the trends of several industries in different EU regions, I choose NACE 20 and NACE 23 as control industries for the aggregate European Union level, Spain, France and Germany. These industries are assumed to be comparable to NACE 24, as they are all involved in manufacturing and all employ around 1 million persons in the EU (see table C1 in the appendix for more details). Furthermore, each industry contributed to 10-15% of the world production in their sector, suggesting a relatively comparable size and competition from non-EU countries (EU-MERCI, 2012). I will present the production trends of these three industries in a moment.

For the second part of the analysis (the perceptions' study), I first compare the trust in the European Parliament of the people working in NACE 24 to workers in NACE 20 and 23, for the countries where the industries followed the same trend. Secondly, I perform a regional analysis, working with treated regions that have a certain minimum share of inhabitants working in NACE 24.

Eurostat industry data

I use the Eurostat database for the industry analysis, where data is obtained for the available countries France, Germany and Spain and the aggregate EU level where the industries NACE 20, 23 and 24 show the same trend before 2009. I choose industry production as performance

indicator and collect monthly data ranging from January 2000 up to December 2016.[15] Figure 5 below shows the production trends for the three countries and the EU.

Looking at this figure, the industries follow approximately the same trend before the AD measures were imposed in April 2009 (reference line) [16] and all suffer from falling demand around 2008-2009 due to the crisis. For Germany and Spain, only NACE 20 showed a similar trend and hence NACE 23 is excluded from the analysis. It depends on the country which industry performs best prior to the AD intervention and therefore I present separate analyses for the three countries and the EU in the results section.

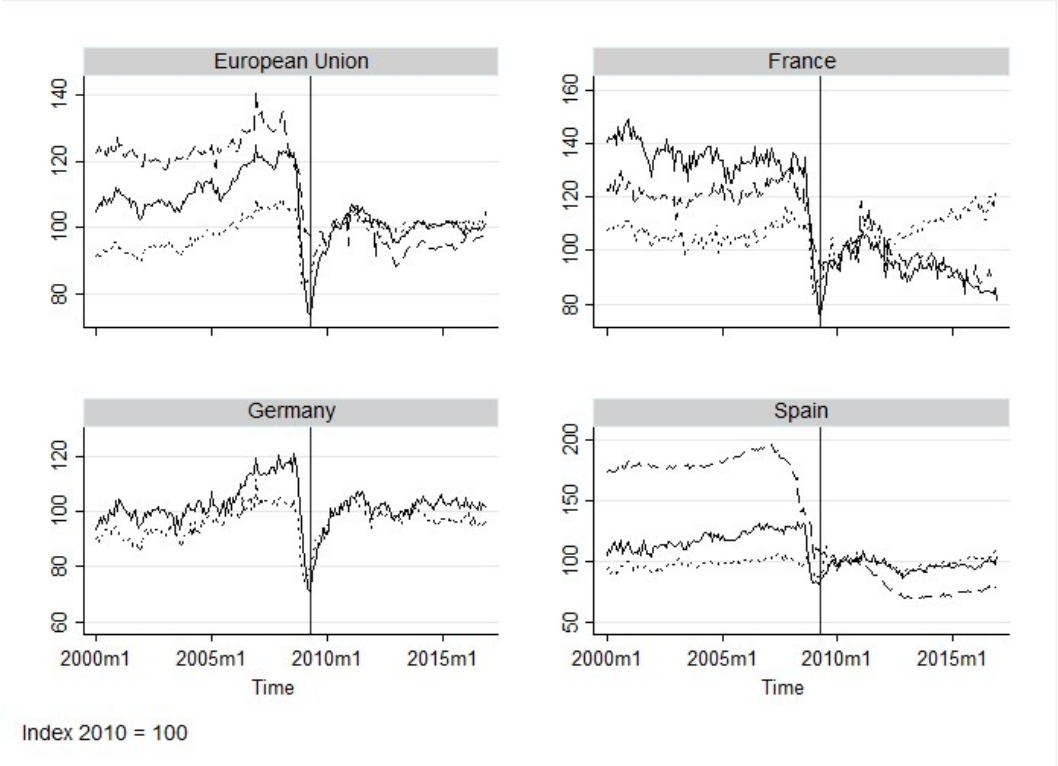

Figure 5: Production trends for EU, France, Germany and Spain

European Social Survey data

Regarding the perceptions' study, I use the European Social Survey which holds repeated cross section two-yearly survey data from 2002 up to 2016 of citizens from all EU countries. The data contains information on the respondents' socioeconomic status and perceptions of politics. The ESS collects data in collaboration with national universities and institutes and the samples

[15] The production indices are seasonally and calendar adjusted.
[16] Both the NACE 20 and NACE 23 trends turn out to be significant at the 5% level with NACE 24 using the Granger (1969) causality test for the trends prior to the AD in 2009. This indicates that the trends of these industries are useful in forecasting the trend of NACE 24.

are representative for all persons aged 15 and over in each country. I select data from EU's top ten steel producing countries[17] that contain information for all rounds. My final list contains data from Belgium, the Czech Republic[18], Finland, France, Germany, the Netherlands, Poland, Spain, Sweden and the United Kingdom.

The complete list of variables extracted from the ESS database can be found in table B2 in the appendix. In short, I obtain information on the respondents' age, gender, income, education level, occupation[19], subjective health, satisfaction about the current state of the economy, place on the political spectrum and the amount of political news consumption. Furthermore, *Trust EP* is the variable of interest for all analyses and comes from the question "using this card, please tell me on a score of 0-10 how much you personally trust each of the institutions I read out. 0 means you do not trust an institution at all, and 10 means you have complete trust. Firstly... the European Parliament?" This question is the same in all countries for all rounds, allowing me to accurately estimate potential changes in the outcomes. Although the AD measures were implemented by the European *Commission*, I assume the trust in the European *Parliament* to be affected by its consequences as well, as the Parliament functions as control mechanism for the Commission.[20] E.g. a deteriorated trust in the Commission because of an ineffective policy will affect the trust in the Parliament too, since this institution represent the citizens of the EU and is established to step up for its interests.

The variables *Satisfied economy, Trust EP* and *Left-right scale* are measured on a 10-point scale. Higher values mean a higher satisfaction about the current state of the economy and a higher trust in the European Parliament respectively, whereas the value for *Left-right scale* shows the place on the political left (0) - right (10) scale. *Informed* denotes the average hours per day of watching news and politics on the television. The income variable is measured on a 6-point scale and education and health on a 5-point scale, where higher values mean a higher income, better personal health perception and higher level of completed education respectively.

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[17] Based on the World Steel Association's 2017 report, 24 January 2018. No data from Italy is included, as ESS data from several rounds is missing.

[18] For Czech Republic round 3 (2006) is missing. This should not affect the results as there are still three pre-intervention and four post-intervention groups left and the most important rounds (4 and 5), before and after AD measures were imposed, are available.

[19] If an individual becomes unemployed or retires, this variable shows the last industry in which it was active.

[20] See article 17 (8) of the Treaty on the European Union (TEU): *"The Commission, as a body, shall be responsible to the European Parliament (...) the European Parliament may vote on a motion of censure of the Commission. If such motion is carried, the members of the Commission shall resign…"*

To compare all rounds properly, the region, income and education variables have been transformed. Moreover, ESS round 8 contained another (relatable) variable for the *Informed* variable, that has been adopted in the analysis. All the exact transformations can be found in appendix B.[21]

One question that may arise is whether survey data is a correct way to measure the trust in the European Parliament. It is well known that survey responses can be prone to several biases, especially due to framing. I do, however, believe that the risk of this bias is minimal in the data, as the question related to the trust in the EP is open and does not indicate any preference from the researchers. Also, there are no benefits attached to either answering with a low (0) or high (10) trust in the EP.

V. Methodology

General approach

The main method used in this paper is the difference-in-difference (DiD) approach, based on the famous Card and Krueger (1994) paper. DiD starts with two groups, being the treatment and control group, both in the pre- and post-intervention period. If the treatment and control group follow a similar trend pre-intervention, the control group functions as an appropriate counterfactual and the difference between the two groups post-intervention reveals the treatment effect. This method is commonly used to analyze the effect of policy changes (see e.g. Autor, 2003 and Bonhomme & Sauder, 2011).

Study of the industry performance

To analyze the economic effect of the AD intervention, a DiD analysis will be conducted to compare the trend of the NACE 24 industry with the two control industries. These two control groups allow me to filter out common trends and shocks (such as the 2009 crisis), which makes the investigation of the AD effect possible. I focus on the industry production and conduct multiple DiD regressions for NACE 24 compared to NACE 20 and 23 separately for the three countries and the EU. The estimated equation will be as follows:

$$y_{it} = \gamma_i + \lambda_t + \delta D_{it} + \varepsilon_{it} \qquad (1)$$

[21] I also dropped two observations in Germany for NACE 24 in ESS round 6, as these were the only observations for this industry in this round. Usually, there are between 16 to 27 observations for each round in NACE 24 and the survey answers of these respondents at the end of the spectrum could bias the results. Moreover, the age of these respondents was 64 and 77 respectively, which I do not consider as an appropriate sample of the community.

The dependent variable y_{it} is the production y in industry i at time t, whereas γ_i is a treatment dummy that filters the pre-intervention difference between the treatment and control industry:

$$\gamma_i = \begin{cases} 1 & \text{for NACE 24,} \\ 0 & \text{for NACE 20, 23.} \end{cases}$$

λ_t contains a set of year-dummies to control for common time effects. The variable of interest is δD_{it}, which denotes the difference between the treatment and control industry, post-intervention.[22] Lastly, ε_{it} is the error term.

The workers' perceptions study and matching

A similar approach is proposed to analyze the political effects of the AD actions. First, I analyze the differences in perceptions between workers in NACE 24 compared to NACE 20 and 23, both at the EU and at the country level. I will handle the regional differences later on in the next paragraph.

I start by filtering on those countries that showed a similar production trend in the industry analysis and afterwards, I filter on the industries that showed a similar trend in their trust in the European Parliament. This leaves me with two control industries on the aggregate EU level and one control region in Spain and France, as shown in figure C2 in the appendix. If the perceptions change after the AD measures were imposed, I can draw conclusions on the political effect of the measures. The treatment variable for this analysis will be generated at the individual level *i* for each period *t*, so that:

$$\gamma_{it} = \begin{cases} 1, & \text{if } NACE_{it} = 24, \\ 0, & \text{if } NACE_{it} = 20, 23. \end{cases}$$

To ensure the assumption of the comparable control group and because the SES differs substantially between industries (see again figure 4), I use a propensity score matching on top of the DiD analysis for the comparison of perceptions between workers in different industries. This technique was set out first by Rosenbaum and Rubin (1983) and its strategy is to match people in the treatment and control group for every year, based on a set of observable characteristics.

[22] Specifically, D_{it} is constructed as the interaction between the dummy for the treatment group γ_i and a post-intervention dummy ϕ_t that takes on value 1 for the post-intervention periods ($t \geq 2009$). δ reveals the possible DiD effect.

First, I run an ordered logistic regression (as the outcome variable is on the ordinal 0-10 scale) on the variable of interest *Trust EP,* to investigate what characteristics have a significant influence on the trust. I have data on the individual's age, education, income, gender, subjective health and its position on the political left-right spectrum. As Heinmueller and Hiscox (2006) discussed, years of completed education could influence the attitude towards trade openness and Autor et al. (2014) wrote how job-switching flexibility depends on the individual's SES. Therefore, these variables are important to explain an individual's attitude. Moreover, Mayda and Rodrik use a similar list of demographic characteristics in their 2005 paper on the determinants of people's protectionist views. In addition, I control for the satisfaction about the state of the economy since this could influence the political attitude (Hetherington, 1996). Next, the average hours per day of watching, reading and listening to news about politics and current affairs are used as a proxy for how informed people are.

The results of this regression are presented in table 1 below and strengthen the belief that the set of characteristics to match the individuals on is valid. All variables, except for the income variable, are significant at the 1% level.

Table 1: ordered logistic regression on *Trust EP*

	(1) Trust EP	(2) Trust EP
Age	-0.01***	-0.01***
	(0.00)	(0.00)
Education	0.10***	0.08***
	(0.00)	(0.00)
Income	0.07***	0.01
	(0.00)	(0.00)
Woman	0.15***	0.23***
	(0.01)	(0.01)
Health	0.18***	0.08***
	(0.01)	(0.01)
Left-right Scale		0.01***
		(0.00)
Satisfied economy		0.26***
		(0.00)
Informed		0.05***
		(0.00)
Observations	113,626	104,534
Pseudo R^2	0.008	0.032

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Second, I match individuals by calculating the probability of being treated P(X), where T=1 stands for receiving the treatment and X for the individual's characteristics as described before:

$$P(X) = Pr(T = 1 \mid X) \quad (2)$$

Now let Y(1) and Y(0) denote the potential outcomes under treatment and control, respectively. The treatment assignment is independent of the potential outcomes conditional on X if the following holds:

$$Y(0), Y(1) \perp T \mid X \quad (3)$$

In addition, every person should have a nonzero probability to receive either treatment:

$$0 < P(Z = 1 \mid X) < 1 \quad (4)$$

Rosenbaum and Rubin argue that if these two conditions (3) and (4) hold, conditioning on the propensity score as calculated in (2) allows to obtain unbiased results of the average treatment effect. After verifying that the treatment and control group are properly matched[23], I move on to the DiD regression. Figure C3 in the appendix presents the standardized percentage of bias across the covariates before and after matching. This confirms that the difference in the explanatory variables between the treatment and control group is minimized after matching.

The regional perceptions study

Next to the worker's perceptions study, the industry regions will be chosen as treatment group to explore possible regional externalities of the AD on the trust in the European Parliament. I select the treatment regions based on the share of inhabitants in the ESS data working in NACE 24. Hence, I first calculate the share s^{24} for every region *j* in period *t*:

$$s_{jt}^{24} = \frac{\#Workers\ in\ NACE\ 24_{jt}}{Total\ inhabitants_{jt}} \quad (5)$$

Figure 6 below plots the density of s_{jt}^{24}. First, as a simple analysis, I mark the individuals residing in an upper 75% percentile region as treated. This guarantees that there is a sufficient number of NACE 24 workers in the region if any effect is found. Hence;

[23] I match the individuals using Leuven and Sianesi (2003) and Villa's (2016) statistical methods as proposed by Blundell & Dias (2009).

$$\gamma_{ijt} = \begin{cases} 1, & \text{if } s_{jt}^{24} \geq 0.02, \\ 0, & \text{if } s_{jt}^{24} < 0.02. \end{cases}$$

Note that the treatment dummy may differ over several rounds for the same regions, as people move in and out the region and the share is calculated for every single ESS round. Only in periods with a satisfying high share, the region will be considered as treated. As a general indication of the treatment regions, figure C4 in the appendix shows the regions with an average share of NACE 24 workers $s_j^{24} \geq 2\%$ over all ESS rounds.[24]

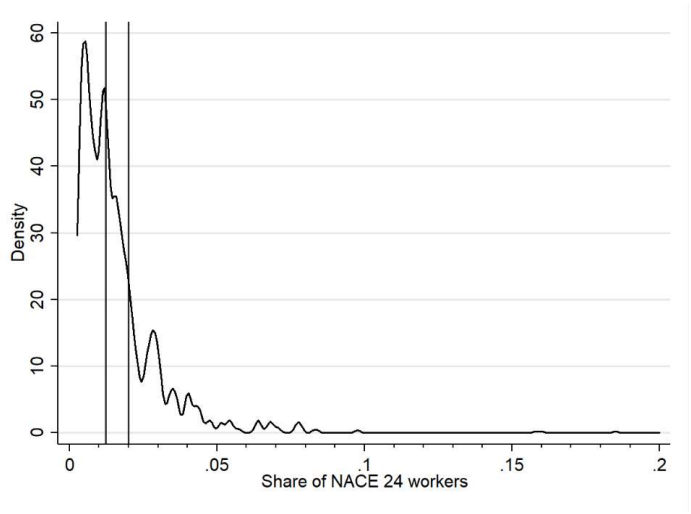

Figure 6: density of the share of NACE 24 workers per region

I use a gaussian kernel. The left vertical line (at 0.012) denotes the median and the right vertical line (at 0.02) the 75% percentile, both for shares larger than zero.

Next to the treatment indication based on the share threshold of 2%, I also work with an ordinal treatment variable to indicate three different treatment levels. The different thresholds are defined at the median (1.2% share) and at the 75% percentile (2.0% share). This way, the share is divided in three groups, which allows the treatment effect to be heterogeneous among different 'exposure' levels. This analysis will strengthen the results, as different treatment levels may lead to different perceptions about the EU.[25] To summarize, the treatment variable takes on the following values for this analysis:

[24] Unfortunately, the United Kingdom, the Netherlands and Finland are dropped from the data for the regional analysis, as the calculated shares are too low and hence there would not be enough variation in the treatment variable. Belgium is removed as well since its region variable is inaccurate (the country is split up in only three regions). This still leaves me with an approximate 68,000 observations divided over 8 different ESS rounds.

[25] See for example Luttmer (2001), who shows that individual redistribution preferences could be shaped by the "exposure" effect. Furthermore, Brambilla, Porto, & Tarozzi (2012) use a similar estimation with treatment levels.

$$\gamma_{ijt} = \begin{cases} 3 \text{ (high)}, & \text{if } s_{jt}^{24} > 0.02, \\ 2 \text{ (medium)}, & \text{if } 0.012 < s_{jt}^{24} \leq 0.02, \\ 1 \text{ (low)}, & \text{if } 0.0 < s_{jt}^{24} \leq 0.012, \\ 0 \text{ (control)}, & \text{if } s_{jt}^{24} = 0.0. \end{cases}$$

Furthermore, I also present a regression with the continuous share variable as treatment variable to explore the full heterogeneity. This share variable ranges from 0.3 to 20 percent.

Summarizing, I thus have three different treatment variables (and regressions) for the regional analysis. Note that the (different) treatment and control regions should be comparable for a proper investigation of the AD-intervention effect on the trust in the EP. As previously discussed, the individual's SES matters for its political perceptions (Mayda & Rodrik, 2005) and job-switching ability (Autor et al., 2014) and could influence the trust in the EP too. Therefore, I investigate the regional SES for the different treatment groups. Figures C5 and C6 provide confidence for the assumption that treatment and control regions are comparable and figure C7 shows that the average SES for the different groups evolves in the same way over time. As a last examination, figure C8 confirms that there is no relation between the SES and share of NACE 24 workers in the region.[26]

Table 2 below shows the average trust in the European Parliament before and after treatment in columns 1 and 2 respectively, for the four different groups as defined above.

Table 2: perceptions of the EP for different groups

	Trust in European Parliament			
	(1)	(2)	(3)	(4)
Group	Pre	Post	Diff	DiD
Control group	4.45	4.26	-0.19	
Low share	4.34	4.13	-0.21	-0.02
Medium share	4.38	4.07	-0.31	-0.12
High share	4.28	4.02	-0.26	-0.08
Total	4.38	4.15	-0.23	

Pre-intervention is ESS rounds 1-4, post-intervention rounds 5-8

[26] Fitting a line through the observations returns a highly insignificant beta with $R^2 = 0.00$.

Column 3 shows the differences in the trust for these groups pre and post AD measures and lastly, column 4 shows the differences between the differences of the treatment and control groups. The results in this last column are a first indication that the trust might have fallen more in the treatment than the control groups. The analysis in the next section will show whether this is significant.

After explaining the matching process and different treatment levels, I will now summarize the identification strategy for the two perceptions studies. The pre-treatment period for the perceptions' study is defined as ESS rounds 1-4 (2002-2008) and the post-intervention group contains the ESS rounds 5-8 (2010-2016). I will first use persons working in NACE 24 as treatment group and then move on to the regional analysis, as just set out. The estimated equation is as follows:

$$y_{i(j)t} = \gamma_{i(j)} + \lambda_t + \delta D_{i(j)t} + \varepsilon_{i(j)t} \qquad (6)$$

The dependent variable denotes the trust in the EP for individual *i* (residing in region *j*) in period *t*. $\gamma_{i(j)}$ captures the difference between the treated and untreated individuals[27], whereas λ_t is a dummy for each ESS round, filtering out common time effects (such as macro-economic shocks like the 2009 crisis and general trends in the Trust EP). The variable of interest is $\delta D_{i(j)t}$ where δ reveals the DiD effect and $\varepsilon_{i(j)t}$ is the error term.[28] By implementing the propensity score matching in the DiD regression for the comparison of workers' perceptions between industries, δ is the average difference between the matched pairs before and after the AD measures.

Since the outcome variable *Trust EP* is measured on the ordinal 0-10 scale, I work with an ordered logistic regression in the main estimation. One drawback of the ordered logistic regression in combination with the repeated cross section structure of the data is that it is impossible to predict the magnitude of the treatment effect. This comes from the fact that the

[27] When conducting the DiD with the four different treatment levels, γ_{ij} contains four dummies and captures the differences between the four groups. In the analysis with the continuous share level, γ_{ij} is the mean share of region *j* over all ESS rounds, capturing the general differences between the regions. For regions with a mean share below 0.5% I set this share at 0.

[28] I use robust standard errors to control for potential serial correlation. I choose not to cluster the standard errors, as the sampling process is not clustered (all types of people are included in the data and the data is representative for the country) and the treatment assignment is not clustered either. For the workers' perception study, the latter is the case since treatment is assigned at the individual level *i*. For the regional perceptions study, the treatment for individual *i* is not clustered either as it is based on the share of NACE 24 workers s_{jt}^{24} in region *j*, which does not necessarily influence the characteristics of that specific region *j* (see also figure C8 in the appendix, handled later). Moreover, the variable $\gamma_{i(j)}$ captures general differences between the treated individuals *i* and regions *j* and the control groups. For a background on clustering standard errors, see Abadie et al. (2017).

interaction term between the *post* dummy and the *treatment* dummy ($\delta D_{i(j)t}$ in estimation (6)) does not have a straight-forward interpretation in the ordered logistic regression (see Karaca-Mandic, Norton, & Dowd, 2012 and Ai & Norton, 2003 for a comprehensive discussion). Therefore, I present the results of an ordinary least squares (OLS) regression as well, to estimate the magnitude of the DiD.[29] Since the results of this OLS regression could be jeopardized by serial correlation in the standard errors (see Bertrand, Duflo, & Mullainathan, 2004), I bootstrap the standard errors when conducting this estimation.[30]

VI. Results

Study of the industry performance

I start by presenting the results for the DiD regression on the production indices in the different industries. The regressions are split by country and region and by control group. Recall that NACE 24 followed the same production trend as the control industries (figure 5).

The first results are presented in table 3 below, where row A shows that the treatment industry performs significantly worse than NACE 20 after the tariffs were imposed. On the aggregate EU level, the production index is 15.1 points lower than the control group, whereas the differences in France (42.3 points) and Spain (22.2 points) are even larger. Hence, the AD measures were not effective to support the basic steel manufacturing industry recover, compared to the manufacture of chemicals and chemical products industry.

The difference with control group NACE 23 is presented in row B and differs per region. On the EU level, the industry production significantly increased with 13.6 index points, while it fell in France by 16.8 points. The overall EU effect probably comes from the other regions that are not included in the separate country analysis because of the inconsistent trends. Although the DiD on the EU level turns out positive compared to NACE 23, the NACE 24 industry never recovered up to pre-intervention levels (figure 5).

Where could this negative trend after the AD intervention come from? One explanation could be that the Chinese imports (with a 14.9% market share prior to the AD) of the relevant products was substituted by imports from other countries after 2009. The overall imports of the AD products almost recovered up to pre-intervention levels (figure 1), suggesting the trade diversion effect as discussed by Brenton (2001). Therefore, the NACE 24 industry faced the same level of competition after 2009 as before, which it found hard to compete with. As seen

[29] This approach is also suggested by Angrist and Pischke (2008).
[30] I use 500 repetitions to mimic the process of random sampling.

in figure 3, wages rose after 2009 but production stayed the same, deteriorating the competitive position of the NACE 24 industry. It therefore seems that the effect of the AD measures is negligible and hence, I reject hypothesis 1.

Table 3: DiD results for production trends in NACE 24

	(1) EU	(2) France	(3) Germany	(4) Spain
A. Control is NACE 20				
DiD	-15.076***	-42.312***	-5.666***	-22.202***
	(0.659)	(1.144)	(0.744)	(0.913)
N	408	408	408	408
R^2	0.844	0.883	0.753	0.827
B. Control is NACE 23				
DiD	13.588***	-16.779***		0.534
	(0.825)	(0.881)		(0.988)
N	408	408		408
R^2	0.890	0.943		0.566

Standard errors in parentheses, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Production is measured in index points, 2010 = 100. Pre-intervention is defined as 2000-2008, post-intervention as 2009-2016
No results are shown for countries where the industries followed different trends

Workers' perceptions

After the economic analysis, I now turn to the perceptions of EU citizens. I first analyze the perceptions of people working in NACE 24 compared to the control industries NACE 20 and NACE 23. Taking the findings in table 3 into consideration, I expect a positive DiD in *Trust EP* when comparing NACE 24 with a less productive industry after the AD. actions, and vice versa. In other words, the sign in the next analysis is expected to be the same as in table 3.

The results of the DiD regression, which is performed after matching the individuals on the characteristics as listed in table 1, can be found in table 4 below. Interestingly, I obtain a significant negative result at the 5% level for the aggregate EU level compared to NACE 20 (row A). This shows that workers in NACE 24 have worse perceptions about the European Parliament compared to their matched counterfactual from NACE 20 after the AD actions were imposed. This is consistent with Hetherington's (1996) findings, as the industry's conditions (production) fell compared to the control group, which may negatively influence the political attitude of the workers in the treatment industry. For the other regressions, no significant results are found after matching, although the sign is in line with the expectations based on table 3.

Table 4: DiD results for trust in the European Parliament

	(1) EU	(2) France	(3) Germany	(4) Spain
A. Control is NACE 20				
DiD	-0.357**	-0.212		-0.908
	(0.165)	(0.582)		(0.858)
N	1,886	187		78
Pseudo R^2	0.003	0.022		0.028
B. Control is NACE 23				
DiD	0.091			
	(0.183)			
N	1,562			
Pseudo R^2	0.004			

Standard errors in parentheses, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Dependent variable is *Trust in the European Parliament.* Answers range from 0 to 10 with mean 4.34 (sd. 2.35). Respondents in treatment and control group are matched. Pre-intervention is defined as 2002-2008, post-intervention as 2010-2016. No results are shown for countries where the industries followed different trends

Regional perceptions

Do the deteriorated industry conditions also cause negative spillovers in institutional trust? To explore the possible existence of this effect, I analyze the changing perceptions after the measures on the regional level. Table 5 below presents the DiD results for the three regressions with different treatment groups. Column 1 uses the treatment threshold of a share of NACE 24 workers in region j (s_{jt}^{24}) being larger than 2%. This regression turns out insignificant, although the sign indicates that regional trust in the EP might have fallen. Column 2 uses the three different treatment levels being low, medium and high, as shown in figure 6. The DiD coefficient turns out significant at the 5% level, indicating that residing in a region with a higher share of NACE 24 workers has an increasing negative effect on the trust in the European Parliament. In other words, people living in a region indicated as containing a 'high share' of NACE 24 workers have an even lower trust in the EP than people living in a 'medium share' NACE 24 region. The last column (3) presents the DiD regression with the continuous share variable and is significant at the 1%. This confirms that the effect of a higher regional share is heterogenous and negative on the trust in the European Parliament.

Thus, summarizing these results, there seems to be a negative relation between the share of workers in NACE 24 and the trust in the European Parliament, which could indicate the existence of negative spillovers from the affected industry. As seen in figure 3, the production, number of hours worked and employment in the industry did not grow after 2009 and only the wage slightly increased. If, for example, relatives and friends of workers in NACE 24 become

Table 5: DiD for regional analysis

	(1) Treatment 2%	(2) Share levels	(3) Continuous share
DiD	-0.059	-0.031**	-5.450***
	(0.038)	(0.013)	(1.317)
N	67,939	67,939	67,939
Pseudo R^2	0.001	0.001	0.003

Standard errors in parentheses, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
Dependent variable is *Trust in the European Parliament*. Answers range from 0 to 10 with mean 4.34 (sd. 2.35).
DiD for 'share levels' takes on values 0, 1, 2 or 3 and DiD for 'full share' variable ranges 0.3% - 20%.
Pre-intervention is defined as 2002-2008, post-intervention as 2010-2016

aware of the ineffective policies and see socioeconomic conditions fall around them, their trust in the EP could be influenced too. These mechanisms could explain the existence of regional externalities and the significant results found above in table 5.

As it is impossible to say anything about the magnitude of the treatment effect by running the ordered logistic regression above, I continue with the OLS estimation. This allows investigating the size of the treatment effect on the answer for *Trust EP* when the treatment level of an individual changes. Looking at column 2 in table 6 below, it is shown that significant differences exist in the answer to *Trust EP* for respondents living in regions with different shares of NACE 24 workers. E.g., when the respondent resides in a region with a high share level (>2.0% NACE 24 workers), his trust in the European Parliament is 0.1 lower after the measures went into force than people in the control region (<0.5% NACE 24 workers), holding everything else equal. Column 3 gives an even more precise estimate, using the continuous share variable. An increase in the share of NACE 24 workers in the region by 10% relates to a 0.66 lower trust in the EP on a scale from 0 to 10. Although the effects are rather small, the variable is significant at the 1% level.

Table 6: DiD for regional analysis using OLS

	(1) Treatment 2%	(2) Share levels	(3) Continuous share
DiD	-0.050	-0.033**	-6.561***
	(0.053)	(0.017)	(1.787)
N	67,939	67,939	67,939
Pseudo R^2	0.004	0.005	0.014

Bootstrapped standard errors in parentheses, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
Dependent variable is *Trust in the European Parliament*. Answers range from 0 to 10 with mean 4.34 (sd. 2.35).
DiD for 'share levels' takes on values 0, 1, 2 or 3 and DiD for 'full share' variable ranges 0.3% - 20%.
Pre-intervention is defined as 2002-2008, post-intervention as 2010-2016

Short- or long-run effects?

One question that may arise is whether the absence from the effect of the AD measures on the industry performance had a short- or long-run effect on the trust in the European Parliament. I therefore re-estimate the results presented in tables 5 and 6 with different post-intervention periods. ESS round 5 (representing 2010) will be used as post-intervention period to estimate the short-run effects, while rounds 6 to 8 (2012 to 2016) are used to estimate the long-run effects.

Table 7 below shows the results of the two analyses. No DiD coefficient turns out significant in the short-run analysis in row A, while the coefficients in columns 2 and 3 turn out significant at the 5 and 1 percent level in the long-run analysis in row B. Hence, I conclude that the AD intervention has mainly long-run effects on the perceptions of the European Union. This could indicate that workers in the relevant region did not expect an immediate result from the intervention one year after the AD measures were imposed (in 2010), but when no positive signs of industry recovery appeared after a few years, the trust in the EP started to decline.

Table 7: short- and long-run effects of the AD measures

	(1) Normal DiD, treatment 2%	(2) Intensity Dummy	(3) Full intensity
A. Short-run			
DiD	-0.041	-0.025	0.565
	(0.062)	(0.021)	(2.209)
N	39,097	39,097	39,097
B. Long-run			
DiD	-0.065	-0.033**	-7.255***
	(0.041)	(0.014)	(1.406)
N	59,598	59,598	59,598

Standard errors in parentheses, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Dependent variable is *Trust in the European Parliament*. Answers range from 0 to 10 with mean 4.34 (sd. 2.35).
DiD for 'share levels' takes on values 0, 1, 2 or 3 and DiD for 'full share' variable ranges 0.3% - 20%.
Pre-intervention is defined as 2002-2008, post-intervention as 2010 for short-run and 2012-2016 for long-run

Again, to interpret the magnitude of the DiD effect, I run the same regression for the short- and long-run effects using an ordinary least squares regression. The results of this estimation can be found in table C2 in the appendix. The coefficients are roughly the same as in table 7 above and larger than in table 6, when there was no difference between short- and long-run effects. Table C2 indicates that the trust in the EP declines with 0.5 on the 10-point scale in the long

run, if the share of NACE 24 workers in its region increases with 5% (column 3), holding all else equal. Again, this is a small, but clearly significant effect.

Country-specific dynamics

Lastly, I explore whether the results for the perceptions' study also hold on a lower level and therefore I conduct the analyses performed earlier separately for each of the countries in the data. This also enables me to investigate which countries are the primary drivers of the significant negative signs found in tables 5 and 6. The estimation equation is the same as equation (6), with the three different treatment levels defined earlier. Table C3 in the appendix presents the results found for the five different countries and shows that the negative signs found earlier seem to come from France and Spain. The DiD variable is significant for these countries in column 1 for both countries and column 2 for France. Interestingly, the trust in the EP increased for the treatment regions in columns 1 and 2 in Germany and column 1 in Czech Republic. The continuous share DiD is insignificant in all countries which means that the full heterogenous effect is only visible at the macro-level. The effect in individual countries will thus be difficult to predict.

All in all, the significant negative signs found on the EU level in tables 5 and 6 seem to come from France and Spain, who showed a negative DiD on the country level as well. Only Germany showed a clear (but small) positive DiD and the results for the other countries are ambiguous. Based on these results, and the results found in tables 4, 5 and 6, I reject hypothesis 2 and conclude that the effect of the AD actions on trust in the European Parliament in the protected industries and regions is not positive. In fact, the results suggest that there is a significant long-term negative effect, possibly caused by the fact that industry conditions did not recover after the AD intervention.

Mechanisms behind the perceptions

What made these treated regions different from the rest of France and Spain and what characterized the workers in NACE 24? My first analysis mainly focused on the production volumes of the NACE 24 industry and I will now turn to the employment conditions in the industry. These conditions could explain why the trust in the EP did not increase after the AD measures were imposed.

Eurostat data allows me to obtain post-2008 information on the number of persons employed in NACE 24, the wages and salaries payed by the firms and the number of active

units (enterprises) on an annual basis for the different statistical regions. This also allows me to calculate the average annual wage per person[31] and subsequently plot the evolution of these variables for the different regions over time. I first filter on the regions with an average share of NACE 24 workers $s_{jt}^{24} \geq 0.02$ over all rounds. Recall that these regions contained the highest share of NACE 24 workers and this way, I ensure that the regions are relevant for the analysis. Figure 7 below shows the trends for the number of persons employed, their average yearly wage and the active units over time for France and Spain.

At first sight, it is clear that the number of persons employed and active units fell in Spain in the years following the AD actions. The exact job losses added up to 8,125 persons, being 23% of the initial labor force in 2008. This could immediately explain the significant negative signs found for the trust in the EP for this country. For France, the relationship is less obvious. The number of persons employed did not clearly drop in the treated regions and the average wage also increased. However, when we take the findings in table C3 for France into consideration, it could be possible that the effect in France is more heterogenous and spread out among the different regions. Specifically, the coefficient in column (2) for the share level analysis is significant at the 1% level, while the coefficient in column 1 is significant at the 5% level. This would mean that a strict cut-off point for 'treated' at a share level of 2% could be less appropriate for France. Hence, I also plot the persons employed, their wage and the number of active units in NACE 24 for *all* regions in France and Spain in figure 8 below. This graph shows that the total number of employees in NACE 24 overall declined with 10,307 in France (12% of the initial number), confirming the deteriorated industry conditions in terms of job availability. In Spain, the total job losses even add up to 18,369 employees, being 24% of the initial labor force. This increased unemployment in the sector could well explain the deteriorated trust in the EP for these countries and affected regions.

One more thing that stands out from the figures is that the average wage remained constant over time or even increased. This can be explained from the discussed literature on trade and firms. More competition resulting from increased imports and falling demand forces firms to lay off workers (usually the less productive ones). Consequently, the average wage in the industry increases (Trefler, 2004), while the remaining workers may not see a wage increase themselves. Theoretically, these employed people with the same wage stay at the same level of happiness, while the less productive people that were fired become unhappier (see e.g. Winkelmann & Winkelmann, 1998 for a well-known economic analysis of unemployment and

[31] Average annual wage per person = wages and salaries / persons employed.

happiness). These deteriorated personal conditions and reduced happiness could lead to a lower trust in institutions, especially when these institutions implement protective policies that turn out to be ineffective. Figures 7 and 8 could therefore well explain the lack of a positive trend in the trust in the European Parliament after the AD measures were imposed.

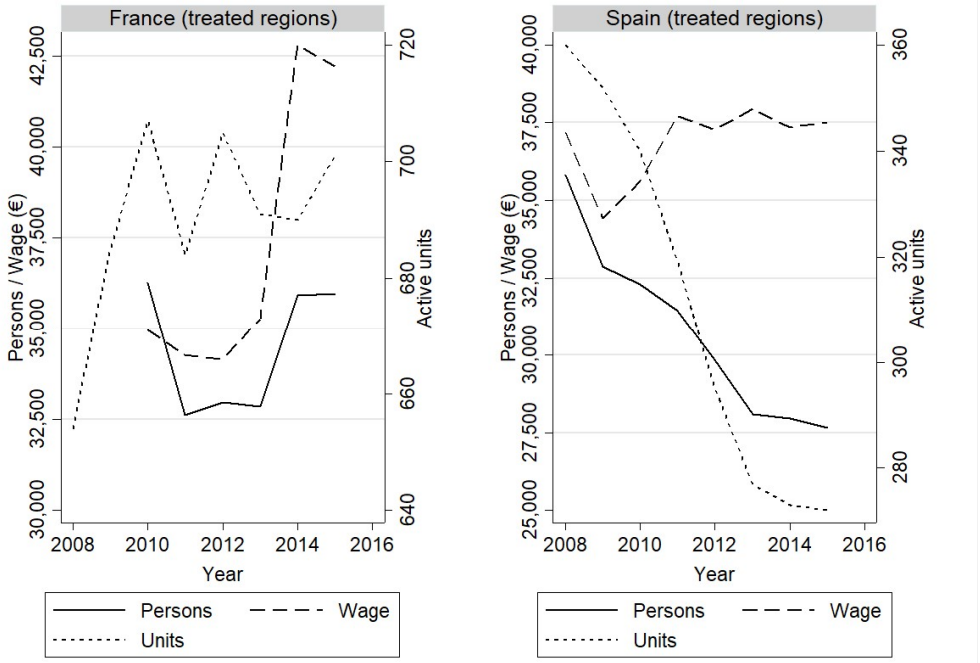

Figure 7: NACE 24 industry characteristics for the treated regions (share ≥ 2%)

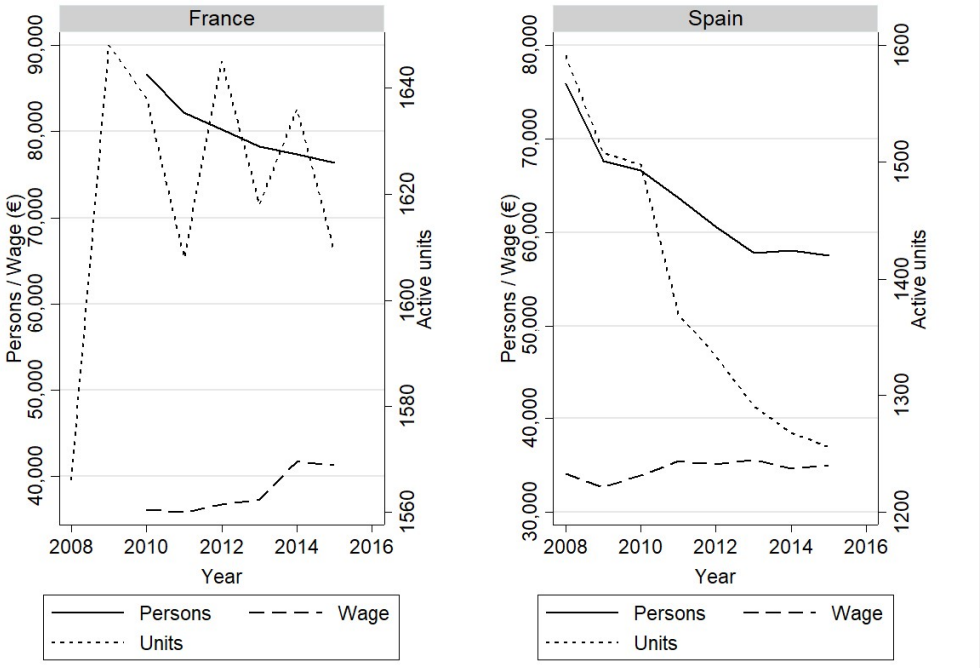

Figure 8: NACE 24 industry characteristics for all regions combined

VII. Robustness checks

The industry performance

I run several robustness checks to strengthen the results found in the previous section. First of all, I conduct a DiD regression for the industry production using a "placebo" DiD variable. In this regression, all observations in the treatment period (≥ 2009) are dropped and the intervention period is defined as 2005-2008. If a significant value for the DiD variable is found, this value should either be small or explainable by the trend, to make the previous results hold. Looking at the results in table C4 in the appendix, the most important DiD variable for the EU turns insignificant using the placebo DiD variable. The value for France is significant, but lower than in the main DiD regression. This indicates that the negative trend already started slightly before the AD measures were imposed, which could be explained by the increased import competition (figure 1). Unfortunately, a lack of pre-2008 data on the specific regional employment condition prevents me from analyzing the exact mechanisms. In Germany and Spain, the significant positive signs can be explained by looking at the industry trends in figure 5. Germany and Spain's NACE 24 trends steadily rose before the intervention in 2009. Moreover, the values are low compared to the average production before the shock. Hence, this does not bias the results found in the main results section.

When I focus on the difference with NACE 23, the results for the EU and France are in line with the previous results with a smaller sign. This mainly comes from the fact that the crisis started just before the AD measures were imposed. Furthermore, NACE 23 was affected earlier by the recession than NACE 24 in Spain, explaining the positive significant sign in the table.

Regional perceptions using a synthetic control

As a second robustness check for the perceptions, I will focus on Spain and France (since the treatment effect was most clear for these regions) and generate a synthetic control region as control group. I follow the method as set out by Abadie, Diamond & Hainmueller (2010) and construct a weighted combination of regions to which the treatment region is most comparable. To do so, I first define the treatment regions as the French and Spanish regions with overall s_j^{24} ≥ 2% (see again figure C4 in the appendix) and merged them as one region. Second, I calculate the average of the trust in the EP and several explanatory variables[32] per region for each ESS

[32] I use *Education, Income, Health, Satisfied economy, Left-right scale* and *Informed* as explanatory variables.

round. The French and Spanish regions with $s_j^{24} < 2\%$ will serve as a "donor pool", meaning a reservoir of untreated regions that may function as control group. The actual synthetic control region will be based on a combination of untreated regions in this donor pool, each with a weight such that the demographics of the synthetic control match the treated region as accurate as possible. Table C5 in the appendix outlines the regions in the control group, their weight and the average of the explanatory variables for the treatment and control group. The synthetic control group serves as a counterfactual for the treatment region, allowing me to determine the potential break in the trust in the EP after the AD measures were imposed.

Figure 9 below shows the trend for *Trust EP* for the treatment and control group over the different ESS rounds, with the vertical reference line indicating the moment the AD measures were imposed. Based on this figure, it seems that the treatment region's trust in the European Parliament declined more than its counterfactual would do, when the tariffs would not have been imposed. This effect is especially visible in the long run, in line with my previous results

To evaluate the credibility of these results, I conduct a placebo study reassigning the treatment in the data to the regions used as synthetic control. This method is also based on Abadie et al. (2010 and 2015) and allows me to compare the effect of the AD intervention on the treatment region to the distribution of placebo effects for the control regions. I will focus on the ratio of the post-intervention root mean squared prediction error (RMSPE) to the pre-intervention RMSPE, indicating the impact of the intervention. As Abadie et al. (2015) point out, the treatment effect can be considered significant if this ratio of post/pre RMSPE for the treatment region is unusually large relative to the distribution of the placebo effects. Figure 10 below illustrates the RMSPE ratios for the treatment region and the five regions that serve as synthetic control. The treatment region shows the largest ratio, although it is not substantially larger than the ratio for FR7 and ES53. This indicates that the placebo treatment for these regions also caused a shift in *Trust EP.* Since FR7's $s_j^{24} = 0.7\%$ and ES53 does not contain any NACE 24 workers, I conclude that the effect of the AD measures on the treatment region cannot be considered as significant, based on this analysis. The post/pre RSMPE ratio of the treatment region is not remarkably larger than for the regions that experienced the placebo effect.

In line with the previous robustness check, I conclude that the rejection of hypothesis 2 was correct and that no positive effect of the AD measures on the trust in the European Parliament in the affected regions is found. First indications even seem to point at a possible negative effect of the AD actions on the trust in the EP.

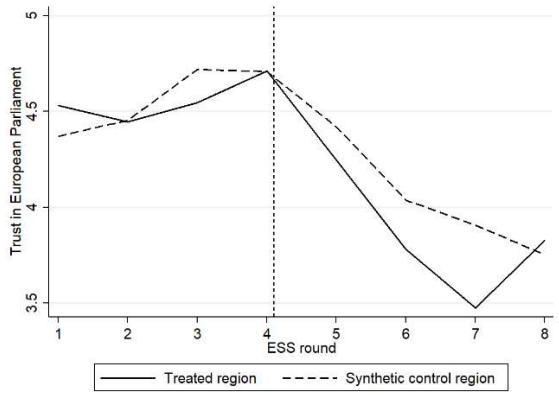

Figure 9: trend in Trust EP for treated and synthetic control region

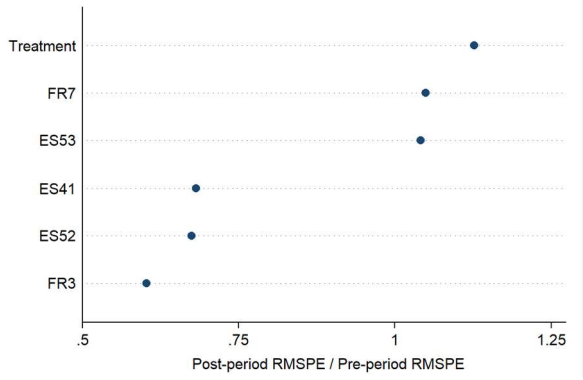

Figure 10: ratio of post- to pre-intervention RMSPE: treatment and control regions

VIII. Conclusions and discussion

Following an antidumping complaint halfway 2008, the European Commission imposed antidumping measures on certain types of Chinese steel imports in April 2009. The protected EU industry was suffering from declining demand due to the crisis and increased import competition from its eastern neighbors, who undercut prices and sold their products on average 24% below market price. After the AD measures were imposed, imports from China fell back to just a few percent of total imports. In this paper I first investigated the economic effect of the intervention on the protected industry (NACE 24) using Eurostat data. Secondly, using European Social Survey data, I researched whether there was a shift in the trust in the European Parliament for workers in the protected industry and more generally in the regions with a high share of NACE 24 workers. Based on the economic literature, workers in industries characterized by a high exposure to international trade are more in favor of a protective trade policy (Mayda & Rodrik, 2005). The AD measures, which were protecting the relatively trade-exposed EU steel industry, may have therefore increased the trust in the European Parliament.

The results point in the other direction. First of all, a difference-in-difference analysis shows that industry conditions, in terms of production, did not significantly improve after the AD measures were imposed. When I look solely at the NACE 24 industry, it is shown that the employment and total hours worked in the industry did not show any signs of growth after April 2009. In some regions, it might even have fallen. The existence of trade diversion as discussed by Brenton (2001) is likely (figure 1), resulting in a persistent high level of

competition for the industry of interest which may be a cause for weakened job growth (Acemoglu et al., 2016).

Continuing with the perceptions' study, the trust in the EP significantly declined in NACE 24 compared to the NACE 20 industry. Interestingly, regional externalities also seem to exist. The analysis shows that regions with a higher share of NACE 24 industries show a significant, negative difference in the trust in the EP compared to regions with a lower share. When I conduct the analysis using an OLS estimation, an increase of the share of NACE 24 workers in the region by 10% is associated with a 0.66 lower trust in the EP on a scale from 0 to 10. Even though the effects are small, this estimation is significant at the 1% level. This may indicate that industrial regions expected more from the EU in terms of protective measures and that the relatively ineffective AD actions had a negligible or even negative impact on their trust. When I focus on France and Spain (where the trust in the EP declined the most), this could be explained by the substantial job losses of 10 and 23% of the initial labor force respectively.

After conducting several robustness checks, the results mainly seem to hold at the EU level. The separate countries sometimes showed different results, but overall, no clear positive effect of the AD actions was found in any analysis. When I construct a synthetic control group and perform placebo analyses, the effect of the AD measures on the trust in the EP is expected to be negligible and sometimes even negative.

As discussed, Autor et al. (2014) showed that labor adjustment costs are unevenly distributed among workers with a different socioeconomic status and consequently I checked whether the regions in the treatment and control group possess a different SES. The SES, however, seems to be comparable across the different regions in the analyses, improving the reliability of the results. Besides the economic motives, several reasons for imposing the AD measures can be found in the political economy literature. The measures could for example have been imposed because of the fierce industry lobby (Findlay & Wellisz, 1982) or the political support motive (Hillman, 1982). The findings in this paper, however, suggest that an ineffective protective measure could have a negative effect on the trust in the institution implementing such policy. This is an important finding for politicians and policymakers.

One of the drawbacks of this study is the aggregate level of the data. I conducted the research at the NACE 2-digit level, while not everyone in this industry was affected by the AD measures. Further research could shed light on the exact effect of AD measures on possible shifts in perceptions by using NACE 3-digit level survey data. Another avenue for further research is to explore the effects of the AD intervention on the firm-level, which was infeasible now due to the lack of detailed data. Also, a comparison and difference-in-difference analysis

with the US steel tubes industry instead of relatable EU industries would provide valuable insights. These analyses would give more precise results on the economic effect, which is highly useful for policymakers.

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Appendices

Appendix A – Details of the antidumping measures

Table A1: timetable AD measures

Date	Action
28 May 2008	Complained lodged by the Defence Committee of the Seamless Steel Tubes Industry of the European Union
9 July 2008	Initiation of the antidumping proceeding
8 April 2009	Provisional AD measures imposed
6 October 2009	Definitive AD measures imposed
3 October 2014	Initiation of expiry review
8 December 2015	Final decision; maintain AD measures
Current date	AD measures still in force

CN codes involved are:

7304 19 10	7304 19 30	7304 23 00	7304 29 10	7304 29 30	7304 31 20
7304 31 80	7304 39 10	7304 39 52	7304 39 58	7304 39 92	7304 39 93
7304 51 81	7304 51 89	7304 59 10	7304 59 92	7304 59 93	

Note that the first six digits come from the Harmonized Commodity Description and Coding Systems (HS).

Appendix B – Data selection from ESS and transformations

Table B1: Conversion from HS Combined to SITC4 to NACE1, coming from WITS (World Integrated Trade Solution) from the World Bank Group

HS	Description	SITC4	Description	NACE1	Description
730410	Line pipe of a kind used for oil or gas pipelines	67912	Iron/stl oil/gas piping	27.2	Tubes
730429	Other	67913	Iron/stl oil drill casng	27.2	Tubes
730431	Cold-drawn or cold-rolled (cold-reduced)	67914	Ir/n-a stl circ pipe nes	27.2	Tubes
730439	Other	67914	Ir/n-a stl circ pipe nes	27.2	Tubes
730451	Cold-drawn or cold-rolled (cold-reduced)	67916	Alloy-stl circ pipes nes	27.2	Tubes
730459	Other	67916	Alloy-stl circ pipes nes	27.2	Tubes

Note that with the revision from NACE1 to NACE2, the product code changed to 24.2. I will use the NACE2 classification in this paper.

Table B2: variables used in the perceptions study

Variable name	Survey question	Values
Trust EP	Using this card, please tell me on a score of 0-10 how much you personally trust each of the institutions I read out. 0 means you do not trust an institution at all, and 10 means you have complete trust. Firstly... the European Parliament?	0-10
Age	N/A - calculated age of the respondent	Age of respondent
Gender	N/A - gender of the respondent	Male/Female
Country	N/A - country of the respondent	Country
Region	N/A - region where respondent resides	Region
ESS round	N/A - relevant ESS round	1-8
Income	Using this card, if you add up the income from all sources, which letter describes your household's total net income? If you don't know the exact figure, please give an estimate. Use the part of the card that you know best: weekly, monthly or annual income.	1-6, see table B5 for interpretation

Table B2 (continued)

Variable name	Survey question	Values
Education	What is the highest level of education you have achieved?	Converted to 1-5, see table B8 in appendix
Health	How is your health in general?	1-5
SES	Calculated based on Income, Education and Health (see above). The income variable was converted to a 1-5 point scale prior to calculating the SES.	1-5
Satisfied economy	On the whole how satisfied are you with the present state of the economy in [country]?	1-10
Left-right scale	In politics people sometimes talk of "left" and "right". Using this card, where would you place yourself on this scale, where 0 means the left and 10 means the right?	1-10
Informed	And again on an average weekday, how much of your time watching television is spent watching news or programs about politics and current affairs?	Divided into 7 categories with steps of .5 hours, see table B7 for distribution
NACE	This variable denotes the industry of the respondent by asking the question: What does/did the firm/organization you work/worked for mainly make or do?	Industry based on NACE categories

The following NACE industries are relevant for my analysis	
Industry	Description
20	Manufacture of chemicals and chemical products
23	Manufacture of other non-metallic mineral prod
24	Manufacture of basic metals

Variable transformation *Income*

The different measurements for household income in ESS rounds 1-3 compared to rounds 4-8 forced me to transform both variables into a new income variable. In rounds 1-3, the household's response was a net income interval with twelve different options. In round 4-8, however, the survey used a relative income interval with ten different centiles.

To calculate a new, reliable income variable, I looked at the distribution between intervals in the two old variables and came up with six new intervals. By using this type of transformation, the differences between the income groups of rounds 1-3 and 4-8 are minimized. The distribution of the old income variables can be found below:

Table B3: old income distribution

Rounds 1-3		Rounds 4-8	
Interval	Percent	Interval	Percent
1	1.19	1	8.68
2	4.33	2	10.00
3	6.90	3	10.41
4	14.34	4	10.58
5	14.63	5	10.37
6	13.56	6	10.48
7	11.75	7	10.68
8	10.83	8	10.25
9	15.18	9	9.41
10	4.88	10	9.12
11	1.40	Total	99.98
12	0.98		
Total	100		

The distribution of the old observations in the new variable is as follows:

Table B4: new income variable distribution

	Rounds 1-3		Rounds 4-8		
Interval	Old interval	Percent	Old interval	Percent	% difference
1	1, 2, 3	12.42	1	8.68	3.74
2	4, 5	29.02	2, 3, 4	30.99	-1.97
3	6,7	25.30	5, 6	20.85	4.45
4	8	10.82	7	10.68	0.14
5	9	15.18	8, 9	19.66	-4.48
6	10, 11, 12	7.26	10	9.12	-1.86
	Total	100	Total	99.98	

The interpretation of the different values is as shown in table B5 below:

Table B5: income variable

Value	Description	Income percentiles
1	Very low income	1
2	Low-medium income	2, 3 and 4
3	Medium income	5 and 6
4	Medium-high income	7
5	High income	8 and 9
6	Very high income	10

Variable transformation *Informed*

In ESS round 8, the variable *tvpol* which I used for the variable *Informed* was not available. This variable denotes the answer to the question "on an average weekday, how much of your time watching television is spent watching news or programs about politics and current affairs?"

Instead, there was the general variable *nwspol* showing the answer to "on a typical day, about how much time do you spend watching, reading or listening to news about politics and current affairs?"

To match the data from rounds 1-7 with round 8, I converted the round 8 variable *tvpol* back to *nwspol*, taking the average distribution of *tvpol* over the rounds 1-7 into account. Watching tv related to politics and current affairs (round 1-7) is part of the general news watching, reading and listing related to politics and current affairs (round 8). Therefore, the new numbers for round 8 are smaller than before the conversion. First, I estimated the hours of *nwspol* by dividing the value by 60 (answers were in minutes). Then, the conversion as shown in table B6 is applied.

Table B6: transformation *nwspol* into *tvpol*

Old value *nwspol*	New value *tvpol*
nwspol < 0.1	0
0.1 ≤ *nwspol* ≤ 0.5	1
0.5 < *nwspol* ≤ 1.7	2
1.7 < *nwspol* ≤ 2.4	3
2.4 < *nwspol* ≤ 3.9	4
3.9 < *nwspol* ≤ 6.0	5
6.0 < *nwspol* ≤ 11.0	6
nwspol > 11.0	7

Table B7 below shows the distributions and confirms that the new distribution is almost equal to the one from rounds 1-7.

Table B7: Distribution *typol* in rounds 1-7 and 8

Rounds 1-7		Round 8		
Value	Percent	Value	Percent	% difference
0	5.66	0	6.44	0.78
1	30.52	1	32.31	1.79
2	40.06	2	39.48	-0.58
3	13.24	3	10.78	-2.46
4	5.67	4	6.37	0.70
5	2.33	5	2.09	-0.24
6	1.16	6	1.30	0.14
7	1.36	7	1.25	-0.11
Total	100	Total	100	

Variable transformation *Region*

The ESS used either two or three different region variables over the different rounds, depending on the country. For the German and Spanish regions, there were no differences in the names between the regions over the rounds which made it easy to merge the different rounds.

For France, I converted all regions to the the first level Nomenclature of Territorial Units for Statistics (NUTS) regions in France used until 2016, consisting of Ile de France, Bassin Parisien (split in east and west), Nord-Pas-de-Calais, Est, Ouest, Sud-Ouest, Centre-Est and Mediterranee.

For Czech Republic, all regions were converted to the NUTS 2 level, consisting of eight regions. For Poland and Sweden, I also used the NUTS 2 division, consisting of sixteen and eight different regions respectively.

Variable transformation *Health*

The subjective health variable was measured on a 1-5 scale, with lower values indicating a better health. I converted this variable so that higher values denote a better health, to make the interpretation easier.

Variable transformation *Education*

The ESS used the International Standard Classification of Education (ISCED) for ESS round 8 for the education variable. As the general education variable for rounds 1-7 uses a different method, I converted the variable from round 8 to the one from rounds 1-7 as explained in table B8 below.

Table B8: transformation *Education* variable

Rounds 1-7		Round 8		
Value	Description	Value	Description	New value
1	Less than lower secondary education (ISCED 0-1)	1	ES-ISCED I, less than lower secondary	1
2	Lower secondary education completed (ISCED 2)	2	ES-ISCED II, lower secondary	2
3	Upper secondary education completed (ISCED 3)	3	ES-ISCED IIIb, lower tier upper secondary	3
4	Post-secondary non-tertiary education completed (ISCED 4)	4	ES-ISCED IIIa, upper tier upper secondary	4
5	Tertiary education completed (ISCED 5-6)	5	ES-ISCED IV, advanced vocational, sub-degree	5
		6	ES-ISCED V1, lower tertiary education, BA level	5
		7	ES-ISCED V2, higher tertiary education, >= MA level	5

Appendix C – Additional tables and figures

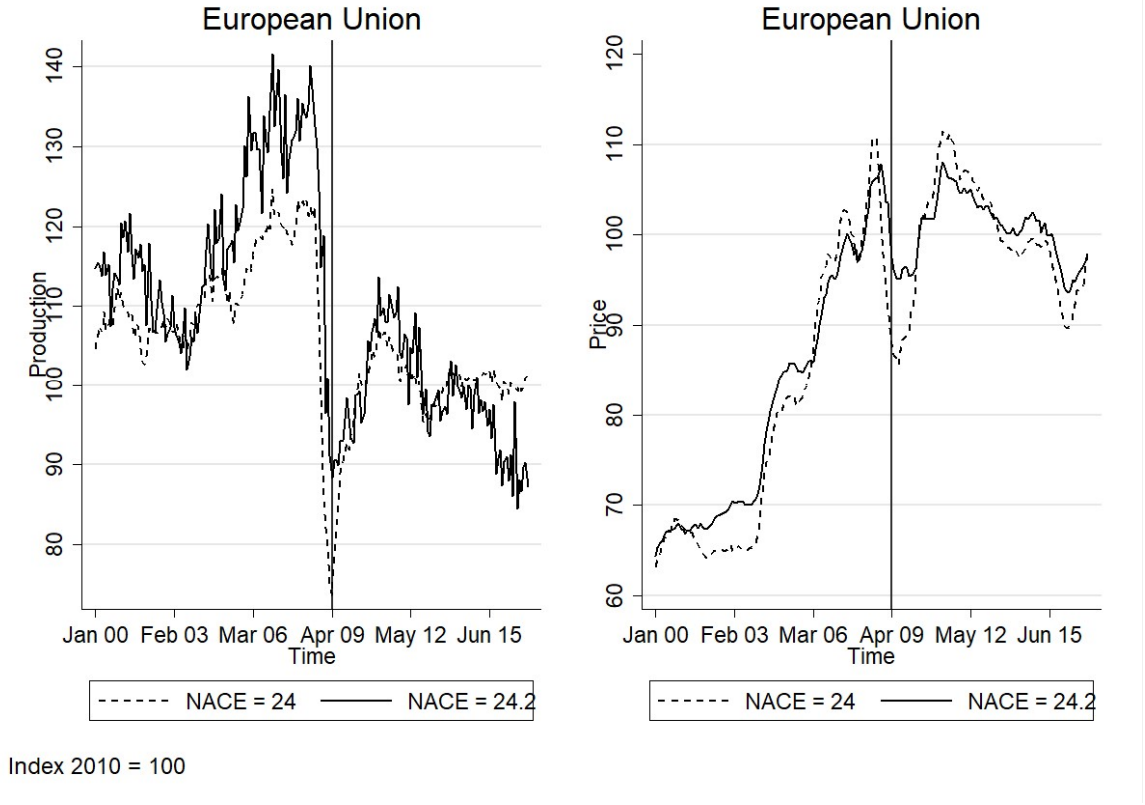

Figure C1: production and price trends NACE 24 and its subcategory NACE 24.2

Table C1: comparison of industry characteristics

NACE	Enterprises	Persons employed	Turnover (mil €)	Value added (mil €)	Production value (mil €)
20	28,306	1,096,562	552,704	106,210	486,986
23	97,975	1,259,267	207,520	61,002	193,297
24	17,139	947,570	351,765	55,062	396,281

Data for 2011. All numbers come from EU-MERCI, 2012

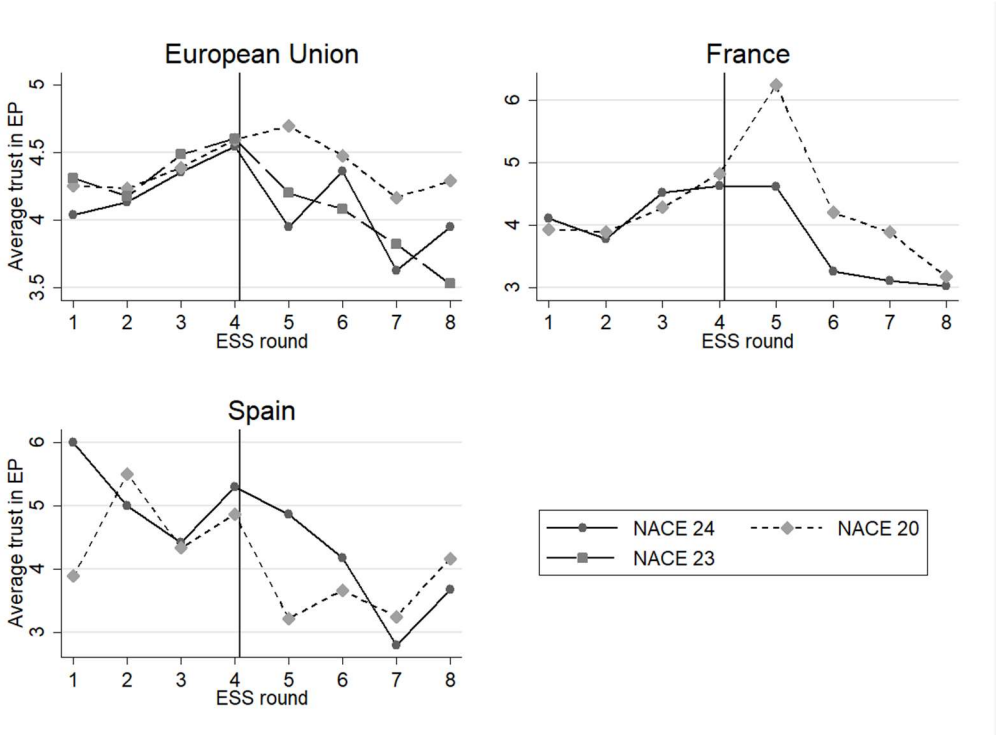

Figure C2: trends in *Trust EP* for the different industries in EU, France and Spain

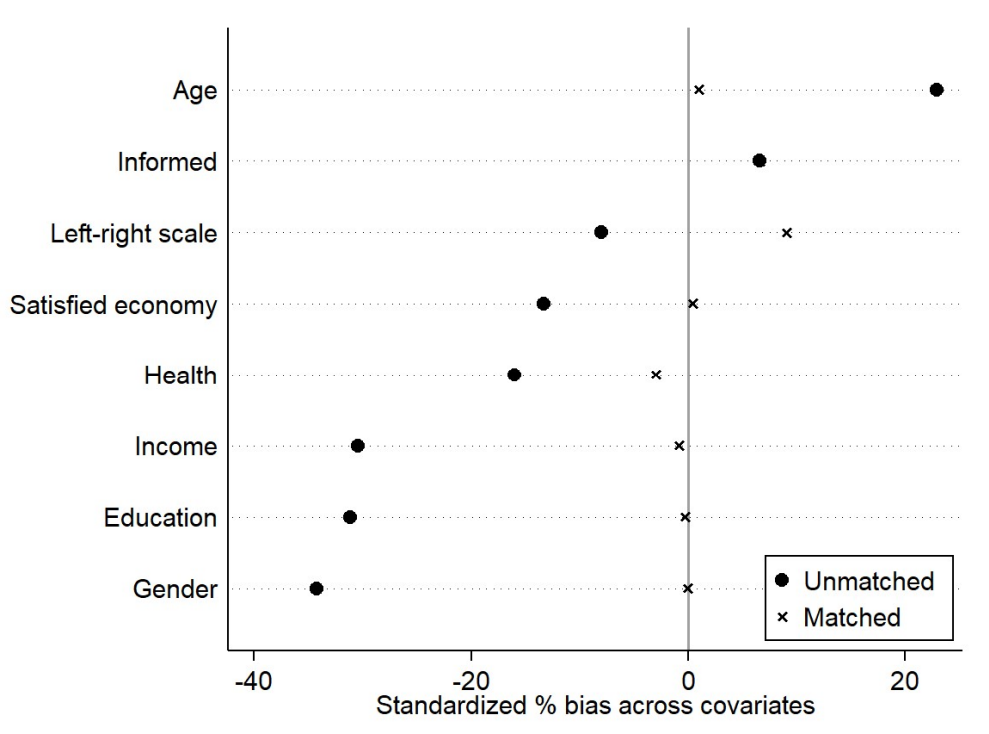

Figure C3: bias in covariates between treatment and control group before and after matching, EU level

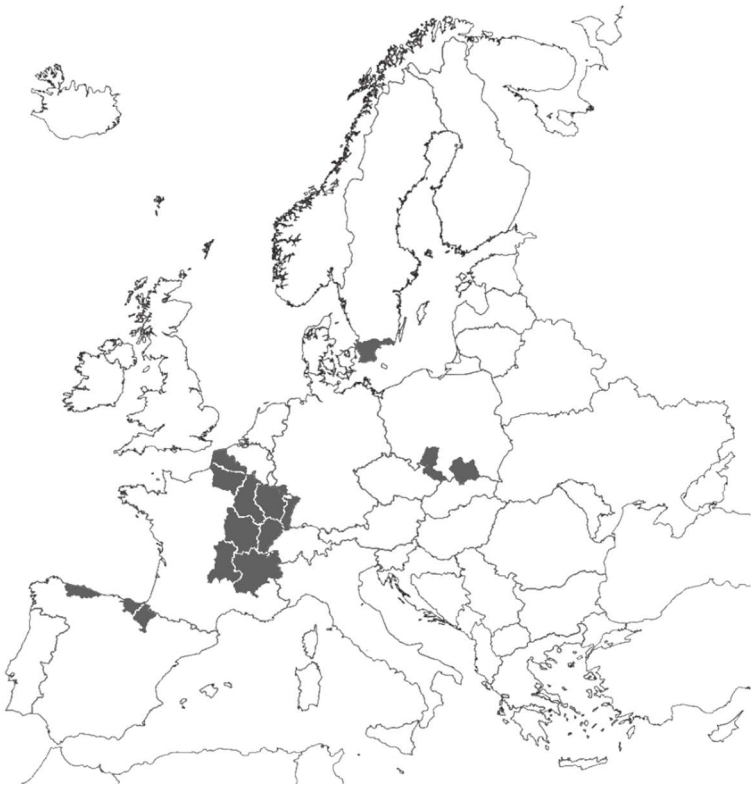

Figure C4: regions with an average share of NACE 24 workers ≥ 2%

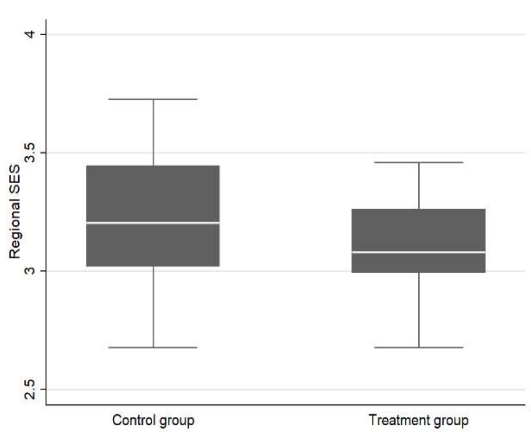

Figure C5: boxplot regional SES control vs treatment group, 2% level

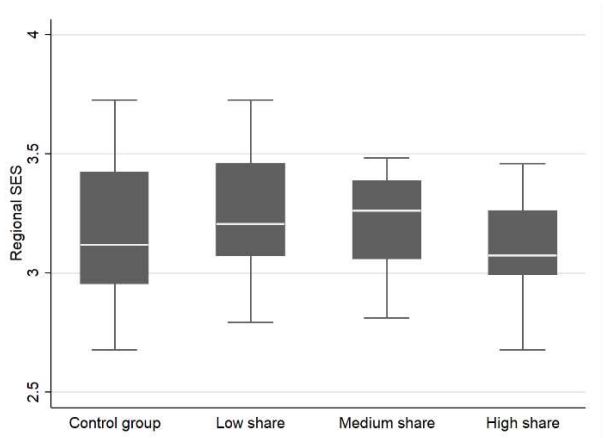

Figure C6: boxplot regional SES control vs three different treatment groups

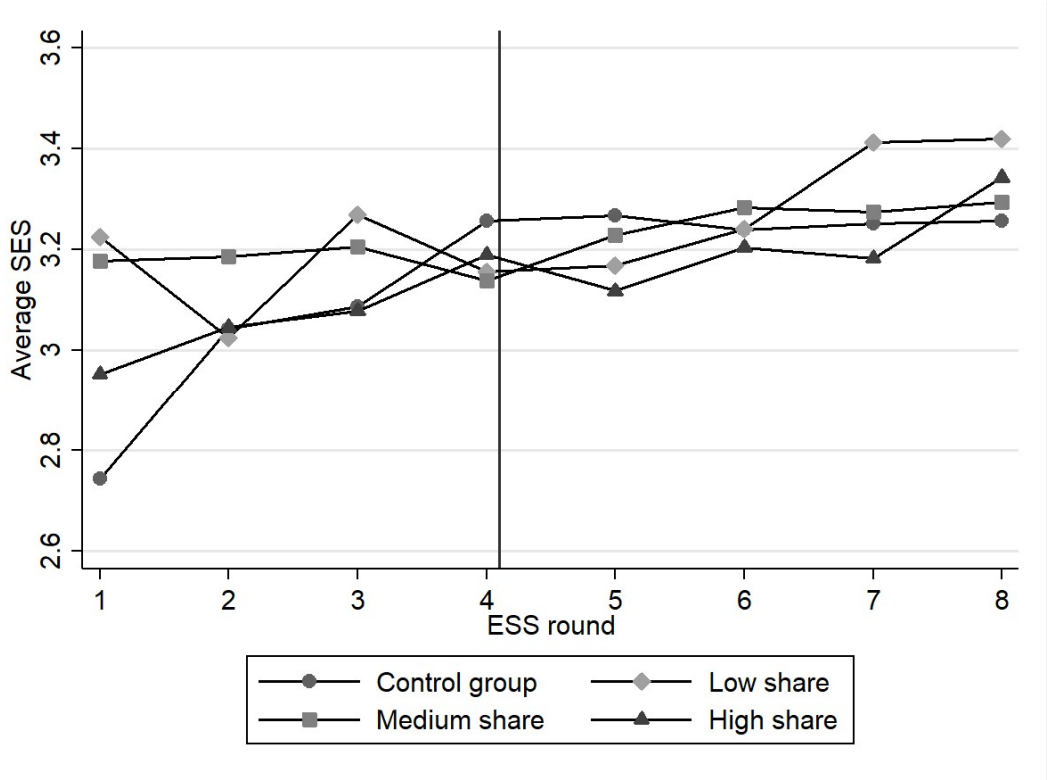

Figure C7: evolution of treatment groups' SES over time

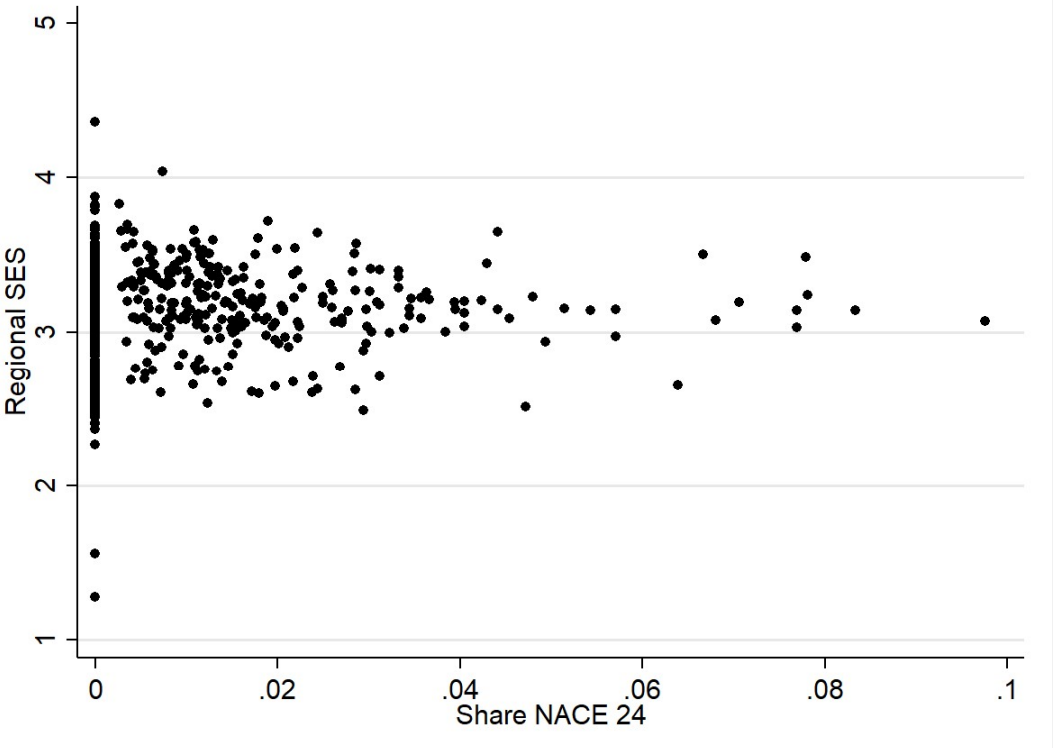

Figure C8: relation between regional SES and regional share of NACE 24 workers

Table C2: short- and long-run effects of the AD measures using OLS

	(1) Normal DiD, treatment 2%	(2) Intensity Dummy	(3) Full intensity
A. Short-run			
DiD	-0.013	-0.011	2.127
	(0.079)	(0.028)	(2.816)
N	39,097	39,097	39,097
B. Long-run			
DiD	-0.061	-0.039**	-9.185***
	(0.058)	(0.018)	(1.890)
N	59,598	59,598	59,598

Bootstrapped standard errors in parentheses, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.
Dependent variable is *Trust in the European Parliament*. Answers range from 0 to 10 with mean 4.34 (sd. 2.35).
DiD for 'share levels' takes on values 0, 1, 2 or 3 and DiD for 'full share' variable ranges 0.3% - 20%.
Pre-intervention is defined as 2002-2008, post-intervention as 2010 for short-run and 2012-2016 for long-run

Table C3: DiD for regional analysis with separate countries

	(1) Normal DiD, treatment 2%	(2) Share levels	(3) Continuous share
A. France			
DiD	-0.161**	-0.120***	-4.204
	(0.080)	(0.032)	(3.844)
N	12,390	12,390	12,390
B. Germany			
DiD	0.262**	0.083**	-1.686
	(0.103)	(0.033)	(4.193)
N	16,996	16,996	16,996
C. Spain			
DiD	-0.256**	-0.028	-2.569
	(0.111)	(0.035)	(2.454)
N	8,793	8,793	8,793
D. Sweden			
DiD	0.058	-0.030	2.511
	(0.116)	(0.038)	(3.800)
N	11,574	11,574	11,574
E. Poland			
DiD	0.028	0.027	-2.648
	(0.102)	(0.032)	(3.501)
N	8,886	8,886	8,886
F. Czech Republic			
DiD	0.369***	0.040	2.499
	(0.123)	(0.046)	(2.903)
N	9,300	9,300	9,300

Standard errors in parentheses, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
Dependent variable is *Trust in the European Parliament*. Answers range from 0 to 10 with mean 4.34 (sd. 2.35).
DiD for 'share levels' takes on values 0, 1, 2 or 3 and DiD for 'full share' variable ranges 0.3% - 20%.
Pre-intervention is defined as 2002-2008, post-intervention as 2010-2016

Table C4: Placebo DiD results for production trends in NACE 24

	(1) EU	(2) France	(3) Germany	(4) Spain
A. Control is NACE 20				
Placebo DiD	-0.540	-8.552***	2.660**	5.035***
	(1.008)	(1.288)	(1.077)	(1.409)
N	216	216	216	216
R^2	0.850	0.911	0.766	0.827
B. Control is NACE 23				
Placebo DiD	3.594***	-8.471***		14.713***
	(1.107)	(1.244)		(1.281)
N	216	216		216
R^2	0.769	0.745		0.600

Standard errors in parentheses, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Production is measured in index points, 2010 = 100. Pre-intervention is defined as 2000-2004, post-intervention as 2005-2008
No results are shown for countries where the industries followed different trends

Table C5: outline synthetic control analysis

Control region	Weight	Variable	Treated	Synthetic
ES41 (Castile and León, Spain)	0.285	Education	2.87	2.72
ES52 (Valencian Community, Spain)	0.143	Income	3.00	2.99
ES53 (Balearic Islands, Spain)	0.034	Health	3.69	3.73
FR3 (Eastern Paris Region, France)	0.210	Stf. Econ	4.02	4.02
FR7 (South West, France)	0.327	Informed	1.93	1.97
		LR scale	4.76	4.71

Control regions in the synthetic control analysis and their weight. *Treated* and *Synthetic* show the means of the explanatory variables in the respective treated and synthetic control group