

GED Focus Paper

# Globalization, Trade and Populism in Germany

Analyzing the effects of trade exposure on voting behavior  
in the 2013 and 2017 German federal elections

Fritz Putzhammer



# Globalization, Trade and Populism in Germany

Analyzing The Effects Of Trade Exposure  
On Voting Behavior

In The 2013 And 2017 German Federal Elections

## **Author**

Fritz Putzhammer

## **Contact**

Thomas Rausch  
Senior Project Manager  
Global Economic Dynamics  
Program Megatrends  
Bertelsmann Stiftung  
Phone: 05241 81-81330  
E-mail: [thomas.rausch@bertelsmann-stiftung.de](mailto:thomas.rausch@bertelsmann-stiftung.de)  
[www.bertelsmann-stiftung.de](http://www.bertelsmann-stiftung.de)

Gütersloh, 2018

Cover photo: © Rahul Sengupta/stock.adobe.com



## Preface

The author of this paper worked as a freelance project manager for the Global Economic Dynamics team between 2015 and 2018. The paper was originally written as the author's Master Thesis in obtaining his degree in International Affairs from the Hertie School of Governance in Berlin in June 2018. As such, the paper follows a different internal structure and style than other GED studies and focus papers. The original format of the paper also means that the empirical work and statistical analysis presented were necessarily limited in scope and depth. As such, the paper and its findings should be understood as a careful first exploration of the effects of trade exposure on voting behavior in Germany throughout the last elections, rather than a definitive and final statement on this empirical relationship. The paper opens the door to and invites further academic research and writing on this thematic to strengthen the claim for causality of its analysis.

## Table of Contents

<b>Executive Summary</b>	<b>ii</b>
<b>Introduction</b>	<b>1</b>
<b>Chapter One: A Brief Theory of Economic Globalization</b>	<b>3</b>
<i>1.1 What drives economic globalization?</i>	3
<i>1.2 The benefits of trade</i>	4
<i>1.3 The costs of trade</i>	6
<i>1.4 Economic globalization and populism</i>	7
<b>Chapter Two: Empirical Evidence from Academic Literature</b>	<b>8</b>
<i>2.1 The influence of trade on U.S. electoral outcomes</i>	9
<i>2.2 Trade exposure as a factor in the Brexit referendum</i>	10
<i>2.3 The impact of trade on German elections prior to 2009</i>	11
<b>Chapter Three: Analyzing the Effects of Trade Exposure on Voting Behavior for the 2013 and 2017 German Elections</b>	<b>12</b>
<i>3.1 The need for a new German model</i>	12
<i>3.2 Creating the model</i>	14
<i>3.2.1 Measuring trade exposure</i>	15
<i>3.2.2 Data collection</i>	17
<i>3.3 Running the model</i>	20
<i>3.4 Interpreting the results</i>	24
<i>3.5 Limitations</i>	28
<b>Outlook and Conclusion</b>	<b>29</b>
<b>Bibliography</b>	<b>iii</b>
<b>Appendix</b>	<b>iv</b>

## Executive Summary

How does exposure to international trade influence voting behavior in Germany? Analyzing data from the 2013 and 2017 German federal elections, this thesis sets out to answer this question. Measuring Chinese import penetration on an electoral district level and running a set of linear regression models, the author finds that districts, which were more heavily exposed to import penetration show an increased propensity to support the anti-globalization oriented, right-wing populist AfD party. This was true, both when measuring for a district's relative level of import penetration at the time of an election, as well as, when considering the net change of import penetration in a district over the years leading up to an election.

Other parties' vote shares showed statistically significant changes, too. Most notably affected was the German labor party SPD, which consistently lost significant vote shares in districts facing higher levels of import penetration. At the same time, a significant effect of trade exposure on the vote shares of traditional German right-wing parties like the NPD, as previously found by academic literature studying German data prior to the formation of the AfD, could not be found anymore. This suggests that the AfD successfully managed to establish itself as the predominant German anti-globalization party, catching shares of voters whose economic globalization frustration had previously led them to the NPD.

By using relative import penetration from low-wage countries like China as a measure of trade exposure, this thesis deliberately focusses on analyzing the negative impacts of trade exposure on voting behavior. It is important to remember that Germany is traditionally an export heavy economy, boosting a large trade surplus and that the job and welfare creating positive impacts of trade exposure in Germany are not subject to this particular study.

While the effects of trade exposure on voting behavior have been studied in various forms by academics around the globe, this is the first attempt the author is aware of, of analyzing German data past the year 2009. By extending German data analysis past this 2009 threshold, the author hopes to have contributed a first exploratory step in the study of trade and voting behavior interactions in light of the rise of modern main stream populist parties like the AfD in Germany. The basic data analysis presented in this thesis invites further academic study, utilizing up-to-date data sets and expanded, more in-depth empirical analysis methods.

## Introduction

Germany is a country highly interlinked with the global economy. Together with the United States and China, it regularly places within the top three ex- and importing nations in the world. A feat made even more impressive considering the relatively smaller size of the nation's economy and population in comparison to the other two countries. The ratio of foreign trade to GDP almost doubled in Germany between the years 1991 to 2004 from 45.2 to 84.8 percent. The U.S. ratio, in contrast, amounted to just 30 percent in 2013 (Ronge, 2016). Unsurprisingly, Germany's interconnectivity with the world does have a major effect on people living and working within Germany, too. About one in every four German jobs is dependent on foreign trade (Destatis, 2017).

Still, the perception of trade and globalization as an economic growth panacea is by no means guaranteed anymore. Both in Germany and internationally, the past decade has seen a growing front of anti-globalization sentiments. With a world financial crisis still fresh in mind, many people are not convinced anymore that the benefits of a free-trading, interconnected world necessarily outweigh its potential costs. A 2018 survey study by the German Bertelsmann Stiftung found that while a relative majority of 44 percent of people in developed economies still see economic globalization as a generally positive force (25 percent see it as a negative force), people were still increasingly skeptical about several effects they associated with trade and globalization. Their top concerns were employment security, wage pressure and product quality (Bertelsmann Stiftung, 2018).

This rise of trade skepticism, as well as, other general anti-globalization sentiments across the western world is reflected in several recent international events. The United Kingdom's decision to leave the European Union, the public backlash against large free trade agreements like the TTIP, the election of Donald Trump as U.S. president on an explicit "America first" platform, as well as, the electoral success of several European anti-globalization parties can all be seen as a direct expression of this trend. In Germany, this is most closely linked to the formation and subsequent rise of the *Alternative für Deutschland* (AfD) party. Having been founded only four years prior in 2013, the AfD managed to garner 12.6 percent during the 2017 German federal elections, making it the third largest party in the *Bundestag* and the first

time since the second world war, a right-wing populist party in Germany managed to get elected into the parliament at all.

This begs the question: How does economic globalization, and trade in particular, influence German voting behavior? In writing this thesis, the author attempts to answer this question. Having researched the current academic literature, the author finds that the effect of trade exposure on voting behavior in Germany has only been studied up to the year 2009. Consequently, it is crucially missing out on this decade's significant changes in both, German political landscape and public trade perception. The author of this thesis, therefore, has constructed his own empirical data set, containing information on the 2013 and 2017 German federal elections, to bridge the current empirical data gap past the 2009 threshold. The author analyzes this data set, running simple linear regression models to gauge the impact trade exposure has had on voting behavior at the German electoral district level. After researching the underlying economic theory and empirical evidence from literature, the author's hypothesis going into this analysis is that electoral districts with a higher measure of trade exposure (measured via Chinese import penetration) will show a greater propensity to vote for the AfD, Germany's anti-globalization oriented right-wing populist party.

While the format of this thesis (as well as, admittedly, the author's level of expertise) constrains it to a more basic statistical analysis of the subject, it is the hope of the author that its results, nonetheless, can act as a first step in the exploration of this important subject for German data past 2009.

Going forward, this thesis will be split in three main parts before coming to its conclusion: The first main section of the thesis will aim to examine and establish the core economic theory underlying the effects later analyzed. In doing so, it will look at why trade occurs in the first place, what the potential costs and benefits of trade are and how this might interact with political populism. Section two of the thesis will explore already existing examples of academic literature studying the effects of trade exposure on voting behavior. Specifically, cases from U.S. presidential elections, the Brexit referendum and federal elections in Germany prior to 2009 will be looked at. Finally, section three will continue with this thesis' own empirical data analysis. The construction of the data set and the method of analysis will be elaborated before running several regression models and interpreting the results. The conclusion of the thesis

will act as both, a forum for the author's final thoughts, as well as, an outlook for future research and study of this topic.

## 1. A Brief Theory of Economic Globalization

Before analyzing the effects, trade and globalization have on voting behavior in Germany, it is important to first establish a solid understanding of the theory behind the empirical evidence. This first section of the thesis aims to do exactly that. By uncovering the underlying principles and effective channels of globalization, light can be shed on the reasons why people trade and what the benefits and costs of trade can be. Understanding these costs and benefits, in turn, will help to generate a first insight into how trade can affect peoples' voting behavior. The theory presented will only go as far as is needed for the understanding and analysis in subsequent chapters of this thesis. As such, it is somewhat of a simplification of economic reality, only meant to impart a rudimentary understanding of trade theory without going too in-depth into any specific economic modelling.

### 1.1 What drives economic globalization?

The term economic globalization is commonly understood to encompass the expansion of trade of goods and services, the movement of capital and people, as well as, the spread of knowledge and technology across international borders (IMF, 2000). For the purpose of this analysis, this thesis will predominantly focus on the international trade of goods between countries as an expression of economic globalization.

International trade of goods, at its core, is the result of global imbalances caused by local scarcities. Due to varying endowment levels of resources, capital, labor and technology between countries, different prices for consumer goods and intermediate goods will be set in different places, according to the local levels of supply and demand. The trading of goods between those countries is a natural way of mitigating those price differences. It also allows countries to specialize in the production of some goods relative to others, giving countries a

relative competitive advantage in the production of those goods. The resulting optimized allocation of scarce production factors, in theory, benefits all national economies involved in the trade.

The concept of basing international trade on these two principles, namely the division of resources and labor and the idea of specialization, is not a new one. It goes back to economist and philosopher Adam Smith who first wrote about it in his 1776 magnum opus “The Wealth of Nations” and while many nuances of trade theory have been greatly expanded upon since then<sup>1</sup>, its core validity still holds and is of fundamental importance for the understanding of how trade influences voting behavior, as examined in the rest of this thesis. As the trade of goods and the division of labor and resources between countries changes the local scarcity and balance of those factors, consequently impacting its local price levels, economic globalization can create both winners and losers in those countries. Ultimately, it is the ratio and perception of those benefits and costs of globalization on an individual level that will determine how international trade might influence a voter’s decision at the ballot box.

## 1.2 The benefits of trade

As previously described, the division of labor and resources across borders, as well as, the idea of specialization through international trade, in theory, benefits all countries involved in the trade on a macro level. This is reflected in various domestic indicators and effect channels as detailed by Petersen (2017).

On the demand side, international trade means lower prices for consumer goods, which raises the relative purchasing power of domestic consumers. People get more product for their buck and are thus relatively better off. As consumers purchase more, this also boosts local demand for domestic goods, which in turn has a positive impact on local production and the local employment level. Local companies benefit through other channels as well. As the price for

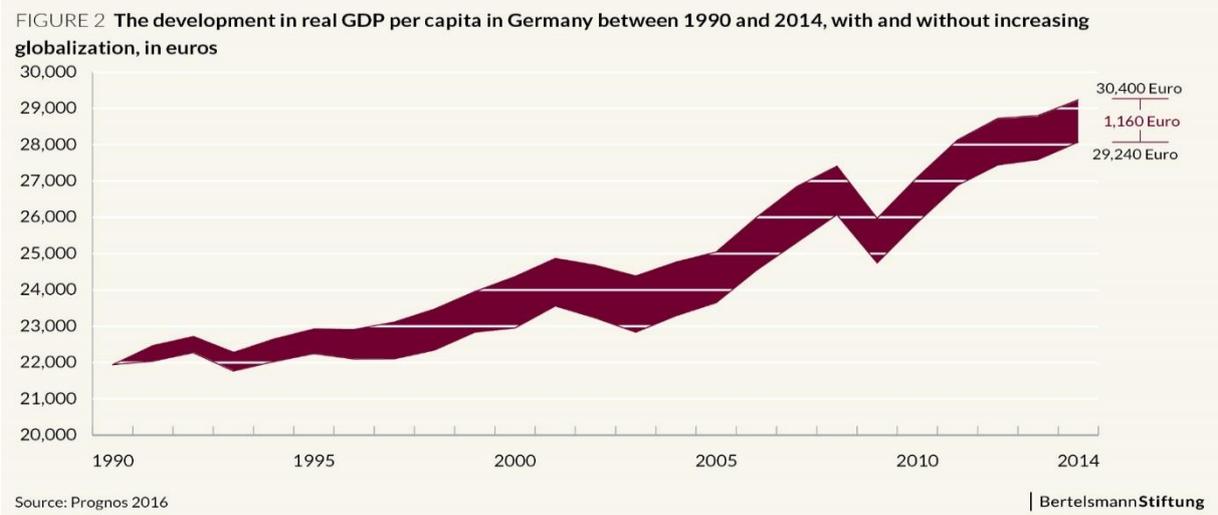
---

<sup>1</sup> Most notably, the idea of specialization through trade has been further cemented in economic theory by David Ricardo’s 1817 law of comparative advantage that proves that a nation will engage in international trade even when its workers are more efficient in producing every single good than other countries’ workers. This holds true due to the country having comparative advantages in the production of some goods relative to others, allowing them to minimize potential opportunity costs by focusing their production on those particular goods.

resources and intermediate goods is lowered through international trade, the costs of production for a local producer are reduced. The theoretic consequence is a further boost in local production and employment. Lowered production costs increase international competitiveness, too, leading to local producers being able to export more goods. This further increases labor demand, raising local employment, as well as, increasing the amount of local investment, as companies have to increase their stock of capital in order to meet the new demand.

Finally, economic globalization and international trade will also increase a country’s level of innovation and productivity, which in the long run will similarly lower production costs and increase local welfare and employment. This happens through two key channels. On the one hand, opening up supply to the world market, drastically increases a company’s potential reach. The resulting economies of scale allow for more efficient production and lowered unit costs. On the other hand, selling and buying on the international market, increases the amount of competitive pressure. To remain competitive, companies are forced to innovate and drive technological progress, increasing productivity and as a result local welfare (Petersen, 2017).

The empirical analysis of the here described benefits of economic globalization is subject to the Globalization Report 2016, published by the German Bertelsmann Stiftung. The study, among other things, calculates the monetary gains of globalization for a set of countries over the past two and a half decades. For Germany they find that in the year 2014 GDP per capita in Germany was a whole 1,160 Euros higher than it otherwise would have been without the added push of globalization in the years from 1990 till 2014.



Source: Bertelsmann Stiftung (2016), *Globalization Report 2016*

The total increase in per capita GDP for Germany over the course of those 24 years adds up to 27,000 Euros, meaning that in that time frame, on average, there was an extra 1,130 Euros per German citizen, per year added to the German economy, purely due to the increased amount of economic globalization (Bertelsmann Stiftung, 2016).

Having explored the apparent macro benefits of globalization and international trade it is now time, however, to shed light upon the downside of this global process, as an unequal distribution of costs and benefits of trade within a country means that not every individual comes out a net-winner of economic globalization.

### 1.3 The costs of trade

As with the benefits chapter, this section solely focusses on the economic costs of trade and globalization. This is not to say that other costs of globalization, such as environmental or cultural costs, do not exist. In the scope of this thesis' analysis, however, they do not play a significant role and as such are not further examined here.

The economic costs of international trade are mainly focused around the impact of trade on local labor markets, as the division of labor and production through trade shifts the local levels of labor supply and demand. As previously discussed, countries typically have differing levels of scarcity of resources. The same applies for the local supply of labor. Emerging economies such as China tend to have a comparatively large supply of labor, while industrial countries like Germany in relation have a smaller labor supply-pool to draw from. Due to the interaction of labor supply and demand in both countries, this consequently means that labor will be priced cheaper in a labor abundant country like China than in Germany, which, together with the more expensive standard of living, means relatively higher wages in Germany.

The principle of specialization dictates that due to this global imbalance, China, and other countries like it, will specialize in producing labor-intensive goods, while developed countries like Germany will specialize in the production and export of more capital-intensive goods to engage in international trade. The resulting shifts in labor requirements mean that there is now a higher demand for labor in China and a lower demand for labor in Germany. Price levels adjust and the wage-level in Germany drops, along with overall employment, leading to a

partial mitigation of the original labor price level indifference between the two countries. In addition, the focus on capital-intensive production in countries like Germany means that the wages for high-skilled labor increase, relative to those of low-skilled labor, leading to an increase in the wage gap between those two factions of the labor pool (Petersen 2017).

Ronge (2016) studies this impact of trade with low-wage economies on the German manufacturing industry and finds that import penetration from China, Eastern Europe and Latin America has had a significant, negative effect on German wage and employment levels between 1995 and 2007 with a wage decline of almost five percent. The labor group most affected by this are the low-skill manufacturing employees. Even though the overall welfare impact of trade is positive, for an individual working in an industry, subject to heavy Chinese import penetration, trade can therefore mean a decrease in individual welfare and potentially even the loss of a job. People living in regions predominantly invested in such industries might similarly see the effect, trade has on their region and view economic globalization as a negative development to the extent that they vote for an anti-globalization-oriented party as a result of that.

#### 1.4 Economic globalization and populism

The past decade has seen a significant increase in anti-globalization sentiments across the western world. The heavy backlash to prominent free trade agreements, the election of US president Donald Trump on an “America first” platform, as well as the public debate surrounding Brexit and the rise of Euro-skeptical parties across Europe illustrate that such sentiments are in large parts based on economic fears of globalization. In Germany, this rise of protectionist thinking and general anti-globalization sentiments is symbolized by the sudden and drastic rise of the “Alternative für Deutschland” (AfD) party. In just over four years, the AfD rose from its formation in 2013 to becoming the third largest party in the German parliament after the 2017 federal elections.

The previous section of this chapter examined the theoretical channels through which economic globalization could be disadvantageous to individuals in countries engaged in international trade. Those costs of economic globalization can affect voting behavior in two

ways. The most obvious effect is that an individual might be directly experiencing said costs, leading to a personal decrease in welfare. Unsatisfied with a lower wage or the prospect of having lost his or her job the individual will seek a party for the next election, which promises a greater degree of protectionism. The second way voters can be influenced is that even when they might not experience the negative consequences of foreign import penetration themselves, individuals might be aware of its general effect, leading to a subjective fear of downward mobility (Petersen 2017). The mere fear of potential globalization-induced unemployment or reduced income might then be enough to shift that individual's voting decision towards a more populist party. The surge of German trade with Eastern European countries in the nineties and with China after China's inclusion in the WTO in 2001 have led to a steady increase of such fears over the past decades. Recent crises like the world financial crises, the euro crisis and the European migrant crisis have further fueled the potential for anti-globalization sentiments in countries like Germany.

Understanding the theory of how international trade can create a downward pressure on local industries competing with labor abundant countries like China is the first step necessary for examining exactly how trade affects voting behavior in industrially developed countries. After analyzing select empirical examples from the academic literature in the next section, this thesis will therefore go on to set up its own empirical data model and analyze the localized effect of Chinese import penetration on German voting behavior during the 2013 and 2017 federal elections based on this understanding.

## 2. Empirical Evidence from Academic Literature

Having established a solid understanding of the underlying mechanisms of how trade can affect voting behavior, this section of the thesis will examine a select number of empirical studies from academic literature, which analyze this causal relationship around the globe. Specifically, the section will look at cases from US elections, from the recent Brexit referendum in the United Kingdom, as well as, from federal elections in Germany up to the year 2009.

## 2.1 The influence of trade on U.S. electoral outcomes

In their 2017 study, Autor et al. analyze the impact of Chinese import penetration in the US on the 2002 and 2010 congressional elections, as well as, on the 2000, 2008 and 2016 presidential elections. Running various multi-stage regression models, they find that for the congressional elections, districts that had been more strongly exposed to Chinese import penetration disproportionately removed moderate representatives from office. Districts held by republican representatives or districts with a large majority white population tended to move to the right and elect less moderate republicans, the more exposed to trade they had been. At the same time, districts originally held by democratic representatives or comprised of large minority populations tended to move to the left and elect less moderate democrats. For the three presidential elections analyzed in their study, Autor et al. (2017) found that counties with a greater degree of trade exposure significantly shifted towards the republican candidate. This largely falls in line with the previous section's theory and offers some first support for this thesis's research hypothesis that districts in Germany, which are more exposed to Chinese import penetration tend to show increased political support for the rightwing populist AfD party during federal elections.

Jensen et al. (2016) similarly study the effects of trade exposure on US presidential elections, specifically analyzing the data to determine whether increased trade exposure leads to more political support for or against the incumbent's party. In doing so, they look at both, levels of import penetration and export penetration and find, perhaps unsurprisingly, that higher levels of import penetration are significantly linked to diminishing incumbent vote shares, while more trade exposure through increased export levels correlates to increased support for the incumbent's party during presidential elections<sup>2</sup>. Jensen et al. (2016) follow up by then linking those findings with regressions run on the relationship between an incumbent's vote share and the ratio of a county's high-skill to low-skill manufacturing employment levels. In line with

---

<sup>2</sup> Jensen et al.'s study acts as a good reminder that trade exposure does not only take place through import penetration but through export exposure in a region as well. While this thesis's analysis is only interested in the voting behavior effects of import penetration in Germany, it is important to remember that more regions and industries in Germany profit from exporting business, than suffer from import competition.

the previous section's theory, they find that trade exposed regions with a high ratio of low-skill, manufacturing employees are particularly likely to vote against the incumbent's party<sup>3</sup>.

## 2.2 Trade exposure as a factor in the Brexit referendum

The United Kingdom's decision to leave the European Union acts as one of the most prominent examples in recent years of the rise of political populism and increased anti-globalization sentiment in Western countries. Colantone and Stanig (2016) examine the effect trade exposure had on the 2016 referendum decision. Using a model similar to that of Autor et al. (2017 and 2013) they regress the measure of Chinese import penetration for British regions against the referendum voting outcomes in those regions. The results show a positive and statistically significant impact of higher trade exposure on the leave option in the referendum. The finding's causal interpretation is supported by the use of an instrumental variables approach for their regression model.

Colantone and Stanig (2016) explain their findings using the same theoretical approach used in this thesis, interpreting the effect as the result of globalization-induced labor displacement in the absence of effective compensation for those workers, disadvantageously affected by economic globalization. Interestingly, they also find that, although individual level data shows immigration as a main issue motivating the choice to vote leave, attitudes towards migration were more closely related to a region's level of trade exposure, than to actual immigration numbers in that region. This is particularly interesting in so far as immigration has notably also been the main platform for the electoral success of the AfD party in the 2017 German election. A decision to vote AfD, motivated by a voter's view on immigration, consequently, might similarly be really influenced by the voter's experience with trade exposure and import penetration in his local environment.

---

<sup>3</sup> While Jensen et al.'s data set only goes up to include the 2012 presidential election, it is easy to see how the effect still holds true for the 2016 presidential elections, too, in which candidate Donald Trump won a number of important swing states explicitly through the platform of promising to bring back jobs previously lost to Chinese import competition.

### 2.3 The impact of trade on German elections prior to 2009

Dippel et al. (2017) study the effects trade exposure has on the German labor market and on German voting behavior in federal elections based on 408 observed German counties (Landkreise). The time frame of their analysis is separated into two roughly decadal periods, from 1987 to 1998 and from 1998 to 2009. The two periods were chosen to reflect the external trade shocks of rising trade with Eastern Europe after the fall of the iron curtain in the nineties and rising trade with China after the country's acceptance into the WTO in 2001 respectively. The authors apply a classic IV regression approach using trade flows of other high-income countries as instruments for Germany's imports from (and exports to) China and Eastern Europe. They run regressions of their trade exposure measurement on both, voting in Germany, as well as, changes in the German labor market before combining the two in a mediation model (with the labor market as mediator variable) to gauge the effect trade exposure has on voting behavior through the labor market.

Dippel et al. (2017) find that in their regressions, counties that were more heavily exposed to trade through Chinese and Eastern European import penetration showed a higher propensity to vote for far-right parties like the NPD (Nationaldemokratische Partei Deutschlands), the DVU (Deutsche Volksunion) or *Die Republikaner*. Other parties' vote shares were not statistically significantly affected by relative trade exposure. To the extent that export opportunities improved in a county, support for far-right parties declined in those counties. Analyzing individual level employment data, Dippel et al. (2017) find that low qualified workers in manufacturing industries from counties with high Chinese and Eastern European import penetration are particularly likely to support right-wing parties. The combination of voting effects and labor market effects through trade exposure shows that the effect of import penetration on right-wing voting support mediated by the labor market is larger than the measured overall effect of import penetration on voting behavior. This suggests that trade exposure affects voting behavior most strongly through changes in the labor market but is mitigated through moderating channels outside the labor market (Dippel et al., 2017).

Dauth et al. (2012 and 2017) similarly examine the consequences of increased trade with the East (China and Eastern Europe) on the labor market in Germany, albeit without the added voting behavior component. Like Dippel et al. (2017), they too find that import penetration

from China and Eastern European countries had a significant negative impact on the labor market in German regions particularly specialized in import-competing industries. They also point out, however, that in the aggregate, regions with more export-oriented industries experienced even stronger job growth at the same time.

Dippel et al.'s 2017 study and its findings are of particular interest to this thesis as they build the basis for this thesis' own empirical analysis approach, examining the effect of trade exposure on German voting behavior past the 2009 threshold.

### 3. Analyzing the Effects of Trade Exposure on Voting Behavior for the 2013 and 2017 German Elections

The last chapter of this thesis looked at empirical evidence from the academic literature on how trade has impacted German voting behavior in the past. Dippel et al. (2017) have shown that in a time frame from 1987 – 2009 increases in import penetration from China and Eastern Europe at the German Landkreis (county) level have led to a statistically significant increase in far-right voting shares, at national elections, in those counties. Non-far-right party shares were not significantly affected. Combining those results with an individual-level data analysis suggested that low-qualified workers from the manufacturing industry who were particularly affected by international competition from the east were especially likely to support right-wing parties (Dippel et al., 2017).

#### 3.1 The need for a new German model

While this general effect is supported by the other studies outside of Germany, examined in the last section, simply applying Dippel et al.'s results to the current political environment in Germany seems problematic. The largest caveat in doing so is the 2009 cutoff in the timeframe of Dippel et al.'s dataset. While following the established periods of study of the existing literature, this excludes important data of the past eight years, in which multiple fundamental changes have taken place that likely have affected both German trade and voting behavior.

Following the global financial crisis of 2007/2008, the European debt crisis first gave rise to a new form of modern euro skepticism and anti-globalization sentiments in Germany and other European states. The controversial negotiations of large scale free trade agreements such as the TTIP and CETA, that were met with widespread public criticism, as well as, the European migrant crisis of 2015 gave further fuel to such voices.

As a result of these and other factors, the political landscape in Germany has changed drastically since 2009. The formation of the “Alternative für Deutschland” (AfD) party, marks the first occasion of a successful radical right-wing populist (RRP) party in Germany, post World War Two. While RRP parties have been present and successful in most Western European countries for a long time, Germany, before the formation of the AfD in 2013 had been the exception to this rule (Berning, 2017). Consequently, the only far-right parties in Dippel et al.’s data set (2017) are fringe extremist parties like the NPD, Die Republikaner and the DVU, which are heavily stigmatized by the vast majority of voters in Germany, leading to potential misestimation of the true effect of trade on German voting behavior. Dippel et al. recognize this caveat, writing: “More importantly, however, Germany did not have a populist party with broad appeal during our study period. All anti-globalization parties at the right fringe were extremist parties with neo-Nazi ties and associations to the Third Reich, which made them anathema to most Germans. Where populist leaders have broad appeal, like Marine Le Pen in France, or Donald Trump in the U.S., the political backlash to import exposure seems to be stronger.” (Dippel et al., 2017).

The AfD represents such a broad-appeal populist party for Germany. Started as an anti-Euro party in February 2013 only seven months before the 2013 federal elections, the AfD only narrowly missed the five percent threshold needed to enter the German parliament by 0.3 percentage points that year. Since then the AfD has evolved from a mere anti-euro party to a broader RRP party ideology, rejecting most forms of globalization and promoting a clear “Germany first” nationalistic approach across multiple issue-fields like culture, foreign politics and economics. The success of this strategy is reflected in their 12.6% vote share in the 2017 elections, making them the third largest group in the 19<sup>th</sup> Bundestag, while simultaneously being represented in currently 14 of Germany’s state parliaments (Berning, 2017).

Consequently, the need arises for a new and updated German data set, capturing the rise of the AfD, to accurately examine the findings of Dippel et al. (2017) considering Germany’s new

political reality. The aim of this section of the thesis is to do precisely that. Creating a data set covering political and structural data of the 2013 and 2017 German federal elections, as well as, trade data of the past two decades up till 2017, the author tests whether previous findings of Dippel et al. (2017) still apply to the current decade. The author's hypothesis is that higher exposure to trade via Chinese import penetration in a region will be met by a significant increase in vote shares for the AfD in those regions. The author speculates that the previously measured impact of trade on far-right fringe parties like the NPD will therefore shift to the newly established AfD, which now best represents the anti-globalization sentiments of those voters previously indicated in the findings of Dippel et al. (2017).

### 3.2 Creating the model

In their 2017 study Dippel et al. use multi-stage IV regression models to measure both the impact of trade on voting, as well as, the impact of trade on the labor market and then combine the two models in a general mediation model, measuring the effect of trade on voting through the labor market.

For this thesis, the author chooses to apply a much more basic and simplified model version of Dippel et al.'s approach. Due to general time and labor resource limitations, the IV approach is discarded, as is the inclusion of the labor market in a second regression model and the consequential use of a mediation model to combine the two. Instead, a simple linear regression model is used, purely examining the effect of trade on voting. While, the exclusion of the IV approach naturally comes with a degree of loss to any potential causality claim, the inclusion of a selection of valuable control variables should nevertheless ensure a reasonable assumption of causality. Unlike Dippel et al.'s data set, which is based on the *Landkreis* (county) level, the author has chosen the *Wahlkreis* (electoral district) level for this thesis' data set.

The baseline equation for this thesis's linear regression model is:

$$Y_{pit} = \beta_1 T_{it} + \beta_2 X_{it} + \epsilon_{it}$$

The dependent variable of the equation  $Y_{pit}$  denotes the vote share of party  $p^4$  in electoral district  $i$  at time  $t$  (2013 or 2017). The main independent variable  $T_{it}$  denotes the model's measure of trade exposure, as explained in more detail in the following sub section.  $X_{it}$  represents the model's set of control variables. These include the relative size of the manufacturing industry per district, the share of population in a district over the age of 60, the district's share of non-German citizens, the disposable household income per capita of that district, the relative amount of college educated graduates in the district, the unemployment rate of that district<sup>5</sup>, as well as, a dummy variable to indicate whether the district is part of the old German states (formerly west Germany) or the new states (formerly east Germany).

### 3.2.1 Measuring trade exposure

This thesis follows Dippel et al. (2017) who in turn follow Autor et al. (2013) and Dauth et al. (2012) in calculating trade exposure via import penetration using the following, slightly adjusted formula:

$$T_{it} = \sum_j \frac{L_{ijt}}{L_{jt}} \frac{IM_{Gjt} - EX_{Gjt}}{L_{it}}$$

---

<sup>4</sup> Although this thesis is primarily interested in the effects of trade exposure on the vote share of the AfD, the thesis' model set up allows it to gauge the impact on vote shares of all other relevant political parties in Germany, too, granting improved context for the interpretation of results.

<sup>5</sup> The author thought about not including unemployment as a control variable since unemployment, along with the wage level is one of the channels through which trade exposure can influence voting behavior. Still, he chose to follow existing literature and include the variable since it can be correlated to both trade exposure and voting behavior in several other ways outside the direct effect channel, too. Test regressions run without unemployment as control variable did not change the general direction or significance level of any effects.

For each district  $i$ , the size of that district's labor force in a specific trade-reliant sector  $j$  at time  $t$  is denoted by  $L_{ijt}$ . Dividing that measure by that sector's national labor force  $L_{jt}$  yields the national share of a district's industry sector. This measure is multiplied by the sector's national imports  $IM_{Gjt}$  minus its national exports  $EX_{Gjt}$ , representing that sector's overall import exposure, and divided by the district's overall labor force  $L_{it}$ . To arrive at the final measure of trade exposure for a district at a given time,  $T_{it}$ , the measured outcomes per sector are summed up across all trade reliant sectors for that district. In doing so, a measure of trade exposure is achieved that encompasses the relative import penetration of all a district's individual trade reliant sectors, with a sector receiving more weight if a district's national share in that sector is higher but less weight if that district's overall labor force is larger (Dippel et al., 2017).

A second set of regressions is run using the slightly adjusted treatment measure:

$$T_{it} = \sum_j \frac{L_{ijt}}{L_{jt}} \frac{\Delta IM_{Gjt} - \Delta EX_{Gjt}}{L_{it}}$$

The only difference to the first model is that in this form the equation does not measure the level of import penetration per sector at the time of an election but rather the change in import penetration for a sector in the period leading up to that election<sup>6</sup>. Rather than measuring how a district's relative exposure to trade influences its voting behavior, this model, therefore, shall measure how the relative trend in import exposure in a district impacts its voting behavior.

---

<sup>6</sup> Using trade with China as a proxy measure for general trade exposure to low-wage economies, current export and import data was only available up to the year 2016. As a consequence, trade exposure for districts for the 2013 election measure the net import penetration in the years 1998 till 2013 while the measure for districts in the 2017 election takes the net import penetration from 1998 till 2016.

### 3.2.2 Data collection

For the creation of this thesis' data set, a large number of individual data points from different sources have been harmonized and brought together. What follows is a brief summary of those individual data variables and their sources:

#### **Voting data:**

While the thesis' main goal is to examine the effects of trade exposure on support for right-wing and populist parties, the effects on voting for other established German parties is measured as well. Consequently, the thesis' data set contains the share of votes in the 2013 and 2017 general elections for the following parties: the CDU/CSU<sup>7</sup>, the SPD, the FDP, the Green Party, die Linke, the pirates, the NPD and the AfD. The voting data for those parties is taken from the office of the *Bundeswahlleiter* (Federal Returning Officer). Unlike Dippel et al. (2017), no other extremist right-wing fringe parties apart from the NPD are included, as such parties did not play any significant role anymore in the 2013 and 2017 elections or were not taking part in those elections altogether.

#### **Treatment data:**

The treatment measurement for import exposure is reliant on two major sets of variables. The employment numbers per district, per sector, as well as, the sectors' national import and export numbers. The employment numbers for each district at the time of the elections are taken from the German Federal Employment Agency, which registers the number of workers per district, paying into social insurance for any given sector. The sectors are divided according to the Federal Statistical Office's "Classification of Economic Activities, Edition 2008" (WZ 2008), which on the international level equate to the UN's "International Standard Industrial Classification of All Economic Activities" (ISIC). The Federal Employment Agency's numbers

---

<sup>7</sup> While the CDU and CSU are technically two separate parties, they do not compete in the same electoral districts and present a political unity in terms of federal governance. As such, CSU votes from the German state of Bavaria and CDU votes from the remaining German states can be treated as one combined vote count.

were provided on the Landkreis (county) level and were subsequently transformed into electoral district data by the thesis' author<sup>8</sup> The data set was left with a total of 586 observations across the two federal elections.

The national import and export data for each sector is taken from the OECD.Stat data set. Following Colatone and Stanig (2016), as well as, Autor et al. (2017) bilateral trade with China is used as a proxy indicator for general trade between Germany and other low-wage countries<sup>9</sup>. The numbers are taken for the years 1998, 2013 and 2016 and the sectors are divided according to the ISIC classification, making a seamless combination with the German employment numbers for each sector possible. The exact division of sectors and the corresponding import and export data for those sectors between Germany and China can be read in Table 1.

#### **Control variables:**

The relative size of the manufacturing industry for each district was calculated by adding up the number of workers paying into social insurance in each sector falling under the manufacturing label and measuring that sum against the district's overall labor force. Demographic variables, such as the population share per district over the age of 60, the population share of non-German citizens, as well as, the relative number of graduates per district were taken directly from the office of the *Bundeswahlleiter*, which in turn got the data from the respective Land Statistical Offices (state level statistics bureaus). The average disposable household income is also taken from the office of the *Bundeswahlleiter*, which got the data from the German national account systems. Unlike other variables that were specifically available for the time of 2013 and 2017, however, this measure was only available for the year 2014. The same 2014 number was therefore used as a variable for districts in both elections, making it not a precise measure but rather a proxy variable<sup>10</sup>. Finally, the

---

<sup>8</sup> For the most general case of several counties adding up to one electoral district the employment numbers were added up for those counties. For the rare cases in which several electoral districts added up to one county (big cities), an average of the county's employment numbers was taken corresponding to the number of electoral districts making up the county. Cases in which county borders and electoral district borders were not clearly matchable were dropped from the data set.

<sup>9</sup> Dippel et al. (2017) use both, trade with China and Eastern Europe. Unfortunately, this data was not available to this thesis' author at the right, sector separated level.

<sup>10</sup> Test regressions, run without the inclusion of this control variable showed no significant effect changes.

unemployment rate per district at the time of the 2013 and 2017 elections was also taken from the office of the Bundeswahlleiter, which received the data from the German Federal Employment Agency.

Table 1: German Imports from and Exports to China for Selected Years in US Dollar, Thousands:										
	1998		2013		2016		Net Trade 2013 (I- EX)	Net Trade 2016 (I- EX)	Difference Net Trade 13-98	Difference Net Trade 16-98
	Exports	Imports	Exports	Imports	Exports	Imports				
Total	6,655,144	13,020,861	89,317,191	100,313,473	85,350,436	105,289,753				
Products of agriculture and hunting	49,281	147,785	110,777	500,290	183,263	510,471	389,512	327,209	291,009	228,705
Products of forestry	29,001	1,385	60,731	5,817	71,847	3,989	-54,913	-67,857	-27,297	-40,242
Fish and products of fishing	937	1,223	45	2,678	10	3,600	2,633	3,590	2,348	3,305
Coal and lignite	0	1,025	0	3,075	0	3,119	3,075	3,119	2,050	2,094
Crude petroleum and natural gas	0	0	0	8	0	0	8	0	8	0
Metal ores	491	20,122	43,211	27,172	480	21,610	-16,039	21,129	-35,670	1,499
Other mining and quarrying products	3,334	77,485	52,085	211,743	27,233	131,082	159,659	103,849	85,507	29,698
Food products	71,659	455,715	981,479	1,620,143	1,561,044	1,512,610	638,664	-48,434	254,608	-432,490
Beverages	1,638	2,199	158,179	12,139	229,283	9,462	-146,040	-219,821	-146,602	-220,382
Tabacco products	34	6,443	3,156	29,383	1,856	29,590	26,227	27,735	19,818	21,326
Textiles	34,847	491,917	393,780	2,397,420	374,172	2,351,736	2,003,640	1,977,564	1,546,570	1,520,493
Wearing apparel	5,584	2,164,288	145,084	10,834,760	115,739	9,161,909	10,689,676	9,046,170	8,530,971	6,887,465
Leather and related products	4,140	871,463	82,239	4,408,031	103,361	4,338,525	4,325,792	4,235,163	3,458,468	3,367,840
Wood and of products of wood and cork, except furniture; articles of straw and plaiting materials	62,265	121,272	176,334	616,995	188,634	599,240	440,660	410,607	381,652	351,599
Paper and paper products	42,892	51,558	451,777	369,065	338,949	397,114	-82,712	58,164	-91,378	49,498
Coke and refined petroleum products	5,129	50,377	184,381	39,745	179,370	37,663	-144,636	-141,708	-189,884	-186,956
Chemicals and chemical products	326,127	457,317	5,354,057	3,720,139	5,451,100	4,251,033	-1,633,918	-1,200,068	-1,765,108	-1,331,257
Basic pharmaceutical products and pharmaceutical preparations	96,221	157,823	1,853,917	856,908	2,581,013	760,536	-997,009	-1,820,477	-1,058,611	-1,882,079
Rubber and plastic products	80,693	445,062	2,203,662	2,552,126	2,294,624	2,995,889	348,464	701,264	-15,905	336,896
Other non-metallic mineral products	75,288	219,474	689,390	1,408,172	720,358	1,412,578	718,782	692,221	574,596	548,036
Basic metals	214,484	231,438	2,629,052	1,424,089	1,688,772	1,376,153	-1,204,963	-312,619	-1,221,917	-329,573
Fabricated metal products, except machinery and equipment	172,722	657,159	2,554,360	4,385,686	2,754,958	4,727,090	1,831,327	1,972,132	1,346,890	1,487,695
Computer, electronic and optical products	924,832	2,608,979	8,721,220	34,359,651	9,460,795	38,065,192	25,638,431	28,604,398	23,954,284	26,920,250
Electrical equipment	488,832	1,457,239	8,179,694	11,046,552	8,612,197	12,581,506	2,866,859	3,969,308	1,898,452	3,000,901
Machinery and equipment n.e.c.	2,446,852	482,049	20,976,354	8,136,324	15,443,552	8,174,834	-12,840,030	-7,268,719	-10,875,228	-5,303,916
Motor vehicles, trailers and semi-trailers	831,499	45,060	24,682,547	1,401,408	23,385,164	1,778,279	-23,281,139	-21,606,885	-22,494,700	-20,820,446
Other transport equipment	368,686	156,418	4,188,310	2,438,447	5,429,184	1,879,985	-1,749,864	-3,549,199	-1,537,595	-3,336,931
Furniture	57,828	1,595,753	1,356,078	6,658,041	1,477,286	7,096,163	5,301,963	5,618,877	3,764,037	4,080,952

Source: OECD.Stat, accessed 04.2018 plus author's own calculations

### 3.3 Running the model

The author now runs a first, baseline, regression scenario, individually measuring the effect of trade exposure – treatment – on each political party in the data set, while controlling only for the relative size of the manufacturing industry per district. A district’s manufacturing share in employment is necessary as a minimum control for the regression as it inherently drives part of the variation in the treatment variable<sup>11</sup> (Dippel et al., 2017). The results of this first baseline scenario are summarized below<sup>12</sup>:

*Regression Table 1:*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	CDUCSU	SPD	FDP	dieLINKE	Green	Pirates	NPD	AfD
treatment	-0.0703 (-0.39)	-0.774*** (-4.01)	0.185 (1.83)	0.0696 (0.46)	0.149 (1.62)	-0.0421 (-1.60)	-0.0131 (-0.59)	0.338* (2.23)
sharemanuf-g	0.459*** (17.01)	-0.100*** (-3.43)	-0.0385* (-2.53)	-0.212*** (-9.26)	-0.146*** (-10.48)	-0.0139*** (-3.40)	0.00849* (2.47)	0.0118 (0.52)
_cons	23.29*** (26.89)	26.81*** (28.66)	8.764*** (17.98)	15.31*** (20.87)	12.96*** (29.05)	1.842*** (13.80)	0.609*** (5.48)	8.072*** (11.03)
N	586	586	586	586	586	544	574	586

t statistics in parentheses  
\* p<0.05, \*\* p<0.01, \*\*\* p<0.001

Each column in the regression table represents an individual regression, corresponding to the vote share of one political party. A first look already shows that in this least conservative scenario trade exposure via Chinese import penetration has a clear, and statistically significant, positive impact on the vote share of the AfD. Other parties are not significantly affected, except for the vote share of the SPD, which is negatively affected by the treatment variable at a very high statistical significance level with p<0.001.

<sup>11</sup> The concern here is that the measure of trade exposure is a composite effect of the relative importance of trade-intensive industries and the relative importance of manufacturing employment in a region.

<sup>12</sup> See Appendix B for a full index of all regression variables for this, as well as, all the other regressions of this paper and their corresponding definitions

Next, the same regression model is run, this time using the full set of control variables as described in detail in sub-section 3.2 of this thesis.

*Regression Table 2:*

	(1) CDUCSU	(2) SPD	(3) FDP	(4) dieLINKE	(5) Green	(6) Pirates	(7) NPD	(8) AfD
treatment	-0.307* (-2.07)	-0.574*** (-4.33)	0.163 (1.93)	0.144 (1.92)	0.172** (2.82)	-0.0362 (-1.53)	-0.00434 (-0.29)	0.299* (2.58)
sharemanuf-g	0.290*** (9.30)	-0.0159 (-0.57)	-0.0966*** (-5.44)	-0.0128 (-0.80)	-0.135*** (-10.49)	0.0128* (2.42)	0.0374*** (11.85)	-0.0791** (-3.25)
shareover60	-1.060*** (-9.04)	0.235* (2.25)	0.509*** (7.63)	-0.382*** (-6.40)	-0.280*** (-5.80)	-0.182*** (-9.07)	-0.0932*** (-7.84)	1.194*** (13.04)
shareforeign	-0.595*** (-9.59)	-0.240*** (-4.34)	0.260*** (7.38)	-0.0810* (-2.57)	0.201*** (7.90)	-0.0373*** (-3.64)	-0.0430*** (-6.64)	0.419*** (8.67)
income	0.000904*** (6.00)	0.0000733 (0.54)	0.000128 (1.49)	-0.000248** (-3.24)	0.0000276 (0.45)	0.000115*** (4.70)	0.0000406** (2.62)	-0.000827*** (-7.03)
graduates	1.022*** (6.00)	0.688*** (4.52)	-0.165 (-1.70)	-0.993*** (-11.46)	-0.269*** (-3.84)	0.0332 (1.16)	-0.0849*** (-4.88)	-0.283* (-2.12)
dummyeast	5.805*** (4.80)	-13.97*** (-12.95)	-2.185** (-3.18)	6.616*** (10.77)	-2.190*** (-4.41)	0.712** (3.30)	0.734*** (5.91)	3.549*** (3.76)
unemployme~e	-0.00715 (-0.05)	1.781*** (14.21)	-0.596*** (-7.47)	0.542*** (7.59)	-0.418*** (-7.24)	0.223*** (9.69)	0.173*** (12.24)	-1.285*** (-11.73)
_cons	32.45*** (6.30)	2.049 (0.45)	-2.546 (-0.87)	31.39*** (12.00)	23.53*** (11.12)	1.987* (2.35)	1.464** (2.74)	2.548 (0.63)
N	586	586	586	586	586	544	574	586

t statistics in parentheses  
\* p<0.05, \*\* p<0.01, \*\*\* p<0.001

Again, each column of the regression table represents individual regressions, run for each of the data set’s political parties. The impact of treatment on the AfD vote share remains positive and statistically significant with the size of the effect decreasing minimally compared to the model without control variables but the significance of the effect increasing slightly. This confirms the author’s original hypothesis that districts, which are more exposed to trade, as measured via Chinese import penetration, tend to vote more for the right-wing populist party AfD.

Specifically, the model predicts that an incremental increase of one, in the model’s import penetration measure for a district, will lead to an average increase of the AfD vote share of

just about 0.3 percentage points in that district<sup>13</sup>. Interestingly, while none of the other party's effect trends (negative/positive) have changed from the baseline scenario, the inclusion of the model's control variables has led several results to become statistically significant, too. The SPD's vote share remains negatively affected by the treatment variable at a high statistical significance level. In addition, the CDU/CSU's share of the votes is now also negatively affected at a significant level, while the green party's share is now significantly positively affected. The thesis will go into a more in-depth interpretation of these results in the next chapter after having first run the remainder of scenarios in this chapter.

Next, the author is interested in exploring how the past trend in trade exposure of a district affected its voting behavior in the 2013 and 2017 elections. For this analysis, the same regression scenarios as before are run, only this time using *treatmenttrend* instead of the model's original *treatment* variable as the main independent variable. Whereas the original *treatment* variable measured a district's relative exposure to Chinese import penetration at the time of an election, *treatmenttrend* measures the net change in a district's relative Chinese import penetration in the timeframe from 1998 leading up to the elections. The exact calculation of both the original *treatment* variable and the *treatmenttrend* variable are explained in sub-section 3.2.1 of this thesis.

---

<sup>13</sup> Seeing as the treatment variable of this and other regressions in this paper is a compound calculation of various combined factors, the exact numerical vote share impact is somewhat abstract. As such this thesis is primarily interested in the general tendency and significance of such an impact, as well, as its relative size compared to the treatment's impact on other parties' vote shares.

**Regression Table 3:**

	(1) CDUCSU	(2) SPD	(3) FDP	(4) dieLINKE	(5) Green	(6) Pirates	(7) NPD	(8) AfD
treatment~nd	-0.152 (-0.76)	-0.895*** (-4.17)	0.235* (2.10)	0.118 (0.70)	0.165 (1.61)	-0.0513 (-1.75)	-0.0144 (-0.59)	0.427* (2.54)
sharemanuf-g	0.460*** (17.07)	-0.105*** (-3.62)	-0.0375* (-2.48)	-0.212*** (-9.29)	-0.145*** (-10.44)	-0.0142*** (-3.48)	0.00840* (2.45)	0.0137 (0.60)
_cons	23.31*** (26.90)	26.84*** (28.71)	8.754*** (17.97)	15.30*** (20.86)	12.96*** (29.04)	1.844*** (13.82)	0.609*** (5.48)	8.054*** (11.02)
N	586	586	586	586	586	544	574	586

t statistics in parentheses

\* p<0.05, \*\* p<0.01, \*\*\* p<0.001

**Regression Table 4:**

	(1) CDUCSU	(2) SPD	(3) FDP	(4) dieLINKE	(5) Green	(6) Pirates	(7) NPD	(8) AfD
treatment~nd	-0.388* (-2.35)	-0.658*** (-4.46)	0.215* (2.29)	0.163 (1.94)	0.204** (3.00)	-0.0463 (-1.75)	-0.00912 (-0.55)	0.365** (2.84)
sharemanuf-g	0.288*** (9.24)	-0.0192 (-0.69)	-0.0955*** (-5.38)	-0.0119 (-0.75)	-0.134*** (-10.42)	0.0126* (2.38)	0.0373*** (11.83)	-0.0773** (-3.17)
shareover60	-1.059*** (-9.04)	0.237* (2.27)	0.508*** (7.63)	-0.382*** (-6.41)	-0.280*** (-5.81)	-0.182*** (-9.07)	-0.0932*** (-7.83)	1.193*** (13.04)
shareforeign	-0.594*** (-9.60)	-0.239*** (-4.33)	0.260*** (7.39)	-0.0812* (-2.58)	0.201*** (7.89)	-0.0372*** (-3.64)	-0.0430*** (-6.65)	0.419*** (8.67)
income	0.000909*** (6.04)	0.0000773 (0.58)	0.000125 (1.46)	-0.000249** (-3.25)	0.0000260 (0.42)	0.000116*** (4.72)	0.0000409** (2.64)	-0.000831*** (-7.07)
graduates	1.024*** (6.02)	0.687*** (4.52)	-0.167 (-1.72)	-0.993*** (-11.46)	-0.269*** (-3.85)	0.0335 (1.17)	-0.0846*** (-4.87)	-0.283* (-2.13)
dummyeast	5.840*** (4.84)	-13.94*** (-12.94)	-2.210** (-3.22)	6.612*** (10.76)	-2.201*** (-4.43)	0.718*** (3.33)	0.737*** (5.94)	3.522*** (3.74)
unemploye-e	-0.00640 (-0.05)	1.784*** (14.25)	-0.597*** (-7.48)	0.541*** (7.58)	-0.419*** (-7.26)	0.223*** (9.70)	0.173*** (12.24)	-1.286*** (-11.75)
_cons	32.31*** (6.28)	1.904 (0.41)	-2.457 (-0.84)	31.43*** (12.00)	23.59*** (11.15)	1.969* (2.33)	1.454** (2.72)	2.661 (0.66)
N	586	586	586	586	586	544	574	586

t statistics in parentheses

\* p<0.05, \*\* p<0.01, \*\*\* p<0.001

The results of the two trend scenarios, for the most part, reflect the results of the original two scenarios. The effect of trade exposure on AfD voting remains positive and significant in both, the trend baseline scenario, controlling only for a district's relative manufacturing employment, as well as, for the more conservative trend scenario including the full set of control variables. Similarly, the effect on SPD voting remains negative and highly statistically significant in both regression tables, while the effects on CDU/CSU voting and green party

voting remain significant, negative and positive respectively, in the more conservative regression model. The only real difference compared to the first treatment analysis is the effect of trade exposure on the FDP vote share, which, while remaining positive like in the first two scenarios, is now statistically significant as well.

### 3.4 Interpreting the results

Across all regression scenarios run, the effect of the *treatment* and *treatmenttrend* variable on the AfD vote share has been positive and statistically significant at the 0.05 (and in one case 0.01) level. This confirms the author's original hypothesis that districts, which are more exposed to trade via Chinese import penetration will tend to have increased support for a successful, radical right-wing, populist party like the AfD. This was true, both, when considering the relative exposure to import penetration of a district at the time of an election, as well, as when considering the net change in such exposure in the years leading up to an election. At the same time, the vote share for a traditional right-wing party like the NPD was not significantly affected by the model's measure of trade exposure. This differs from the results found by Dippel et al.'s 2017 study, which's data set did not yet include the AfD. The logical conclusion of this is that the AfD has successfully captured the far-right anti-trade and anti-globalization sentiments during the 2013 and 2017 elections, which previously drove voters to the NPD.

Unlike Dippel et al.'s model (2017), this thesis' model does also affect the vote shares of other parties outside the far-right end of the political spectrum on a statistically significant level. An overall interpretation of why the analysis is producing a greater number of statistically significant effects might be that the topic of trade and globalization has become an overall more important factor in a voter's choice of which party to vote for in the past two German national elections. This theory is supported by the general rise of anti-globalization sentiments across Europe over the past years, as well as, the very public general debates about globalization in Germany surrounding the euro crisis, the European migrant crisis, the negotiations of several large scale free trade agreements, as well as external events such as the Brexit referendum. As trade and globalization become a more important part of public

debate it would make sense to assume that trade exposure would also affect more peoples' voting behavior. As more voters change their voting behavior due to the trade exposure in their district, it would similarly make sense to assume that this extended voter share also affects the vote share of more parties across the political spectrum, resulting in more statistically significant results in this thesis' analysis. At the same time, with the formation of the AfD as a successful anti-globalization populist party, German voters with an anti-globalization sentiment now suddenly have an actual alternative to the established parties, short of the extremist right and outright neo-Nazi parties like the NPD. Consequently, it makes sense that more voters let their feelings on trade and import penetration affect their actual voting behavior, including significant shares of voters who previously voted for established German parties.

Looking at the individual, significant party effects, apart from the far-right populist effect, allows for further careful interpretation. Most notable is the strongly negative effect import penetration has on the SPD vote, which is statistically highly significant at a 0.001 level across all four regression scenarios. This effect makes intuitively sense, considering the author's previous thinking. As trade becomes a more important issue to general voters and a viable anti-globalization party alternative is presented through the AfD, more voters will change their voting decision based on their districts experience with trade exposure. As detailed in section 1 of this thesis, a higher import penetration specifically, negatively affects low-skilled manufacturing workers. This is also shown in the individual level data analysis of Dippel et al.'s 2017 study. As the SPD represents Germany's labor party, it would make sense that their vote share is most negatively affected by unhappy workers experiencing, or fearing, the negative effects of import penetration from low-wage countries such as China. The SPD along with the CDU/CSU has also been the governing party prior to the 2017 election, which might additionally have directed trade-frustrated voters to turn away from them as Jensen et al. (2016) have shown that voters affected by import penetration tend to vote against the incumbent's party. The same effect would also explain the negative effect, trade exposure has on the CDU/CSU vote share in the two more conservative regression models run in the previous section of this thesis. The CDU/CSU has been the governing party in Germany prior to, and after, both the 2013 and 2017 national elections. As more and more import fearing voters turn to an anti-globalization party such as the AfD it is reasonable to assume that a significant part of those voters stems from previous CDU/CSU voters who reject the current

government's stance on trade and globalization and have now found their outlet in the newly established AfD.

Far less intuitive to explain is the statistically significant positive effect trade exposure has on the green party's vote share in the two more conservative regression scenarios, which included the full set of control variables. The German green party is fundamentally not against globalization or foreign trade, though they do generally advocate a more sustainable and people-friendly form of globalization. Within the German political spectrum, the green party classically finds itself on the moderate left on most issues, close to the SPD but not as far to the left as *die Linke*. It is a bit curious then that such a party should catch a significant part of those voters specifically changing their voting behavior due to the effects and fears of higher import penetration. One possible explanation could be found in the very strong position the green party has taken in Germany against the negotiations of FTAs such as TTIP, CETA or the EU-Japan deal in the years leading up to the 2017 federal elections. While the green party is explicitly not against free trade as such, they were highly vocal in rejecting the way in which such agreements were negotiated, and against the, according to them, loose regulations of FTAs, which would put company interests before those of real people (statement from the green party website, 2016). As such, it is conceivable that as the strongest non-right opposition party, openly voicing strong concerns about current trade practices, the green party attracted those people changing their voting behavior due to trade fears, who did nonetheless not want to vote for a right-wing party like the AfD. The size of the positive effect, trade exposure had on voting throughout the various regression models was roughly twice as big for the AfD than it was for the green party.

To test this theory, the author is running a new regression with the original treatment variable, just for the green party, this time individually for both the 2013 and 2017 elections: The regression model's sample size consequently is reduced 296 and 290 respectively:

*Regression Table 5:*

	(1) Green13	(2) Green17
treatment	0.118 (1.60)	0.245* (2.43)
sharemanuf~g	-0.139*** (-8.44)	-0.158*** (-6.89)
shareover60	-0.195** (-2.77)	-0.258** (-3.04)
shareforeign	0.219*** (6.62)	0.220*** (4.99)
income	-0.0000946 (-1.13)	0.0000708 (0.73)
graduates	-0.238** (-2.73)	-0.172 (-1.22)
dummyeast	-2.647*** (-3.82)	-1.452* (-1.97)
unemploye~e	-0.380*** (-4.70)	-0.613*** (-5.71)
_cons	23.41*** (8.37)	22.47*** (6.91)
N	296	290

t statistics in parentheses

\* p<0.05, \*\* p<0.01, \*\*\* p<0.001

Indeed, the results show, that while the effect of trade exposure on vote share remains positive for the green party in both elections, only the 2017 effect is statistically significant. The size of the effect is larger for the 2017 elections, too, compared to 2013. This suggests that, indeed, the green party managed to attract districts' trade-frustrated voters particularly in the 2017 election, quite possible due to its strong rejection of trade agreement negotiation leading up to the election. Even though the party fundamentally does not oppose free trade. The author realizes, however, that without further analysis this remains a somewhat speculative interpretation of the results. More research and in-depth analysis is definitely needed in this regard.

Finally, there is also something to be learnt by looking at the effect-coefficients, the control variables have on the dependent variable. Analyzing the coefficients for the AfD vote share offers an intriguing insight into how other factors played into the populist party's 2013 and 2017 election results. Specifically, it can be observed that districts with a higher share of people above the age of 60 tended to have increased support for the party, as did districts with a higher share of foreign born citizens. A higher household income had a negative impact on a district's AfD vote share. A relatively higher number of graduates, or a higher unemployment rate in a district, similarly affected AfD support negatively. A study by the German Institute for Economic Research, conducted in 2018, ran regressions examining the impact of similar variables on the AfD support across Germany, specifically for the 2017 federal elections, and produced identical findings (Franz, Fratzscher & Kritikos, 2018).

### 3.5 Limitations

As previously stated, this thesis only takes a small part of the analysis conducted by Dippel et al. in their 2017 study and extends that part to a more current time frame and data set. This is mainly due to the format of this thesis, a general limitation of time and labor power that could be invested in this work and admittedly a lack of deeper statistical expertise on behalf of this thesis' author. As such, the analysis and findings of this work naturally are subject to a set of caveats.

For one, this thesis's analysis' claim to causality is significantly weaker than that of Dippel et al. (2017), since it does not apply an IV approach in its regression models. While the analysis clearly shows that districts with higher levels of import penetration show a significantly higher support for the AfD party during national elections, it can therefore not be said with absolute certainty that such increased AfD support is necessarily directly caused by that districts higher level of import penetration. The inclusion of strong control variables, that can then be ruled out as an external cause for both phenomena, helps with this problem. Still, control variables do not solve the problem completely as there is always the chance of some omitted variable influencing both dependent and independent variable that has not been considered in the

control variables<sup>14</sup>. Similarly, this thesis' model relies on a pooled data set, not estimating within effects by adding fixed period effects. As such there exists the possibility omitted time-invariant covariates, presenting a further potential thread to the model's causal claim.

The reduction of Dippel et al.'s model to the here presented form also means that not many empirical interpretations can be made, exactly through which channels the found effect of import penetration on far-right populist voting works. While it is reasonable to assume that Dippel et al.'s findings on the interaction between trade exposure, the labor market and final voting outcomes, hold true for this thesis' findings, too, this is by no means guaranteed. Finally, a more complex model and in-depth analysis might also grant a better empirical understanding of this thesis' findings regarding the effects of trade exposure on party vote shares apart from the AfD, most notably the positive effect the trade exposure measure has on the green party's voting outcomes.

For all those reasons, this thesis should not be viewed as a definitive empirical statement on how trade has impacted German voting behavior over the past decade. Rather, it should be seen as a careful first exploration of this question. Taking Dippel et al.'s model in part and applying it to a new German data set, as done in this thesis, should give us a first understanding of the nature of this empirical relationship. At the same time, it opens the door to a whole series of follow-up analyses, using data from the current German political environment.

## Outlook and Conclusion

The past decade has seen a steady rise of mainstream populism across the political landscapes of many western societies. One common theme along these movements seems to be a rejection of, or at least significant skepticism of, economic globalization and a propensity for protectionist thinking. Political events like the U.K.'s referendum to leave the EU, the "America first" agenda led by U.S. president Donald Trump or the electoral successes of many European anti-Europe parties reflect these sentiments. The election of the AfD as the third strongest

---

<sup>14</sup> The potential problem of reverse causality, that might similarly undermine a regression's claim to causality can be safely ruled out in this instance, as there is no plausible channel through which increased AfD support in a district could increase that district industry's level of import penetration.

party to the German parliament during the 2017 federal elections shows, that this trend is as real for one of the most globally interconnected economy, as it is for traditionally more Europe-skeptical countries like the United Kingdom.

This thesis set out to examine the causal effect, trade exposure, in the form of low-wage import penetration, had on the German voting behavior. For that, a new data set was created to analyze the results of the 2013 and 2017 German federal elections. The author's original hypothesis was that electoral districts in Germany that were more exposed to import penetration would show a greater propensity to vote for the anti-globalization AfD party. This hypothesis was confirmed by the thesis' various linear regression models. At the same time, the positive effect of trade exposure on vote shares of traditional German right-wing parties like the NPD, as found in previous studies, examining data prior to the foundation of the AfD, could not be confirmed anymore. This suggests that the AfD successfully managed to catch the German voter share frustrated by, or fearing, the potentially negative impacts of economic globalization, stealing those voters from, among others, the NPD. The party most negatively impacted by the effects of import penetration, though, was the SPD, which lost significant parts of its vote share in districts with higher exposure in every regression scenario run.

A look at the underlying theory of economic globalization and trade exposure leads the author to conclude that the effects of import penetration on voting behavior observed in the data are primarily due to the effects, imports from low-wage economies can have on the local labor markets. As Germany specializes more in the production of capital-intensive goods and imports more labor-intensive goods from labor-abundant, low-wage economies like China, local demand for low-skilled labor decreases, leading to lower wages and higher unemployment rates in those sectors. The effect of both trade exposure on the labor markets and trade exposure on voting behavior was shown to be well documented in academic literature, outside of Germany in the cases of Brexit and U.S. presidential elections, as well as, in Germany prior to 2009. By extending German data analysis past the 2009 threshold, the author hopes to have contributed a first exploratory step in the study of this effect in Germany in light of the recent rise of main stream populism in the political form of the AfD.

Still, this thesis has only examined this relationship on a most basic empirical level and a lot of academic study remains to be done in this field. One important first next step would be to combine the data analysis of the here constructed new German data set with a classic IV

regression approach to add a strengthened claim of causality to the findings of that analysis. An extension of the data set by additional, significant control variables would similarly help to strengthen the model's overall validity. Finally, it is important to remember that this thesis only examined the negative side of trade exposure, by looking specifically at the impacts of low-wage import penetration in Germany. Germany does, after all, boast a significant trade surplus and so it does stand to reason that more electoral districts in Germany profit from the positive and job-creating effects of export exposure, than suffer from the negative impact of import penetration. A cynical mind might theorize, that people are more easily influenced in their behavior by negative impacts, while taking positive effects for granted, leading to the electoral success of an anti-globalization party in Germany despite the absolute and relatively very high level of welfare. To prove such theories, however, a thorough empirical analysis of both the effects of import penetration, as well as the effects of export exposure on German voting behavior with fresh data would be needed.

## Bibliography

- Autor, D., D. Dorn, and G. Hanson (2013). *The China Syndrome: Local Labor Market Effects of Import Competition in the United States*. American Economic Review Vol. 103, No. 6. 2013
- Autor, D., D. Dorn, G. Hanson and K. Majlesi. *Importing Political Polarization? The Electoral Consequences of Rising Trade Exposure*. NBER Working Paper No. 22637. 2016 revised 2017
- Berning, C.C. *Alternative für Deutschland (AfD) – Germany’s New Radical Right-Wing Populist Party*. Ifo DICE Report 4/2017. 2017
- Böhmer, M. et al. *Globalization Report 2016*. Bertelsmann Stiftung. 2016
- Bluth, C. *A Safety Net to Foster Support for Trade and Globalization – International Survey on Attitudes towards Trade and Globalization 2018*. Bertelsmann Stiftung. 2018
- Colantone, I. and P. Stanig. *Global Competition and Brexit*. BAFFI CAREFIN Centre Research Paper Series No. 2016- 44. 2016
- Dauth, W., S. Findeisen and J. Suedekum. *The Rise of the East and the Far East: German Labor Markets and Trade Integration*. IZA Discussion Paper No. 6685. 2012
- Dauth, W., S. Findeisen and J. Suedekum. *Trade and Manufacturing Jobs in Germany*. DICE Discussion Paper No. 242. 2017
- Destatis. *Deutscher Außenhandel - Export und Import im Zeichen der Globalisierung, Ausgabe 2017*. Destatis. 2017
- Dippel, C., R. Gold, S. Hebllich and R. Pinto. *Instrumental Variables and Causal Mechanisms: Unpacking the Effect of Trade on Workers and Voters*. CESifo Working Paper No. 6816. 2017
- Franz, C., M. Fratzscher and A.S. Kritikos. *DIW Wochenbericht 8/2018*. 2018
- Green Party (2016). *Statement on free trade from the green party’s website*: <https://www.gruene-bundestag.de/freihandel.html> (accessed April 2018)
- International Monetary Fund (2002). *Globalization: Threat or Opportunity?* From the IMF website: <https://www.imf.org/external/np/exr/ib/2000/041200to.htm> (accessed April 2018)
- Jensen, J.B., D.P. Quinn and S. Weymouth. *Winners and Losers in International Trade: The Effects on U.S. Presidential Voting*. NBER Working Paper No. 21899. 2016
- Petersen, T. *Economic Globalization Under Pressure – Why People in Industrial Nations Are Increasingly Critical of Globalization*. A Closer Look at Globalization, Background Paper Trilogue Salzburg 2017. 2017
- Ronge, M. *Effects of international trade for the manufacturing sector*. Bertelsmann Stiftung. 2016

## Appendix A

Regression of trade exposure on AfD vote share for 2013 and 2017 elections:

Source	SS	df	MS	Number of obs =	586
Model	7835.66777	8	979.458472	F( 8, 577) =	55.67
Residual	10151.1384	577	17.5929609	Prob > F =	0.0000
Total	17986.8062	585	30.7466773	R-squared =	0.4356
				Adj R-squared =	0.4278
				Root MSE =	4.1944

AfD	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
treatment	.2990423	.1157424	2.58	0.010	.0717145	.5263701
sharemanufacturing	-.0791037	.0243701	-3.25	0.001	-.1269685	-.0312389
shareover60	1.19394	.0915491	13.04	0.000	1.01413	1.37375
shareforeign	.4194083	.0483768	8.67	0.000	.3243922	.5144243
income	-.0008271	.0001176	-7.03	0.000	-.0010581	-.0005961
graduates	-.2825115	.1330446	-2.12	0.034	-.5438223	-.0212007
dummyeast	3.548673	.9429521	3.76	0.000	1.696636	5.40071
unemploymentrate	-1.28454	.1095546	-11.73	0.000	-1.499715	-1.069366
_cons	2.54834	4.018156	0.63	0.526	-5.343655	10.44034

Regression of net change in trade exposure on AfD vote share for 2013 and 2017 elections:

Source	SS	df	MS	Number of obs =	586
Model	7859.29809	8	982.412261	F( 8, 577) =	55.97
Residual	10127.5081	577	17.5520071	Prob > F =	0.0000
Total	17986.8062	585	30.7466773	R-squared =	0.4369
				Adj R-squared =	0.4291
				Root MSE =	4.1895

AfD	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
treatmenttrend	.3649975	.1287461	2.84	0.005	.1121293	.6178657
sharemanufacturing	-.0772571	.0243527	-3.17	0.002	-.1250879	-.0294263
shareover60	1.192773	.0914465	13.04	0.000	1.013164	1.372381
shareforeign	.4190744	.0483155	8.67	0.000	.3241788	.5139701
income	-.0008305	.0001175	-7.07	0.000	-.0010613	-.0005997
graduates	-.2834745	.1328492	-2.13	0.033	-.5444014	-.0225476
dummyeast	3.521854	.9420657	3.74	0.000	1.671558	5.37215
unemploymentrate	-1.28556	.1094064	-11.75	0.000	-1.500444	-1.070677
_cons	2.660861	4.014637	0.66	0.508	-5.224223	10.54595

## Appendix B

### **Index and definitions for all independent regression variables used in this paper:**

**Treatment** – The relative measure of a district’s trade exposure at the time of an election, as calculated on page 15 and 16 of this paper

**Treatment-nd** – The net change in a district’s relative trade exposure between the years 1998 and the year of an election

**Sharemanuf-g** – The relative size of the manufacturing industry for each district

**Shareover60** – Population share within a district over the age of 60

**Shareforeign** – Population share within a district of non-German citizens

**Income** – Average disposable household income of a district (year 2014)

**Graduates** – Higher education graduates per 1000 in an election year

**Dummyeast** – Dummy variable indicating whether a district lies within the former East-German states (1) or West-German states (0)

**Unemploye-e** – Unemployment rate per district at the time of elections





### **Address | Contact**

Bertelsmann Stiftung  
Carl-Bertelsmann-Straße 256  
33311 Gütersloh  
Phone +49 5241 81-0

**GED-Team**  
Program Megatrends  
Phone +49 5241 81-81353  
[ged@bertelsmann-stiftung.de](mailto:ged@bertelsmann-stiftung.de)  
[www.ged-project.de](http://www.ged-project.de)

[www.bertelsmann-stiftung.de](http://www.bertelsmann-stiftung.de)