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## Does the Rise of China Lead to the Fall of European Welfare States?

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# Does the Rise of China Lead to the Fall of European Welfare States?

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## ABSTRACT

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# Does the Rise of China Lead to the Fall of European Welfare States?\*

Have recent trends in globalization changed the positive link between trade openness and social insurance? The consensus view - that voters want better social insurance against income loss the more open the economy - is seemingly contested by the rise of populism and the China shock. We present a theoretical framework of risk and income effects of globalization that captures the conventional view, but also shows when it will be modified: When the income effect is negative, the political support for social insurance can decline in spite of the risk effect. We construct an empirical measure of welfare state support across European regions and leverage the rapid integration of China into the world economy to show that higher import competition reduces the support for social insurance. Consistent with our framework, we decompose the overall effect of the shock into a (weak) positive risk effect and a (strong) negative income effect.

**JEL Classification:** J21, J23, H35, H55, F16, F6

**Keywords:** regional labor demand, welfare state support, social insurance, China shock, trade exposure

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## 1 Introduction

After the integration of China into the world economy many countries have rolled back the generosity of the welfare state (Busemeyer 2009). For instance, average generosity of unemployment insurance in the eleven European countries that we study in this paper has declined during the period 2000 to 2011 (Scruggs, Jahn, and Kuitto 2017).<sup>1</sup> The traditional view, however, is that trade openness fuels the generosity of the welfare state (Cameron 1978; Katzenstein 1985; Garrett 1998; Rodrik 1998). Has the association between trade exposure and support for the welfare state changed?

Voters demand compensation for the income volatility associated with trade openness. In the so-called embedded liberalism literature (Ruggie 1982), the combination of trade openness and welfare state generosity is conceived as a stable compromise between winners and losers from trade exposure.<sup>2</sup> Yet, accelerating globalization has lead some researchers to question the stability of the compromise, and this development has been linked to the rise of right-wing populism (Colantone and Stanig 2018) and to Brexit (Fetzer 2019).

We suggest a new interpretation of the link between globalization and welfare state support that focuses on an income effect *in addition* to the traditional risk effect. Globalization means that workers involved in export-lead activities are likely to receive higher incomes, while workers involved in import-exposed activities are likely to receive lower incomes. Since a group's income can rise or fall with globalization, one essential question is how each change manifests itself in the support for welfare policies. We claim that a reduction in income weakens the exposed voters' political demand for social insurance, even though a higher risk of income losses, for given incomes, would raise it.

We address these issues theoretically and empirically, first within a social insurance model of welfare spending (see e.g. Barth and Moene 2016; Moene and Wallerstein 2001, for applications of this framework in other settings). Our simple model highlights both the income effect and the risk effect of international exposure. The risk effect, in our framework, can be viewed as the direct effect of working under more globalized conditions.

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<sup>1</sup>The eleven countries are: Austria, Belgium, France, Germany, Italy, Netherlands, Norway, Portugal, Spain, Sweden, United Kingdom.

<sup>2</sup>See Hays, Ehrlich, and Peinhardt (2005) for an empirical test.

It is essentially the effect discussed by Rodrik (1998) and others, capturing the idea that higher risk of income loss raises the political demand for social insurance, either out of self-interest or out of solidarity towards the less fortunate.

The indirect income effect, in contrast, captures the willingness to pay the perceived individual burden to finance social protection with the incomes one receives under globalization. We argue that the generosity of the welfare state is a normal good in the sense that the political demand for a more generous arrangement goes up with the income of the group, all else being the same. If this is right, tax financed social insurance can become politically less attractive for voters who experience a drop in incomes. Certain regions are more exposed to international competition and become more adversely affected than other regions. In our empirical framework, we measure the income effect as an indirect effect of trade, going through the demand for labor in the manufacturing sector. Changes in manufacturing employment leads to income changes for workers in the region, with subsequent changes in the political demand for welfare.

Combined, the risk effect and the income effect sum up to the total effect of trade exposure. Much of the current empirical literature, in contrast, interpret the estimated links between trade exposure and welfare support as a basic risk effect of income volatility (Rodrik 1998). The empirical studies by Iversen and Soskice (2001), Rehm (2009) and Walter (2010) show that labor market risks and employment in industries exposed to trade (Walter 2010, 2017) are correlated with pro-welfare state preferences.<sup>3</sup> The emphasis on labor market risk is important enough, but it needs to be seen in the light of changes in incomes as well. We argue that the indirect income effect might dominate the direct risk effect in times of rapid globalization, especially in regions that are particular exposed to import competition. In this way, our approach can provide an explanation for the co-existence of globalization and welfare state retrenchment that is complementary to i) “second dimension”-issues such as nationalism or social identities explored by Shayo (2009) and ii) the emphasis of the constraining effects of globalization on taxation,

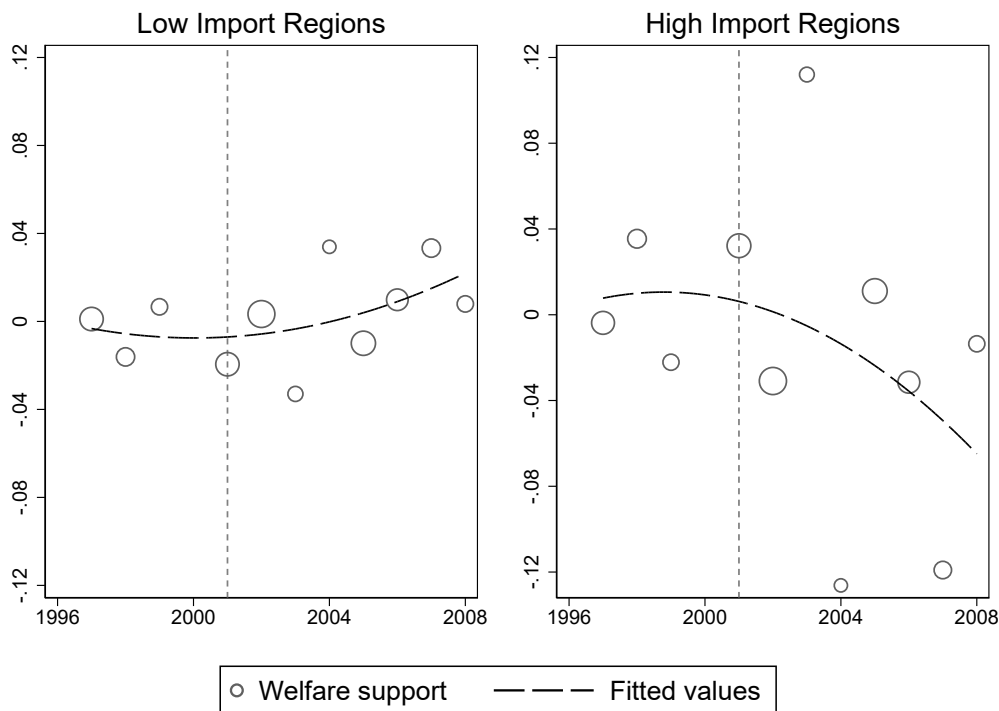
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<sup>3</sup>Support for the compensatory response is much weaker in studies of party choice. Walter (2010) finds that Swiss voters exposed to trade or offshoring are more likely to vote for the Social Democrats, but a more frequent finding is that voters tend to punish incumbent parties for negative trade shocks (Jensen, Quinn, and Weymouth 2017; Margalit 2011).

explored by Egger, Nigai, and Strecker (2019) and earlier on by Garrett (1998).

Guided by our theoretical discussion, we estimate both the risk and income effects of trade exposure on welfare state support as manifested by the vote shares of pro-welfare political parties. We use a sample of more than 150 labor market regions from eleven European countries, spanning the years 1996 to 2008. Being less interested in what people say, but more in what they vote for, we follow Colantone and Stanig (2018) and use regional vote shares and party positions to derive local measures of voter support for the welfare state. Our measure therefore varies with party positions and with actual vote shares, and captures to what extent voters vote for parties that run on welfare state friendly platforms.<sup>4</sup>

Figure 1: Average Welfare State Support by Election Year. Low- and High-import exposed regions. Difference from election mean.



*Note:* Average levels of welfare state support by election year and import exposure. Import exposure is grouped with a cut-off at the 80th percentile by country of average trade exposure by regions; High="top 20", Low= Remaining regions. Welfare support is measured as the difference from country mean in each election. The size of the circles represents the number of regions within each group in each election.

<sup>4</sup>Vote shares rather than surveys are particularly relevant in our case. The European Social Survey (ESS), for instance, has a too small sample size to break it down regionally, and the repeated surveys do not include questions on social insurance, but only on income redistribution.

We leverage the rapid integration of China into the world economy to identify plausibly exogenous variation in trade exposure. To motivate this approach, Figure 1 illustrates how voters' welfare state support has taken a hit during the 2000's precisely in regions that are the most exposed to import competition from China. The figure shows the development of welfare support in election years in the top 20 percent of regions within each country in terms of exposure to import competition, compared to the development of welfare support in the remaining 80 percent of regions. Both are measured as differences from the country specific mean in the same election year. While the less exposed regions display a somewhat increasing pattern after 2001, the import competing regions display a clear decline in relative welfare support after 2001. This is a pattern of polarization that strongly suggests that trade has been a key factor behind the recent developments in regional disparities in voter behavior. Our main goal in this paper is to unpack the mechanisms behind these differential developments and to relate them to the underlying income and risk effects of globalization.

To do so, we follow the shift-share approach of Autor, Dorn, and Hanson (2013) and measure exposure to China based on initial employment compositions, instrumenting actual imports to Europe by trade flows going from China to other rich countries. This provides us with a reduced form estimate of the impact on the welfare support in different regions of increased trade with China. Next we decompose the overall effect of trade exposure on welfare state support into an indirect effect through changes in regional manufacturing employment, which we interpret as an income effect, and a direct effect of trade, which we interpret as a risk effect, utilizing the mediator approach of Dippel, Ferrara, and Heblich (2020).

Consistent with our theoretical argument, we find that support for welfare expansion decreases in regions that experience manufacturing employment decline due to import competition. The result is a polarization of voters across regions. The effect, which we interpret as an income effect from realized income losses, is statistically and politically important. Our estimates of the direct risk effect is positive, as suggested by the theoretical discussion, but imprecisely estimated.



We furthermore find that the indirect income effect of export exposure goes in the opposite direction of import exposure, reflecting that exports have a positive effect on manufacturing employment. Finally, we show that we get negative income effects when we study a proxy for demand for redistribution, which supports the claim that welfare state expansion is driven by an insurance logic rather than a redistribution logic (Baldwin 1990).

The rest of the paper is structured as follows. Section 2 provides our simple model of how globalization can effect vote shares of pro-welfare parties; Section 3 lays out the data and key variables for the empirical analysis; Section 4 discusses the empirical approach and how we identify the effects; Section 5 provides the main results; and Section 6 offers some concluding remarks.

## 2 Theoretical framework

In this section we make the individual risk effect and the income effect distinct in a simple model of the welfare state, where individual incomes, risks and attitudes are distributed over groups of people. We identify groups as local regions that can be hit by different globalization shocks.

### Basics

The welfare state provides health care, social care, and social insurance, simply called social provisions. The vulnerability of a group of citizens reflects their need for social provisions.

In region  $i$ , each member has disposable real earnings  $w_i(1 - t)$ , after earnings  $w_i$  are taxed with a rate  $t$ . The generosity of the social provisions, denoted  $g$ , is the same for all regions in the country. The vulnerability of citizens in region  $i$  depends on risk exposure to global shocks, captured by  $h_i$ . The perceived unit cost of welfare generosity,  $b$ , measures how much private consumption citizens must give up to finance one unit of welfare generosity. A high dependency ratio and a low average earnings raise the value of  $b$ , which is translated into higher tax rates via the balanced welfare budget  $t = bg$ .

Voters' welfare interests can now be expressed as the utility of income (when employed) plus the utility of receiving welfare benefits (when unemployed), weighted by the vulnerability  $h_i$  of citizens of region  $i$ :

$$v_i = u(w_i(1 - bg)) + h_i u(g). \quad (1)$$

The utility function  $u$  has a constant relative risk aversion (CRRA), denoted  $\mu > 1$ . Whenever it cannot be misunderstood we use the short-hand  $v_i = v_i(g)$ .

We measure the welfare state support by the vote share of pro-welfare parties. Consider the case with two blocs, the most pro-welfare block promises to implement  $g_H$  when elected and the other block promises  $g_L < g_H$ . The preferences of a citizen has one systematic part, capturing the welfare interests of a voter given by (1), and another part that represents other political sentiments (values and sympathies) of the voter. The net political sentiments of voter  $j$  in region  $i$ , represented by  $\epsilon_{ij}$ , can go to either bloc. Conventionally, if  $\epsilon_{ij} < 0$ , voter  $j$  has a net sentiment in favor of the pro-welfare party, and if  $\epsilon_{ij} > 0$ , voter  $j$  has a net sentiment in opposition to the pro-welfare party. The distribution of the sentiments in region  $i$  has a cumulative density function  $F_i(\cdot)$  and a marginal density  $f_i$ .

The net gain (or loss) of voting pro-welfare is thus  $v_i(g_H) - v_i(g_L) - \epsilon_{ij}$ , and citizen  $j$  in region  $i$  votes for the pro-welfare party if  $v_i(g_H) - v_i(g_L) > \epsilon_{ji}$ , implying that the pro-welfare vote share  $s_i$  becomes:

$$s_i = F_i(v_i(g_H) - v_i(g_L)). \quad (2)$$

Using the expression of  $v_i(g)$  in (1), we easily see that the pro-welfare vote share is increasing in the risk of income loss:

$$\frac{ds_i}{dh_i} = f_i[u(g_H) - u(g_L)] \equiv \Delta_{ri} > 0. \quad (3)$$

This effect holds for all positive values of  $\mu$ . If the coefficient of relative risk aversion is

higher than unity, we have in addition that pro-welfare vote share is increasing in individual earnings:

$$\frac{ds_i}{dw_i} = f_i w_i^{-\mu} [(1 - bg_H)^{1-\mu} - (1 - bg_L)^{1-\mu}] \equiv \Delta_{wi} > 0, \quad (4)$$

indicating that social insurance is a normal good, with increasing support as real earnings goes up.

### Globalization and Regional Welfare Support

The impact of globalization can be decomposed into an individual risk effect and income effect. All regions are likely to have a positive risk effect associated with globalization. When it comes to prices and incomes, citizens in all regions would gain as consumers from lower import prices. Income gains and losses are typically unevenly distributed. Regions specialized in import competing industries are likely to lose in incomes and regions specialized in export industries are likely to gain. We now consider how the globalization can affect the key parameters of our model.

The income effect associated with globalization is captured by  $w_i = w_i(\theta)$ , where  $\theta$  denotes the level of globalization. Indexing the set of import competing regions by  $I$ , and the set of exporting regions by  $E$ , we have  $w'_{i \in I}(\theta) \leq 0$  as more trade exposure in import competing regions weakens labor and lowers the earnings ability, while  $w'_{i \in E}(\theta) \geq 0$  as more trade exposure in export oriented regions raises the earnings ability. The effect on earnings goes via the demand for labor and thus changes in employment – a decline in import competing regions and a rise in export oriented regions. We are not interested in how the unemployed workers vote. The effects we are interested in is how the electorate changes its votes in different regions when the members perceive changes in local employment as a signal of a change in their earnings in the same direction.

The risk effect, in contrast, captures the vulnerability caused by fluctuation associated with higher levels of globalization; importing regions through higher competition for own goods and exporting regions through market extensions. We let  $h_i(\theta)$  denote the individual risk effect on individuals' voting. Clearly, risks of own job losses – whether they have

already occurred or not – make the need for welfare benefits more immediate. However, both importing and exporting regions are likely to experience shocks that may occur in other countries. We thus have  $h'_{i \in I \cup E}(\theta) \geq 0$ .

We can now decompose how the pro-welfare vote share in region  $i$ , as defined by (2), depends on globalization through our two mechanisms. Using (3) and (4) we have:

$$ds_i = \Delta_r h'_i(\theta) d\theta + \Delta_w w'_i(\theta) d\theta. \quad (5)$$

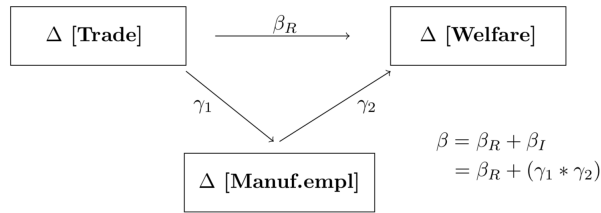
The first term of (5) captures the risk effect, which is positive for all trade exposed regions since  $h'_{i \in I \cup E}(\theta) > 0$ . The second term captures the income effect. The income effect has a negative impulse from employment decline in importing regions, since  $w'_{i \in I}(\theta) \leq 0$ , and positive impulse from employment growth in exporting regions, since  $w'_{i \in E}(\theta) \geq 0$ .

Hence, globalization have different effects on welfare state support in different regions. An import shock is likely to increase demand for welfare through the risk effect, but reduce demand for welfare through the income effect, while an export shock is likely to increase demand for welfare for both reasons. This ambiguity of import shocks may explain why we see a decline in welfare support in many places during the recent expansion of Chinese imports to Europe and the US, while at the same time small open economies are more likely to have strong support for their welfare states.

As discussed above, we use changes in labor demand as the central channel for changes in labor earnings. The first and most significant impact of trade shocks is on regional demand for labor. Trade induced changes in local labor demand affect earnings both directly for the affected workers, and indirectly through equilibrium effects and local multipliers. Since the effect of trade on employment is likely to be negative in some regions, and positive in other regions, the income effect tends to polarize voters across the trade exposed regions: those who lose and obtain lower earnings in the import competing regions want relatively less of expensive welfare arrangement, while those who gain and obtain higher earnings want relatively more.

The key relationships from our model may be illustrated as follows, where the income effect,  $\beta_I$ , equals the product of the effect of trade on manufacturing,  $\gamma_1$ , and the effect

of manufacturing on welfare support,  $\gamma_2$ :



Our empirical implementation departs directly from Equation (5). As we discuss further below, the actual vote shares for pro-welfare parties comprise our empirical measure of welfare support, [Welfare]. Taking the indirect effect through manufacturing employment into account, our empirical model thus takes the following form:

$$\Delta[\text{Welfare}]_{it} = \beta_R \Delta[\text{Trade}]_{it} + \gamma_1 \Delta[\text{Manuf.empl.}]_{it} + e_{W,it}, \quad (6)$$

$$\Delta[\text{Manuf.empl.}]_{it} = \gamma_2 \Delta[\text{Trade}]_{it} + e_{M,it}, \quad (7)$$

where the subscript  $it$  denotes election year  $t$  in region  $i$ , the  $e$ 's are error terms, and  $\Delta$  denotes changes. The risk effect is represented by the parameter  $\beta_R$ , while the indirect income effect going through manufacturing employment is equal to  $\gamma_1 \times \gamma_2$ . Inserting (7) into (6) gives the overall effect of trade on welfare support  $\beta = \beta_R + \gamma_1 \times \gamma_2$ . The main empirical challenge arising from this simple model exercise is to estimate both the income effect, conditional on risk, and the risk effect, conditional on the income effect. We describe the identification of these parameters and how we deal with issues of endogeneity in detail below.

Is manufacturing employment a plausible mediator for our income effect? The increased trade flow of goods from China to Europe was concentrated on goods produced by the manufacturing industries. The immediate employment effects in Europe are therefore likely to be concentrated in the same industries. Moreover, negative shocks in manufacturing employment will represent negative income shocks if workers are unable to get equally well paid or better paid jobs when they lose their job. We believe that this assumption is reasonable, in particular in the short run (Couch and Placzek 2010).

Our focus is on differential short-run responses to increased trade across regions. Still,

there are possible spillover effects across regions within countries and across the entire Europe. Some of the gains from trade are typically more evenly distributed across all regions. Higher non-expensive imports from China reduce prices and increase real earnings across the entire economy, potentially affecting the political demand for welfare through the income effect. Larger export markets may increase domestic productivity through competition and scale effects. Also, some of the immediate losses are distributed across the economy, as when increased unemployment increases the unit cost of welfare generosity at the country level. Policy responses or wage coordination at the national level may moderate the negative effects (Barth et al. 2020). In our empirical analysis, which we explain in detail below, we estimate the models in first-differences, and thus sweep out all fixed region (and country) characteristics that may affect the level of welfare support in the region. Furthermore, we add country dummies to the equations. Since we estimate our model in first-differences, country dummies effectively control for country specific trends in welfare support that may arise as a result of spillovers and long-run responses to increased trade.

### **3 Data and key variables**

In this section we describe our data sources and how we construct our key variables. The analysis spans the years 1996 to 2008, and is based on data from more than 150 NUTS 2 regions in 11 European countries.

#### **Support for the welfare state**

We construct local measures of welfare support by combining regional election results with information on welfare state platforms in party manifestos.

First, we derive party vote shares by NUTS 2 region.<sup>5</sup> To achieve this we aggregate election district results as reported in the Constituency-Level Election Archive (Kollman et al. 2016) and the Global Election Database (Brancati 2016). We rely on Colantone and Stanig’s (2018) mapping of election districts to NUTS codes. Next, we derive each

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<sup>5</sup>The only exception is Germany, for which we only have data on NUTS 1 regions.

party’s proposed level of welfare state expansion, as expressed in election platforms and quantified by the Comparative Manifesto Project (Budge et al. 2001; Volkens et al. 2017).

We follow Lowe et al. (2011) and measure party  $p$ ’s position on welfare state generosity  $g$ , as  $g_{pt} = \log([\text{Expand}]_{pt} + 0.5) - \log([\text{Limit}]_{pt} + 0.5)$ , where  $[\text{Expand}]_{pt}$  is the number of positive references to welfare state expansion in election year  $t$  and  $[\text{Limit}]_{pt}$  is the number of positive references to welfare state limitation.<sup>6</sup> Finally, we derive the support for the welfare state expansion across regions  $i$  over election years  $t$  as the average score of  $g_{pt}$ , weighted by vote shares  $s_{ipt}$ , as:

$$[\text{Welfare}]_{it} = \frac{\sum s_{ipt} g_{pt}}{\sum s_{ipt}}. \quad (8)$$

Note that we divide by  $\sum s_{ipt}$  because small parties without national representation do not appear in the Comparative Manifesto Project database, which means that the sum of vote shares does not always sum to unity.

Figure 2 shows the development of average welfare state support for elections and countries included in our study. Welfare support has actually been increasing in most of the countries we observe. Still, there are large differences across countries in both levels and changes.

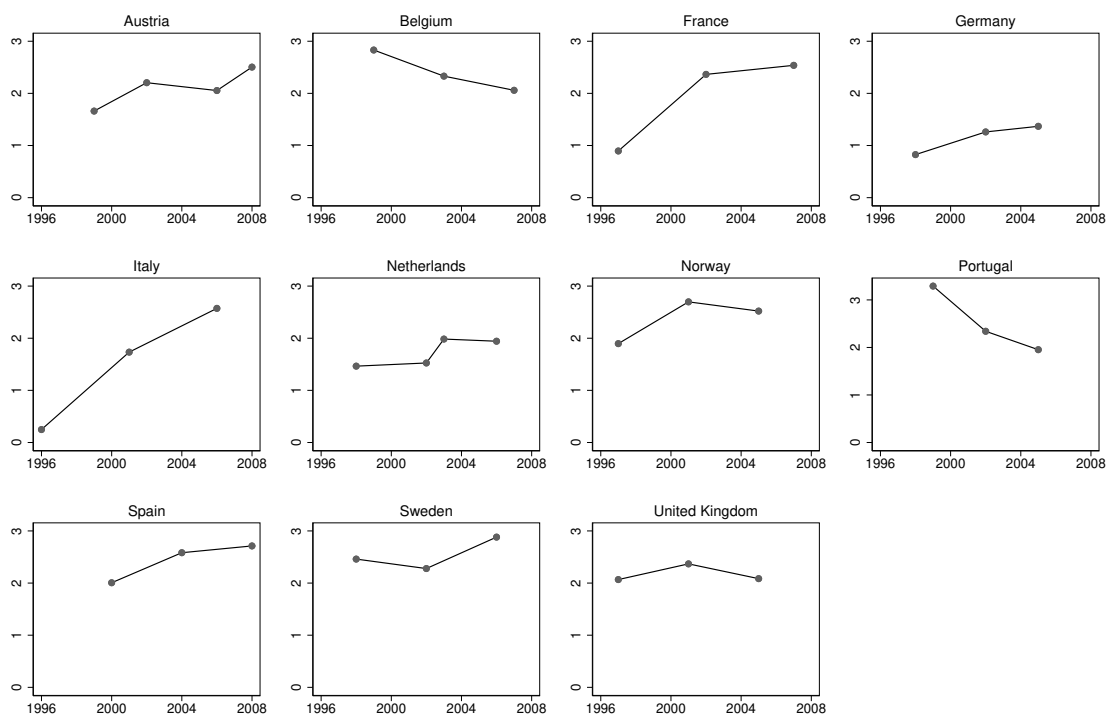
Our measure captures to what extent voters vote for parties that run on welfare state friendly platforms. It uses two sources of variation: variation in party positions and variation in vote shares. It is hard to disentangle the influence of these two sources since voters pay attention to party platforms when they decide what party to vote for, and parties pay attention to voter sentiments when they set their platforms.

To be clear, our measure does not tell us whether voters vote for welfare-friendly parties *because of* their welfare state platforms. Electoral support for the welfare state might change because of changes in voters’ demand for policies that are correlated with welfare state support, such as position on immigration policy, crime policy or environmental regulations. One way to validate that our measure is not mainly picking up the influence

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<sup>6</sup>The respective variables are per504 and per505 in the Comparative Manifesto Project (CMP) data set. See Horn et al. (2017) for a discussion of the welfare state variables in the CMP.

Figure 2: Levels of welfare state support over time and space



*Note:* Average levels of welfare state support by election year and country.

of correlated issues is to examine the relationship between welfare state support and the salience of welfare state issues in the particular election. A positive correlation between our measure and the salience of welfare state issues makes this more plausible (Petrocik 1996). Figure A1 shows that this indeed is the case.

In the end of the paper, we also show briefly how trade exposure affects support for redistribution, which is a related issue but where our theoretical framework predicts a different effect of trade exposure. That analysis gives further indications that our measure captures support for the welfare state.

## Trade exposure

We follow Autor, Dorn, and Hanson (2013) and others in constructing measures of trade exposure based on local employment structures prior to the “China shock”. Regions with a relatively large share of their employment concentrated in sectors producing the type of goods that China started to export would – according to such a measure – be more exposed than regions with employment concentrated in other sectors.



We extract detailed employment data for 14 manufacturing industries at the 2-digit NACE level from the Eurostat Regional Database. The Eurostat data is incomplete for some countries, and in these cases we supplement with national sources.<sup>7</sup> In addition to the employment data, we extract information on demographics and average education attainments from the Eurostat database.

We get data on trade flows from the United Nations Commodity Trade Statistics (Comtrade). This data provides us with annual trade flows by countries, commodities and trade partners. We use the 4-digit SITC product codes, which give more than 1000 commodity groups. We then match trade of goods between China and the European countries in our study (in 2007 euros) with the employment data for different manufacturing industries, using harmonized industry and product classifications from the World Bank.<sup>8</sup>

Based on the above data, we measure local import exposure for each region  $i$ , as:

$$\Delta[\text{Import exposure}]_{it} = \sum_k \frac{L_{ik,t-3}}{L_{k,t-3}} \frac{\Delta[\text{Import}]_{kt}}{L_{i,t-3}}, \quad (9)$$

where  $\Delta \text{Import}_{kt}$  is the total change in imports from China that is allocated to industry  $k$  over the past three years before election year  $t$ . The term  $L_{ik,t-3}/L_{k,t-3}$  denotes region  $i$ 's share of the total employment in industry  $k$  (for all countries in our study) at the start of the period, i.e., three years prior to election year  $t$ .  $L_{i,t-3}$  represents total employment in region  $i$ . The measure in (9) thus apportions imports of different commodities to regions based on their share of total employment in the 11 European countries.

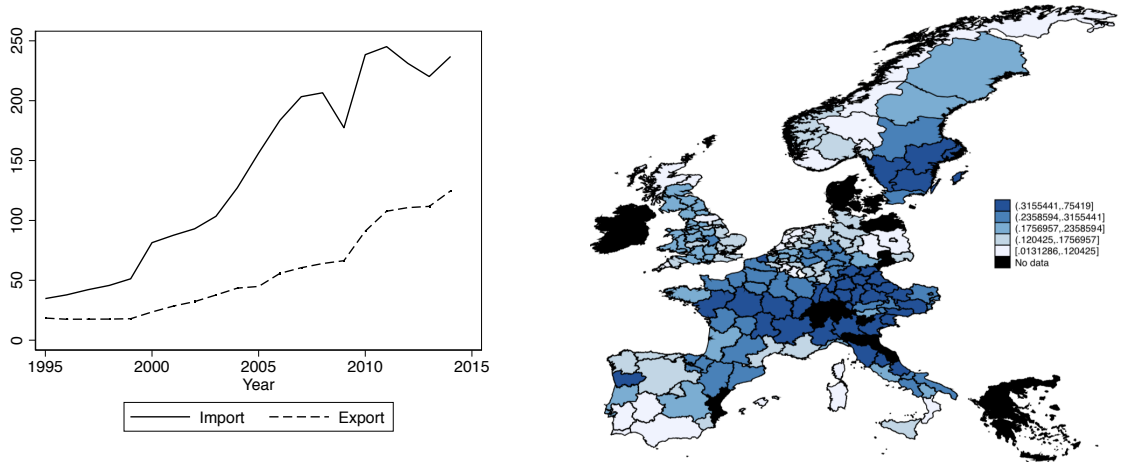
Figure 3a presents the development in imports *from* China and exports *to* China for the countries in our study. The flow of imports rose substantially, especially from 2004 to 2007, while the growth in exports was much weaker. Figure 3b illustrates the spatial variation in average changes in the import exposure measure. As can be seen, there is large geographical variation in exposure to China.

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<sup>7</sup>This applies for Belgium, Norway and the UK.

<sup>8</sup>We unambiguously match more than 93 percent of all commodity groups to 2-digit NACE industries. The rest of the commodities are linked to more than one NACE code. For these cases we make use of the 5-digit SITC trade data and compute the share of trade by NACE codes within each 4-digit commodity groups. We then choose the NACE code with the highest share, separately for import and export.

Figure 3: Trade across time and space



(a) Import and export over time

(b) Import exposure across European regions

*Note:* The left figure presents trade flows between China and the European countries in our sample, in bn. 2007 euros. The trade figures are based on EUR/USD exchange rate from 1999 for years before the introduction of the euro. The right figure presents average changes in import exposure for our estimation sample.

## 4 Empirical approach

We first estimate the overall effect of trade exposure on the support for welfare state arrangements. Next, we decompose the overall effect into an indirect effect through changes in manufacturing employment, and a direct effect of trade, conditional on manufacturing employment. As discussed above, we interpret the indirect effect of trade through manufacturing employment as the income effect, while we interpret the conditional direct effect as the risk effect of international trade. In this section we discuss how we identify these different relationships.

### Overall effect of trade exposure on welfare state support

We use (6) and (7). In order to estimate the overall effect of trade,  $\beta$ , we regress changes in welfare state support in region  $i$ , in election year  $t$ , on changes in import exposure computed over the past three years before the election, country-level fixed effects, a common linear time trend and regional baseline controls:

$$\Delta[\text{Welfare}]_{it} = \beta\Delta[\text{Import exposure}]_{it} + d_{W,c} + \psi_W V_t + X'_i \beta_W + \epsilon_{W,it}, \quad (10)$$

where  $d_{W,c}$  denotes the fixed effect for country  $c$ ,  $V_t$  denotes the time trend, while  $X'_i$  denotes the vector of regional controls measured at baseline, including the population share with secondary education, the population share with tertiary education, the population share of elderly (65 years and above), as well as the share of females of total employment.

Since we are estimating a difference equation, the fixed country effect controls for country specific trends in the level equation. Similarly, the control variables allows for differential trends in welfare support in regions with different levels of the control variables, such as the level of education in the region. As we include country-level fixed effects, our coefficient of interest,  $\beta$ , is identified partly through regional variation in the change in welfare state support and import exposure within countries in particular election years, and partly through variation in the changes between election years.

In addition to potential measurement errors, Equation (10) may contain problems of endogeneity. An unrelated local demand shock may affect both import exposure to the region and the support for welfare, inducing a correlation between import exposure and the error term of (10). To give our estimates a causal interpretation, we therefore use an instrumental variable (IV) approach similar to Autor et al. (2013). We construct the following instrument for imports to every region  $i$ :

$$\Delta[\text{Import exposure}]_{IV,it} = \sum_k \frac{L_{ik0}}{L_{k0}} \frac{\Delta[\text{Import}]_{kt}^{\text{Other}}}{L_{i0}}. \quad (11)$$

The expression differs from the import exposure measure in (9) in two ways. First, it replaces changes in actual trade flows from China to Europe with changes in trade flows from China to Australia, Canada, New Zealand and USA ( $\Delta[\text{Import}]_{kt}^{\text{Other}}$ ).<sup>9</sup> Second, it replaces the start-of-period employment structure in each region with the employment structure from a year prior to our estimation period (denoted by the time subscript 0). We do this to tackle potential measurement and reverse causality if firms anticipate future trade exposure and adjust their employment accordingly. In our main empirical analysis we use employment data for manufacturing industries and regions from 1999 to construct

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<sup>9</sup>By using data from several high-income countries rather than only e.g. the US (as in Colantone and Stanig (2018)), we reduce the fear that correlated demand shocks drive our results.

the weights.<sup>10</sup>

## Decomposing the effect of trade exposure

In accordance with our theoretical model, we decompose the overall effect of trade exposure,  $\beta$ , into a direct risk effect,  $\beta_R$ , and an indirect income effect,  $\beta_I = \gamma_1 \times \gamma_2$ . The challenge is that we have two parameters to estimate, but only one valid instrument. We proceed by using the mediator approach of Dippel, Ferrara, and Heblich (2020), using changes in manufacturing employment as a fraction of the working age population as a mediator for the income effect. Based on this, we identify the income effect by first estimating the effect of trade exposure on manufacturing employment, and second, by jointly estimating the effect of manufacturing employment and import exposure on welfare state support.

To estimate the income effect, we need to estimate the two parameters  $\gamma_1$  and  $\gamma_2$ . It is straightforward to estimate the effect of import exposure on manufacturing employment,  $\gamma_1$ , given our earlier setup. We make use of an 2SLS specification similar to (10), replacing changes in welfare state support on the left-hand side with changes in manufacturing employment as a fraction of the working age population:

$$\Delta[\text{Manuf. employment}]_{it} = \gamma_1 \Delta[\text{Import exposure}]_{it} + b_{M,c} + \psi_M V_t + X_i' \beta_M + \epsilon_{M,it}. \quad (12)$$

The main reason for using instrumental variable approaches in (10) and (12) is that changes in import are likely to be affected by unrelated local demand shocks, which could affect both employment and welfare state support. We argue that the rise in trade with China largely reflects the lower prices and productivity gains in Chinese manufacturing, which affected the whole world economy and are unrelated to local demand shocks in Europe. By using trade flows from China to non-European high-income countries we therefore isolate the exogenous part of the increased trade flows to Europe.

This intuition is also at the core of our strategy to estimate the two remaining pa-

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<sup>10</sup>We are not able to go further back in time due to data constraints. The first election year for which we calculate changes in welfare state support is 2001 (Italy and UK). For this election year, we use data for 1999 also to calculate the import exposure measure in (9).

rameters,  $\gamma_2$  and  $\beta_R$ . As suggested by Dippel et al. (2020); Dippel, Ferrara, and Heblich (2020) we estimate these parameters from the equation:

$$\begin{aligned} \Delta[\text{Welfare}]_{it} = & \beta_R \Delta[\text{Import exposure}]_{it} \\ & + \gamma_2 \Delta[\text{Manuf. employment}]_{it} + d_{W,c} + \psi_W V_t + X'_i \beta_W + \epsilon_{W,it}. \end{aligned} \tag{13}$$

corresponding to Equation (5) and (6) above. The  $\beta_R$ -coefficient is our estimate of the risk effect, while the  $\gamma_2$ -coefficient times the  $\gamma_1$ -coefficient from equation (12) constitutes our estimate of the indirect income effect.

Inspired by Dippel et al. (2020); Dippel, Ferrara, and Heblich (2020) we instrument manufacturing employment, using our instrument for trade. The key assumption is that conditional on predicted manufacturing employment, import exposure is exogenous in Equation (13). The sources of endogeneity, such as local demand shocks that are correlated with trade, are assumed to affect welfare support only through the income effect mediated by manufacturing employment. Said differently, we allow unobserved shocks that impact import exposure to affect voting only through labor earnings as represented by manufacturing employment. Arguments that link trade to welfare state support do so through labor market effects (e.g. Walter 2010) or through cultural changes that develop over long time periods (e.g. Coyne and Williamson 2012). We study short term effects (through first differences), and we therefore find the assumption to be plausible. We calculate standard errors for the income effect using the delta method.

## 5 Empirical results

In this section we present our main empirical results. To ease interpretation, we always standardize the key variables by subtracting their mean and dividing by their standard deviation.

### The effects of import exposure

In Table 1 we present estimates of the overall effect of import exposure on welfare state support, using the specification in (10). The estimates reveal a negative relationship.

Since all variables are standardized, the second stage estimate implies that a standard deviation sized increase in import exposure lowers welfare support by 12 percent of its standard deviation. The effects of import exposure is thus politically important, precisely estimated, and the first stage is strong and with expected sign.

Table 1: 2SLS Regression: Total effect of import exposure on welfare state support

	$\Delta$ Welfare state support
Panel A: Second stage	
$\Delta$ Import exposure	-0.121** (0.049)
Panel B: First stage	
$\Delta$ Import exposure instrument	0.886*** (0.029)
Kleibergen-Paap F	911
Observations	313

*Note:* Robust standard errors clustered on NUTS 2 are shown in the parentheses. The regression includes country fixed effects, a linear time trend, and controls for initial level of education, initial female share, and initial share of elderly.  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

We do not know from this result to what extent the negative relationship is driven by the income effect, as we propose, or by other effects of trade exposure. What is clear, however, is that the above estimate appears to be contrary to the conventional view of e.g. Rodrik (1998), where voters' demand for welfare state protection increases with trade openness.

Our next step is to decompose the effect into the two proposed mechanisms: the risk effect and the income effect. Table 2 presents the mediator analysis. In the appendix (SI: 8) we present a graphical illustration of the relationships. In the first column we show 2SLS estimates of the effect of import exposure on manufacturing employment, based on the specification in (12). As expected, we find a negative relationship. The estimate implies that a standard deviation sized shock in import exposure leads to a decline in manufacturing employment as a fraction of the working age population of about 0.31 of its standard deviation, which is substantial.

In the second column we present estimates of the relationship between import exposure and welfare state support, conditional on predicted manufacturing employment, as outlined in (13). Panel A presents the second stage estimates. Here the import exposure coefficient represents the direct effect of import exposure, which we interpret as a risk effect, but that may also encompass other direct influences from trade to welfare support. The coefficient is positive, which is in line with the income volatility hypothesis. However, the effect is small and statistically insignificant (p-value of 0.208).

We find a large and statistically significant effect of predicted manufacturing employment. The positive effect of manufacturing employment multiplied by the negative effect of import exposure on manufacturing from Column (1), implies that the indirect effect is negative and highly significant (p-value of 0.022), as can be seen from Panel C. Thus, in line with our argument, rapid globalization that causes manufacturing decline and realized income losses reduces support for welfare expansion.

Table 2: 2SLS Regressions: Mediator analysis

	$\Delta$ Manufacturing employment (1)	$\Delta$ Welfare state support (2)
Panel A: Second stage		
$\Delta$ Import exposure	-0.311*** (0.070)	0.095 (0.075)
$\Delta$ Manufacturing employment		0.692*** (0.259)
Panel B: First stage		
$\Delta$ Import exposure instrument	0.886*** (0.029)	-0.462*** (0.100)
Kleibergen-Paap F	911	21
Panel C: Parameters		
Direct effect (risk)		0.095 (0.075)
Indirect effect (income)		-0.215** (0.094)
Observations	313	313

*Note:* Robust standard errors clustered on NUTS 2 are shown in the parentheses. All regressions include country fixed effects, a linear time trend, and controls for initial level of education, initial female share, and initial share of elderly.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

In sum, the empirical exercise so far shows that an import shock can have a strong

negative income effect that reduces the welfare state support. We also find some indications of a positive risk effect that increases the welfare state support, but this effect is weak and imprecisely estimated.

To give our estimates a causal interpretation we used a version of the so-called shift-share/Bartik-instrument. This method has been discussed in a number of recent papers (Adao, Kolesár, and Morales 2019; Borusyak, Hull, and Jaravel 2018; Goldsmith-Pinkham, Sorkin, and Swift 2020). In the SI, we discuss and address these concerns about the validity of the instrument (Table A1, SI:3). In the SI we also show that the strong income effect persists when we control for initial levels of welfare state support and manufacturing shares (Table A2, SI: 5), and when we estimate them over subsets of the regions (Figure A2, SI: 1).

### The effects of export exposure

As the negative income effect associated with higher import exposure is clear, a full support for our income effect hypothesis requires a positive income effect in regions dominated by export expansion. Export exposure allows firms to sell their products in larger markets and to expand their production and employment. The consequences for welfare state support should thus be the opposite of import exposure.

In Table 3 we include export exposure and estimate separate impacts of imports and exports. To conduct the analysis we first construct measures of export exposure, corresponding to the measures of import exposure, as:

$$\Delta[\text{Export exposure}]_{it} = \sum_k \frac{L_{ik,t-3}}{L_{k,t-3}} \frac{\Delta[\text{Export}]_{kt}}{L_{i,t-3}}, \quad (14)$$

$$\Delta[\text{Export exposure}]_{IV,it} = \sum_k \frac{L_{ik0}}{L_{k0}} \frac{\Delta[\text{Export}]_{kt}^{\text{Other}}}{L_{i0}}. \quad (15)$$

We consider both import and export exposure as endogenous and jointly instrument them using (15) and the import exposure instrument from (11).

For brevity we present the first stage estimates in Table A3 (SI: 7). The second



Table 3: 2SLS Regressions: Mediator analysis with imports and exports

	$\Delta$ Manufacturing employment (1)	$\Delta$ Welfare state support (2)
Panel A: Second stage		
$\Delta$ Import exposure	-0.508*** (0.105)	0.063 (0.051)
$\Delta$ Export exposure	0.406*** (0.138)	-0.033 (0.066)
$\Delta$ Manufacturing share		0.451*** (0.165)
Panel B: Parameters		
<u>Import</u>		
Direct effect (risk)		0.063 (0.051)
Indirect effect (income)		-0.229** (0.090)
Total effect		-0.130 (0.087)
<u>Export</u>		
Direct effect (risk)		-0.033 (0.066)
Indirect effect (income)		0.183** (0.084)
Total effect		0.019 (0.129)
Observations	313	313

*Note:* Robust standard errors clustered on NUTS 2 are shown in the parentheses. All regressions include country fixed effects, a linear time trend, and controls for initial level of education, initial female share, and initial share of elderly. The first stage estimates are shown in Table A3 (SI: 7).  
\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

stage estimates are presented in Table 3, showing that import and export exposure have diametrically opposite effects on welfare state support. This is a clear support for our emphasis of income effects in the welfare support. Both direct risk effects are small and insignificant, while the indirect income effects are sizeable and of about similar magnitude for imports and exports.<sup>11</sup>

In Table A4 (SI: 10) we also show estimates for total trade exposure, as measured by the sum of import and export exposure. This is a measure of trade openness that is

<sup>11</sup>Note that the direct and indirect effects do not sum to the total effect in this case since we have two endogenous variables (see Dippel, Ferrara, and Heblich 2020).

frequently used in the literature, as for instance in Rodrik (1998). We instrument total trade using total trade to the other high-income countries. The magnitude of the effects in this regression are comparable to what we find when using imports only, but less precisely estimated.

## 6 Concluding remarks

In several regions in Europe, we find that the recent trends in global integration have made European welfare states less, not more politically popular (in relative terms). As China entered the world market many workers experienced a negative shift in their earnings, raising the tax burden of welfare provisions. Lower individual incomes make all levels of social provision more costly for the tax payers. It is this negative income effect that might trump the traditional risk effect, implying that the link between globalization and welfare support can seemingly be reversed.

We have demonstrated this potential reversal empirically and find that more import competition has reduced the support to pro-welfare parties, while better export opportunities has increased the support to pro-welfare parties. We consider this dichotomy as clear evidence of the importance of our proposed income effect. Since the growth in imports from China is higher than the growth of exports to China the negative income effects dominate.

To identify these effects, we have combined i) the so-called shift-share approach to obtain exogenous variation in regional import and export exposure with ii) changes in the regional vote shares to pro-welfare parties to measure the actual changes in welfare support, iii) utilizing a mediation exercise to decompose the total effect of globalization into an income effect and a risk effect.

We have explained the relative welfare contraction (and expansion) by appealing to an insurance logic rather than a redistribution logic for the welfare state support. Our approach thus interprets the welfare state variables in the Comparative Manifesto Project as covering basically social-insurance-like programs. Yet, these programs can be offered on more or less redistributive terms in the tax system and in the design of their benefits. Such

pure re-distributive elements in the welfare state is naturally less popular among groups with higher incomes and is thus expected to decline with individual incomes (Moene and Wallerstein 2003). The political support to our pure social insurance programs, in contrast, exhibits normal-goods-properties as voters' demand for it goes up with their individual incomes. In the supplementary information (SI: 10) we provide evidence that the estimated income effect switches sign and loses significance when using a proxy for redistribution rather than our measure of welfare support as the dependent variable, in line with standard models of redistribution (Meltzer and Richard 1981). This shows that the income effect depends on whether the welfare programs mainly consist of social insurance or redistribution.

Our framework adds necessary nuances to understand the support for welfare state expansion. It shows how trade exposure can negatively, or positively, influence the local welfare state support, depending on whether globalization lowers or raises the local income. It does so without introducing issues such as the rise of right-wing populism, supply-side concerns about how globalization can undermine nations' ability to finance the welfare state, and so on.<sup>12</sup> These effects can be important enough, but our results demonstrate that the negative impacts do not have to stem from the supply side at all. Globalization can, in some situations, have negative, perhaps short-term, effects also through the demand side.

Yet, as a structural description, trade openness is likely to be associated with generous social insurance, as voters want to be socially insured against the income risk associated with an open economy. This narrative still fits the data well; more open economies have more generous welfare state arrangements. In our empirical analysis nation-wide and long term developments in welfare support and trade are controlled for. What we have demonstrated is that the political pressure for welfare state changes in times when trade openness and international competition change dramatically can be dominated by the associated income effects of the global changes. These income effects can – as we have shown – go in either direction, depending on the relative importance of imports and

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<sup>12</sup>See Garret (1998) for the initial concern and Egger, Nigai, and Strecker (2019) for the reemergence.

exports in the local area.

Neglecting how more or less temporary income effects can change the political demand can lead to a wrong perception of the basic need for social insurance. Our results can also be interpreted as support for claims that wage setting systems and other arrangements that stabilize earnings, also make it easier to maintain political support for a high level of social insurance in open economies.

## References

- Adao, Rodrigo, Michal Kolesár, and Eduardo Morales. 2019. “Shift-Share Designs: Theory and Inference.” *Quarterly Journal of Economics* 134(4): 1949–2010.
- Autor, David, David Dorn, and Gordon H. Hanson. 2013. “The China Syndrome: Local Labor Market Effects of Import Competition in the US.” *American Economic Review* 103(6): 2121–68.
- Baldwin, Peter. 1990. *The Politics of Social Solidarity: Class Bases of the European Welfare State, 1875-1975*. Cambridge: Cambridge University Press.
- Barth, Erling, and Karl Ove Moene. 2016. “The Equality Multiplier: How Wage Compression and Welfare Empowerment Interact.” *Journal of the European Economic Association* 14(5): 1011–1037.
- Barth, Erling, Henning Finseraas, Anders Kjelsrud, and Karl Ove Moene. 2020. “Hit by the Silk Road: How Wage Coordination in Europe Mitigates the China Shock.” IZA Discussion Paper No. 13259. <http://ftp.iza.org/dp13259.pdf> (accessed Nov 26, 2020).
- Borusyak, Kirill, Peter Hull, and Xavier Jaravel. 2018. “Quasi-Experimental Shift-Share Research Designs.” NBER Working Paper No. 24997. DOI 10.3386/w24997.
- Brancati, Dawn. 2016. “Global Elections Database.” New York: Global Elections Database. <http://www.globalelectionsdatabase.com/> (accessed Nov 26, 2020).
- Budge, Ian, Hans-Dieter Klingemann, Andrea Volkens, Jusith Bara, and Eric Tanenbaum. 2001. *Mapping Policy Preferences: Estimates for Parties, Electors, and Governments, 1945-1998*. Oxford: Oxford University Press.
- Busemeyer, Marius R. 2009. “From myth to reality: Globalisation and public spending in OECD countries revisited.” *European Journal of Political Research* 48(4): 455–482.
- Cameron, David. 1978. “The Expansion of the Public Economy: A Comparative Analysis.” *American Political Science Review* 72(4): 1243–1261.
- Colantone, Italo, and Piero Stanig. 2018. “The Trade Origins of Economic Nationalism: Import Competition and Voting Behavior in Western Europe.” *American Journal of Political Science* 62(4): 936–953.
- Couch, Kenneth A., and Dana W. Placzek. 2010. “Earnings Losses of Displaced Workers Revisited.” *American Economic Review* 100(1): 572–89.
- Coyne, Christopher J., and Claudia R. Williamson. 2012. “Trade openness and cultural creative destruction.” *Journal of Entrepreneurship and Public Policy* 1(1): 22–49.
- Dippel, Christian, Andreas Ferrara, and Stephan Heblich. 2020. “Causal mediation analysis in instrumental-variables regressions.” *The Stata Journal* 20(3): 613–626.
- Dippel, Christian, Robert Gold, Stephan Heblich, and Rodrigo Pinto. 2020. “The Effect of Trade on Workers and Voters.” Working paper: [https://www.anderson.ucla.edu/faculty\\_pages/christian.dippel/DGHP.pdf](https://www.anderson.ucla.edu/faculty_pages/christian.dippel/DGHP.pdf) (accessed Nov 26, 2020).

- Egger, Peter H., Sergey Nigai, and Nora M. Strecker. 2019. “The Taxing Deed of Globalization.” *American Economic Review* 109(2): 353–90.
- Fetzer, Thiemo. 2019. “Did Austerity Cause Brexit?” *American Economic Review* 109(11): 3849–3886.
- Frisch, Ragnar, and Fredrick V. Waugh. 1933. “Partial Time Regressions as Compared with Individual Trends.” *Econometrica* 1(4): 387–401.
- Garrett, Geoffrey. 1998. “Global Markets and National Politics: Collision Course or Virtuous Circle?” *International Organization* 52(04): 787–824.
- Goldsmith-Pinkham, Paul, Isaac Sorkin, and Henry Swift. 2020. “Bartik Instruments: What, When, Why, and How.” *American Economic Review* 110(8): 2586–2624.
- Hays, Jude C., Sean D. Ehrlich, and Clint Peinhardt. 2005. “Government Spending and Public Support for Trade in the OECD: An Empirical Test of the Embedded Liberalism Thesis.” *International Organization* 59(2): 473–494.
- Horn, Alexander, Anthony Kevins, Carsten Jensen, and Kees Van Kersbergen. 2017. “Research note: peeping at the corpus—What is really going on behind the equality and welfare items of the Manifesto project?” *Journal of European Social Policy* 27(5): 403–416.
- Iversen, Torben, and David Soskice. 2001. “An Asset Theory of Social Policy Preferences.” *American Political Science Review* 95(04): 875–893.
- Jensen, J. Bradford, Dennis P. Quinn, and Stephen Weymouth. 2017. “Winners and Losers in International Trade: The Effects on US Presidential Voting.” *International Organization* 71(3): 423–457.
- Katzenstein, Peter J. 1985. *Small States in World Markets: Industrial Policy in Europe*. Cornell University Press.
- Kollman, Ken, Allen Hicken, Daniele Caramani, and David Backer. 2016. “Constituency-level elections archive (CLEA) <http://www.electiondataarchive.org/> (accessed Nov 26, 2020).” Center for Political Studies, University of Michigan.
- Lowe, Will, Kenneth Benoit, Slava Mikhaylov, and Michael Laver. 2011. “Scaling Policy Preferences from Coded Political Texts.” *Legislative Studies Quarterly* 36(1): 123–155.
- Margalit, Yotam. 2011. “Costly jobs: Trade-related Layoffs, Government Compensation, and Voting in US Elections.” *American Political Science Review* 105(1): 166–188.
- Meltzer, Alan H., and Scott F. Richard. 1981. “A Rational Theory of the Size of Government.” *Journal of Political Economy* 89(5): 914–927.
- Moene, Karl O., and Michael Wallerstein. 2001. “Inequality, Social Insurance, and Redistribution.” *American Political Science Review* 95(4): 859–874.
- Moene, Karl O., and Michael Wallerstein. 2003. “Earnings Inequality and Welfare Spending: A Disaggregated Analysis.” *World Politics* 55(4): 485–516.

- Petrocik, John R. 1996. "Issue Ownership in Presidential Elections, With a 1980 Case Study." *American Journal of Political Science* pp. 825–850.
- Rehm, Philip. 2009. "Risks and Redistribution: An Individual-Level Analysis." *Comparative Political Studies* 42(7): 855–881.
- Rodrik, Dani. 1998. "Why do More Open Economies Have Bigger Governments?" *Journal of Political Economy* 106(5): 997–1032.
- Ruggie, John G. 1982. "International Regimes, Transactions, and Change: Embedded Liberalism in the Postwar Economic order." *International Organization* 36(2): 379–415.
- Scruggs, Lyle, Detlef Jahn, and Kati Kuitto. 2017. "Comparative Welfare Entitlements Dataset 2. Version 2017-09." University of Connecticut & University of Greifswald. <http://cwed2.org/> (accessed Nov 26, 2020).
- Shayo, Moses. 2009. "A Model of Social Identity with an Application to Political Economy: Nation, Class, and Redistribution." *American Political Science Review* 103(2): 147–174.
- Volken, Andrea, Onawa Lacewell, Pola Lehmann, Sven Regel, Henrike Schultze, and Anika Werner. 2017. "The manifesto data collection. Manifesto project (MRG/CMP/-MARPOR)." Berlin: Wissenschaftszentrum Berlin für Sozialforschung (WZB) <https://manifesto-project.wzb.eu/> (accessed Nov 26, 2020).
- Walter, Stefanie. 2010. "Globalization and the Welfare State: Testing the Microfoundations of the Compensation Hypothesis." *International Studies Quarterly* 54(2): 403–426.
- Walter, Stefanie. 2017. "Globalization and the demand-side of politics: How globalization shapes labor market risk perceptions and policy preferences." *Political Science Research and Methods* 5(1): 55–80.

**Supplementary information**

**“Does the Rise of China Lead to the Fall of European Welfare States?”**



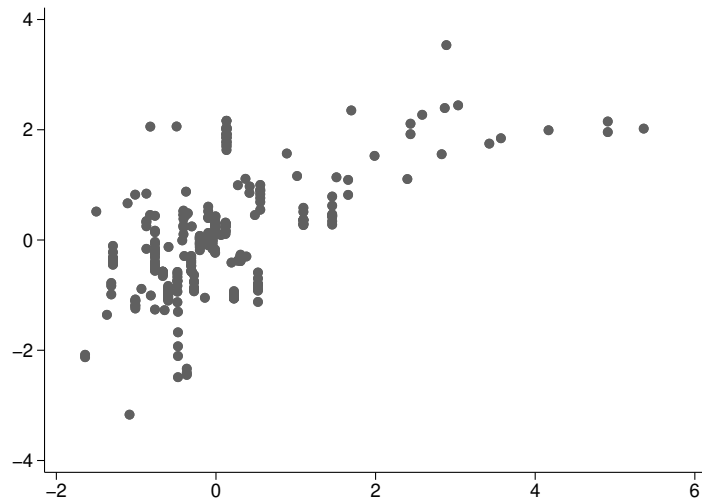
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## Appendix A: Validation of welfare support measure

In Figure A1 we validate our measure of welfare state support by looking at the correlation between our measure and the salience of welfare in each election. The salience of welfare issues is measured as  $\log\left(\frac{Expand_{pt}+Limit_{pt}+1}{N}\right)$ , where  $Expand_{pt}$  is the number of positive references to welfare state expansion in election year  $t$ ,  $Limit_{pt}$  is the number of positive references to welfare state limitation, and  $N$  is the total number of coded sentences in the whole manifesto. See Lowe et al. (2011) for details.

Figure A1: The correlation between welfare state support and the salience of welfare issues.



Change in welfare state support on the Y axis and change in the salience of welfare issues. Both measures are standardized. See main text for description of welfare state support.

## Appendix B: Instrument validity

Our instrument is a version of the so-called shift-share/Bartik-instrument. This type of instrument has been heavily discussed in a number of recent papers (Adao et al. 2019; Borusyak et al. 2019; Goldsmith-Pinkham et al. 2020) First, Bartik-style identification could be problematic if there are pre-treatment trends correlated with the treatment variable (Borusyak et al. 2019; Goldsmith-Pinkham et al. 2020). In our setting, the concern would be that regions particularly exposed to the China shock, for some reason, were on a different welfare state support or manufacturing employment trajectory than other regions. We examine this issue by controlling for the changes in welfare state support and manufacturing employment between the two elections prior to our analysis period. Results in Table A1 show that the estimates do not change much when we add these controls.

Second, Adao et al. (2019) show that standard errors often will have a downward bias because regression residuals will be correlated between units with similar industry shares. This happens because the residual picks up all unobserved sector-level shocks, and since the standard errors are not adjusted for this type of correlation. Borusyak et al. (2019) show that the Bartik specification can be transformed into a numerically equivalent specification at the industry level, and that the standard errors from this regression account for the type of correlation that Adao et al. (2019) worry about. The standard errors of our key model parameters only increase slightly when we estimated them in the transformed industry level regression, and we therefore conclude that the bias of the standard errors in our main regressions is unlikely to be important.

Finally, we need to take a stand on whether we consider the regional industry shares or the variation in shocks as quasi-exogenous. A priori we believe it is most appropriate to consider the China shock as providing exogenous variation in shocks. This interpretation gets empirical support from our calculation of the Rotemberg weights that Goldsmith-Pinkham et al. (2020) propose to examine the identifying variation. In our case, we find a strong correlation between the import shocks and the Rotemberg weights by manufacturing industries. This contrasts sharply with the applications discussed in

Goldsmith-Pinkham et al. (2020), and indicates that our estimates are driven by the industries most hit by the import shocks. We also find that the largest Rotemberg weight is 0.24 (“Machinery and equipments”), i.e. it is not a single industry that drives the identifying variation.

Table A1: 2SLS Regressions: Mediator analysis controlling for pre-trends

	$\Delta$ Manufacturing employment (1)	$\Delta$ Welfare state support (2)
Panel A: Second stage		
$\Delta$ Import exposure	-0.269*** (0.070)	0.089 (0.075)
$\Delta$ Manufacturing share		0.770*** (0.271)
Pre-trend manufacturing share	-0.119 (0.072)	0.099 (0.063)
Pre-trend welfare support	0.392 (0.290)	-0.620** (0.260)
Panel B: First stage		
$\Delta$ Import exposure instrument	0.870*** (0.035)	-0.449*** (0.106)
Kleibergen-Paap F	604	18
Panel C: Parameters		
Direct effect (risk)		0.089 (0.075)
Indirect effect (income)		-0.207** (0.091)
Total effect		-0.118** (0.049)
Observations	300	300

Robust standard errors clustered on NUTS 2 are shown in the parentheses. All regressions include country fixed effects, a linear time trend, and controls for initial level of education, initial female share, and initial share of elderly.  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

## Appendix C: Start of period controls

In our main specification we control for trends in the first differences by including a common, linear time trend and country fixed effects. One worry is that the import exposure variable picks up correlated, regional trends that also affects manufacturing share or welfare state support. In particular, it is possible that the trends in first differences are correlated with initial levels of manufacturing share or welfare state support. To examine this we include the initial levels of these variables as controls in the mediator model. Estimates are shown in Table A2.

We find that initial level of welfare state support has a strong, negative correlation with subsequent changes in welfare state support, while initial level of manufacturing employment only is weakly related to the outcomes. Still, when these controls are included the direct effect flips sign and the total effect of import exposure becomes more negative. The estimates for change in manufacturing employment is surprisingly robust to control for its initial level, however, so that the indirect effect does not move much. Thus, while the change in estimates when adding this control questions the positive risk effect on welfare state support, it does not affect the income effect estimate much. It is however, slightly less precisely estimated ( $p=0.112$ ).

Table A2: 2SLS Regressions: Mediator analysis controlling for initial values of outcomes

	$\Delta$ Manufacturing employment (1)	$\Delta$ Welfare state support (2)
Panel A: Second stage		
$\Delta$ Import exposure	-0.261* (0.136)	-0.054 (0.091)
$\Delta$ Manufacturing employment		0.740*** (0.259)
Initial manufacturing employment	-0.049 (0.107)	0.152* (0.088)
Initial welfare state support	0.022 (0.240)	-0.613*** (0.200)
Panel B: First stage		
$\Delta$ Import exposure instrument	0.715*** (0.046)	-0.454*** (0.099)
Kleibergen-Paap F	237	21
Panel C: Parameters		
Direct effect (risk)		-0.054 (0.091)
Indirect effect (income)		-0.193 (0.121)
Total effect		-0.248*** (0.09)
Observations	313	313

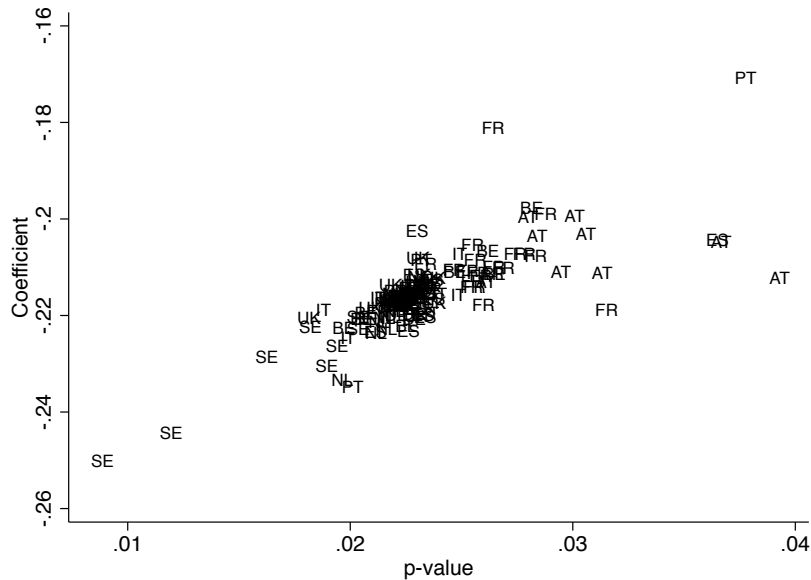
Robust standard errors clustered on NUTS 2 are shown in the parentheses. All regressions include country fixed effects, a linear time trend, and controls for initial level of education, initial female share, and initial share of elderly.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

## Appendix D: Sensitivity to single regions

Since our sample size is fairly small (313 region years), one might be concerned that the results are due to particular regions in our data. We investigate this by excluding one region in a rotating fashion and examine how the estimates change. Figure A2 shows that both the point estimate and the precision of the income effect are fairly stable across the subsets of the data. We also see that there is no clear pattern where observations from a particular country is located in the figure, except that exclusions of Swedish regions tend to make the estimate more negative.

Figure A2: Estimates income effect, sensitivity to exclusion of regions



The y-axis shows the indirect effect estimate when the label region is excluded. The x-axis shows the corresponding p-values.

## Appendix E: First stage estimates

Table A3 shows first stage estimates corresponding to the second state estimates in Table 3. The first and second column correspond to Column (1) in Table 3, while the third column corresponds to Column (2) in Table 3.

Table A3: First stage estimate for Table 3

	$\Delta$ Import exposure (1)	$\Delta$ Export exposure (2)	$\Delta$ Manufacturing employment (3)
Import exposure instrument	0.823*** (0.045)	0.097 (0.098)	-0.618*** (0.114)
Export exposure instrument	0.105** (0.046)	0.552*** (0.105)	0.254*** (0.060)
Kleibergen-Paap F	441	42	16
Observations	313	313	313

Robust standard errors clustered on NUTS 2 are shown in the parentheses. All regressions include country fixed effects, a linear time trend, and controls for initial level of education, initial female share, and initial share of elderly.  
\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

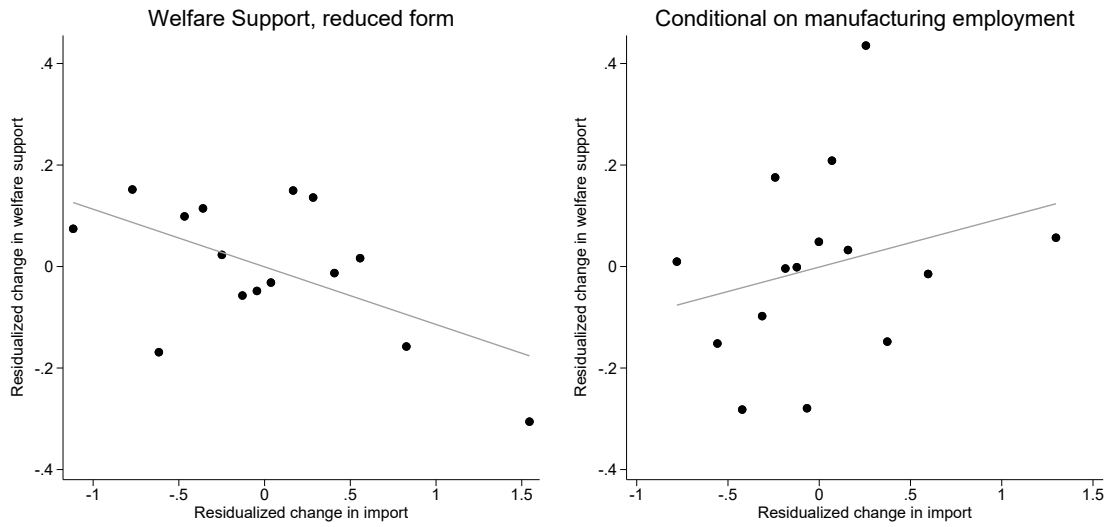


## Appendix F: A graphical illustration of the main effects

To illustrate the variations used to identify our models and check if linear specifications seem reasonable, we residualize the key variables from Tables 1 and 2 and display the relationship between them. This is in line with the so-called Frisch-Waugh theorem (Frisch and Waugh 1933). Figure A3 illustrates the relationship between welfare support and import exposure. The residuals are averaged over 15 bins of regions equally distributed over the variable on the horizontal axis (binscatter). Each data point thus represents about 22 European regions with similar levels of residual change in import exposure. The slope of the fitted line gives the overall effect of a change in export exposure on change in welfare support of  $-.121$  as reported in Table 1 above. The right panel shows the relationship between welfare support and import exposure after conditioning on predicted manufacturing employment, as reported in Table 2. When conditioning on manufacturing employment, the estimated slope switches sign, interpreted as the risk effect of increasing trade. The figures suggest that a linear specification appear to be reasonable in both models.

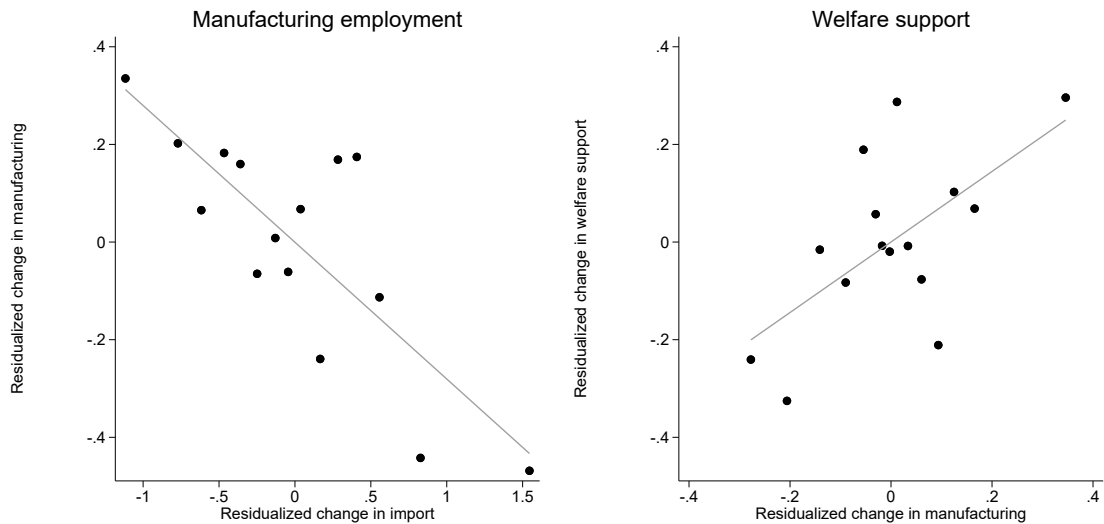
Figure A4 illustrate the income effect of import exposure. Again each dot represents about 22 regions sorted across the variable on the horizontal axis. The left panel shows the negative relationship between residualized changes in manufacturing employment and import exposure, while the right panel shows the positive relationship between residualized changes in manufacturing employment and welfare support. Moving across the two panels, we find that an increase in regional import exposure decreases manufacturing employment, which again lead to a reduction of welfare support. The slopes of the fitted line are given by the coefficients in Table 2, and the figures again suggest that linear specifications are reasonable.

Figure A3: Regional Welfare support and Import exposure, with and without control for manufacturing employment. Average of residualized values in equally sized bins.



*Note:* The plots show the average of 15 equally sized bins (each point representing about 22 regions) of residual values between  $\Delta$ Welfare state support and  $\Delta$ Import exposure, conditional on the remaining variables. The left panel shows the results from the overall effect from Table 1, while the right panel shows the results from the model conditioning also on predicted manufacturing employment from Table 2. The slopes of the linear fits illustrate the corresponding coefficients in Table 1 and 2.

Figure A4: Regional Manufacturing employment by Import exposure and Welfare support by Manufacturing employment. Average of residualized values in equally sized bins.



*Note:* The plots show the average of residualized values of  $\Delta$ Manufacturing employment and  $\Delta$ Import exposure (left) of 15 equally sized bins of  $\Delta$ Import exposure (each point representing about 22 regions), and between  $\Delta$ Welfare state support and  $\Delta$ Manufacturing employment (right) of 15 equally sized bins of  $\Delta$ Manufacturing employment. Residuals are calculated conditional on the remaining variables from the models from Table 2. The slopes of the linear fits illustrate the corresponding coefficients in the table.

## Appendix G: Estimates based on total trade exposure

In Table A4 we show estimates replacing import exposure with total trade exposure, as measured by the sum of import and export exposure. This is a measure of trade openness that is often used in the literature, as for instance in Rodrik (1998). As instrument, we use a corresponding measure of total trade exposure for the group of other high-income countries. As can be seen, the estimates in the below regression is somewhat smaller, but still comparable, to those for import exposure in our main analysis.

Table A4: 2SLS Regressions: Mediator analysis based on total trade

	$\Delta$ Manufacturing employment (1)	$\Delta$ Welfare state support (2)
Panel A: Second stage		
$\Delta$ Total trade exposure	-0.285*** (0.073)	0.110 (0.132)
$\Delta$ Manufacturing employment		0.802* (0.479)
Panel B: First stage		
$\Delta$ Total trade exposure instrument	0.896*** (0.035)	-0.255** (0.105)
Kleibergen-Paap F	655	6
Panel C: Parameters		
Direct effect (risk)		0.110 (0.132)
Indirect effect (income)		-0.229 (0.148)
Total effect		-0.119** (0.048)
Observations	313	313

Robust standard errors clustered on NUTS 2 are shown in the parentheses. All regressions include country fixed effects, a linear time trend, and controls for initial level of education, initial female share, and initial share of elderly.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

## Appendix H: Redistribution versus social insurance

Our theoretical claim is that support for the welfare state follows an insurance logic rather than a redistribution logic, and we interpret the welfare state variables in the Comparative Manifesto Project as reflecting expansion and retrenchment of social insurance policies. We believe this is a plausible interpretation since the main programs of the welfare state are social insurance programs. However, the welfare state also redistributes income, and we do not believe that support for policies that mainly redistribute income will decrease with manufacturing decline (see also Moene and Wallerstein 2003). It is therefore useful to examine whether we get different effects of manufacturing decline on support for redistribution than for social insurance, as standard models of support for redistribution suggest that support increases with realized income losses (Meltzer and Richard 1981).

Unfortunately, the Comparative Manifesto Project does not include variables that directly tap support for redistributive policies. The best indicator is the “Social justice”-variable, which counts positive references to equality and fair distribution of resources.<sup>13</sup> There is no associated variable capturing negative references to social justice, so we simply use the number of positive references to social justice as our proxy measure of redistribution.<sup>14</sup>

In Table A5 we show that we get opposite results when we measure the effect on support for redistribution. Most importantly, the indirect effect of import exposure switches sign and becomes positive, although small and insignificant (p-value of 0.260). Thus, while manufacturing decline due to trade lowers support for social insurance, it does not decrease the support for redistribution. This result supports the claim that the income effect depends on whether the welfare program is mainly social insurance or redistribution. The direct effect also has the opposite sign from the insurance model, which is less consistent with our theoretical model, as this variable should represent the positive risk effects from import exposure.

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<sup>13</sup>The variable explanation also counts other social justice concepts that are not related to income redistribution, such as racial and sexual discrimination. See Budge et al. (2001: 226) for the full text.

<sup>14</sup>I.e. we replace  $g_{pt}$  in the welfare state support measure with the number of positive references to social justice for each party  $p$  in election year  $t$ .

Table A5: 2SLS Regression: Mediator analysis of support for social justice

	$\Delta$ Social justice
Panel A: Second stage	
$\Delta$ Import exposure	-0.150*** (0.048)
$\Delta$ Manufacturing share	-0.216 (0.185)
Panel B: Parameters	
Direct effect (risk)	-0.150*** (0.048)
Indirect effect (income)	0.067 (0.059)
Total effect	-0.083** (0.033)
Observations	313

Robust standard errors clustered on NUTS 2 are shown in the parentheses. The regression includes country fixed effects, a linear time trend, and controls for initial level of education, initial female share, and initial share of elderly. The effect of import exposure on manufacturing employment ( $\gamma_1$ ), as well as the first stage estimates, are the same as in Table 2.  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.