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The German Export-Led Growth Model – Who Benefits?

A Quantitative Approach to Intersectional Labour Market Integration Inequality in the Export Sector

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This paper investigates the distributional effects of the German export-led growth model from an intersectional perspective. Theoretically, the export-led model not only redistributes between the factors capital and labour, but also between workers since the wage repression inherent to the model may be less stringent for workers in the highly profitable, "high-road" export-oriented sector. Applying a logistic regression and marginal effects by using SOEP data for 2005 to 2019, we show that the employment probability in the well-paying export sector is linked to the interaction of gender, origin and class background, beyond their individual effects. We find that there is a multiplicative – beyond a mere additive effect of these attributes on the likelihood of being employed in the export sector. We find that women are severely underrepresented in the German export sector, while both individuals with a migration background and those with a low-class background are overrepresented. However, both econometric and descriptive evidence shows that especially migrant workers, both male and female, are more likely to work in menial jobs within the export sector. Our data thus suggest that male workers benefit more from the German export-led growth model than female workers, and that the differentiation within the export sector appears to disadvantage workers with a migration background.

1. Introduction

Growth model literature on multi-dimensional inequality, which goes beyond a single or at the most double axis of inequality, is scarce. A notable exception is the growth model literature on societal inequalities which focuses on gender wage gaps in countries in the periphery (Berik 2000; Seguino 2000). This paper aims to help close this gap by combining the growth model approach with an intersectional approach (Crenshaw 1989) that takes multiple intertwined effects of gender, race, ethnicity, class, and other socio-economic characteristics into account. Intersectionality and growth model theory fuel each other in investigating societal inequalities.

From a growth models perspective, Germany is export-led (Stockhammer 2015; Baccaro and Pontusson 2016; Behringer and van Treeck 2018b), since it solves the lack of effective demand resulting from rising inequality by relying primarily on foreign demand in the form of exports. In a situation of rising within-country inequality and thus falling domestic demand, the only alternative for maintaining growth is to bolster the latter through private debt; this is the route that debt-led countries such as the United States and the United Kingdom took before the financial and economic crises of 2008.[1]

From a micro-level perspective, the German export-led growth model leads to labour market segregation between insiders, who are employed in the export-oriented manufacturing sector, and outsiders, who work in the domestically-oriented service sector (Thelen 2012; Baccaro and Pontusson 2016, 2019a). Labour market insiders have secure jobs in the core sectors, while outsiders face more precarious occupations (Thelen 2012). Since exporting companies pay higher wages compared to domestically-oriented firms (Schank, Schnabel and Wagner 2006; Dauth, Schmerer and Winkler 2015), this dualization also translates into personal income inequality. It is furthermore associated with sectoral gender (Kraus 2006) and ethnic (Benassi 2017; Krings 2021) segregation. Additionally, modern comparative political economy (CPE) takes a more nuanced view, since this differentiation also occurs within sectors (Baccaro and Benassi 2016). This raises the question of how the German export-led growth model translates into inequality at the individual level; and whether these differences between gender, migration or class groups are more pronounced along some inequality axes than others.

This paper investigates the inequality generated by differences in employment opportunities in the German export sector for several intersectional groups, in particular differentiating by gender, origin, and class. It argues theoretically that intersectionality and post-Keynesian economic/CPE growth model theory are eminently compatible despite their differences in the level of analysis (macro versus micro) and their diverse backgrounds (economics, political science, and legal studies) because both approaches view individuals as embedded in society and both are concerned with questions of power. In the empirical part, the paper uses SOEP data for 2005-2019 and finds in a multivariate analysis that the effects of gender, origin and class background interact in a complex way in determining employment probabilities in the export sector, in addition to the effects of the individual categories and their two-way interactions. While women are severely underrepresented in the German export sector, both individuals with a migration background and those with a low-class background are overrepresented. However, there is both econometric and descriptive evidence that especially migrant workers, both male and female, are more likely to work in menial jobs within the export sector. We

[1] Note that, since the German export-led growth regime is co-dependent on debt-led growth regimes, it is equally crisis-prone from a macroeconomic perspective (Stockhammer and Onaran (2012); Höpner (2019)).

therefore conclude that, while male workers seem to benefit more from the labour market dualization between the export sector and the domestically-oriented service sector in the German export-led growth model than female workers, the differentiation within the export sector appears to disadvantage workers with a migration background.

By analysing export-led growth models from an intersectional perspective, this paper contributes to the literature by (1) bridging the macroeconomic-political economy growth model literature and the legal-distributional intersectionality literature; by (2) combining the analytical growth models approach with microeconometric distributional analysis; and by (3) providing evidence for power differences within workers in the export-led growth model, which leads to the marginalisation and potential discrimination of certain groups.

The rest of the paper is structured as follows: Section 2 reviews the literature and provides the theoretical background, section 3 briefly describes the methodology and section 4 the data. Section 5 contains the results, whose robustness section 6 checks. Section 7 concludes.

2. Theoretical Background

A rich growth model literature developed from neo-Kaleckian roots to explain post-Fordist patterns of economic growth. It focuses on the role of aggregate demand, and, in particular, the importance of household consumption relative to other components of aggregate demand (Stockhammer and Onaran 2012; Stockhammer 2015; Baccaro and Pontusson 2016; Stockhammer 2016; Baccaro and Pontusson 2018; Behringer and van Treeck 2019; Kohler and Stockhammer 2020). In the Fordist era, rising wages had increased household consumption, which in turn drove total demand and thus resulted in overall wage-led economic growth; this wage-led growth model was formalized by Kalecki (1944). Following the neoclassical turn in policy-making, this positive feedback loop stopped materializing in many countries with the stagflation of the 1970s (Lavoie and Stockhammer 2012; Baccaro and Pontusson 2016; Baccaro and Pontusson 2018). Neo-Kaleckian theory supplemented the wage-led growth model, which describes the Fordist accumulation pattern, with profit-led growth following the seminal papers by Bhaduri and Marglin (1990) and Kurz (1991): An expansion of the labor share may conceptually have a positive, negative, or indeterminate effect on growth depending on the profit share (Hein and Tarassow 2010). This is because the response of investment to an increase in the profit share is ambiguous since it responds positively to the demand impulse due to the correspondingly decreasing labor share, and negatively to the declining profitability. Notably, these growth models are fluid, in particular over time, and they are highly country-specific (Baccaro and Pontusson 2016).

The long-run decline in labor shares since the 1970s not only distributed functional income away from labor, but also impacted the personal income distribution as low-income households receive a larger share of their income from labor and high-income households from capital (Rehm, Naqvi and Hofmann 2016). Since the former have a higher marginal propensity consume, rising inequality led to a stagnation in domestic demand, especially starting in the 2000s (Stockhammer 2015). As a consequence, countries developed export-led growth models on the one hand and debt-led growth models on the other hand in order to compensate for this lack of domestic demand (Stockhammer 2016). The former group encompasses Germany, the Japan, and Austria (Stockhammer 2015), for instance, which relied on external demand in order to realize their production, for instance, the German export-led model was fully established by 2005 (Behringer and van Treeck 2019). The latter group contains countries such as the United States, the United Kingdom, and Spain (Stockhammer

2015), which shored up domestic demand through the expansion of private debt. Thus, from the 1990s onwards, the ratio of net exports to private consumption continuously increased in Germany and declined in the United Kingdom and United States, while private indebtedness increased in the United Kingdom and United States but fell in Germany (Baccaro and Pontusson 2016; Baccaro and Pontusson 2018).

A key feature of the German export-led growth model is wage repression (Stockhammer 2015). Since net exports are determined by relative prices, and German exports are mainly manufactured products that are price sensitive, German businesses need to suppress wages in order to keep domestic prices low and maintain their competitiveness (Baccaro and Benassi 2016; Baccaro and Pontusson 2016). That is, the general wage level in the economy needs to remain low in order to maintain international price competitiveness (Baccaro and Benassi 2016; Baccaro and Pontusson 2016). However, Du Caju, Rycx and Tojerow (2011), as well as Mokre and Rehm (2020) find inter-industry wage differentials, which denote differences in wages for the same job type in different sectors, as a persistent empirical feature of modern economic systems. Manufacturing industries managed to circumvent wage repression. Overall, manufacturing industries, which constitute the export sector, experienced real wage growth while real wages stagnated in domestic-oriented low-end service sectors (Schultz 2012; Dustmann, Fitzenberger, Schönberg and Spitz-Oener 2014; Baccaro and Benassi 2016; Baccaro and Pontusson 2016). Export-oriented industries typically pay an increasing exporter wage premium (Baumgarten 2013; Dauth, Schmerer and Winkler 2015). Individual workers are thus faced with a dual labor market, as discussed below. Literature shows that the exporter wage-premium merely benefits skilled workers (Arnold and Hussinger 2005; Munch and Rose Skaksen 2009), while the exporter wage premium is small for unskilled workers.

From a macroeconomic perspective, the debt-/export-led models were crisis-prone. The rising levels of private debt in the countries espousing the consumption-led growth model, as well as the permanent export imbalances in the countries following the export-led growth model caused the 2008 financial and economic crises and the Eurozone crisis after 2010 (Brancaccio 2012; Stockhammer and Onaran 2012; van Treeck 2014; Stockhammer 2015; Stockhammer and Wildauer 2015; Nölke 2016; Kohler and Stockhammer 2020; Ascione and Schnetzer 2022). The literature links this macro to the micro level mostly through individual consumption decisions, with less emphasis on investment. For consumption, working-class families trying to keep pace with social consumption norms even though their real wages stagnate or decrease their stagnating or decreasing real wages (Stockhammer 2015) or upward-looking status comparisons especially of upper middle-class families (Behringer and van Treeck 2018a) led to rising private debt levels where institutional banking setups permitted such a debt build-up. Regarding (financial) investments, Stockhammer (2015) argues that speculation rises with higher household-level wealth inequality (which is correlated with income inequality, (Rehm and Schnetzer 2015; Fessler and Schürz 2020)) since richer households tend to hold riskier financial asset than other groups (Ederer, Mayerhofer and Rehm 2021).

A strand of this literature investigates the effect of the 2008 financial and economic crisis on the differences in individual or household characteristics. Seguino and Heintz (2012) show that the financial and economic of 2008 crises differed in their impact on individuals by various gender and race characteristics in the U.S., that is, that the disadvantages experienced by these groups intersect. Both women and Black people were affected the most, which led to Black women being the worst hit, while White men were impacted the least negatively. Seguino (2012, 2019) thus stresses the importance of including inter- and intra-group differences by class, race and gender characteristics in investigating

the financial and economic crises. In growth-model literature, Seguino (2012, 2019) and Seguino and Heinz (2012) are the only authors, noticing intersectional inequalities.

Kimbleré Crenshaw introduced the heuristics of intersectionality at first in law studies in 1980es. Intersectionality investigates the interactions of multiple socially constructed categories and their interrelation with different forms of privilege or marginalisation, originally from a legal and human rights perspective (Crenshaw, Cho and McCall 2013): Studying the discrimination of Black women in court, Crenshaw (1989) finds that African-American women face fundamentally different discrimination to White women or African-American men. Hence, the author concludes that the interaction (or intersection) of several societal categories explains these differences. While the categories studies are often race, class, and gender, other aspects that may comprise ethnicity, age, (dis-)ability, or sexual orientation. The core argument of intersectional theory is that the potential discriminatory effects of these different dimensions are not merely additive, but interconnected and intertwined (Crenshaw 1989; Dubrow 2008; Rouhani 2014). Intersectionality research thus investigates the social position of individuals along multiple axes instead of a single-axis basis (Crenshaw, Cho and McCall 2013). These intersections not only determine advantageous and disadvantageous structures within society but also form the individual's identity (Tao and McNeely 2019). While standard Anglo-American intersectional research uses race as an analytical category (Simien 2007; Dubrow 2008), German literature focusses on migration background instead. Common view in German research is that the term "Race" cannot be used as a neutral analytical category due to the racially motivated Genocide during National Socialism (Bös 2020). Thus, the term "race" is excluded from public and scientific discourse (Müller 2012; Bruce-Jones 2015). Also, SOEP data does not contain information on "race". Thus, in line with (Stypińska and Gordo-Romeu 2018) we use origin to trace back discrimination according to race or ethnic characteristics. In the context of economic research on inequalities, Lamont, Beljean and Clair (2014) criticize that cultural processes of racialisation and stigmatization (for identification) so far received limited attention. McCall et al. (2014) take up their ideas on single race and gender discrimination, and complement it conceptually by an intersectional perspective, in particular emphasizing the intersectional effect of class, gender and race in the constitution of economic inequality. Since intersectionality research refers to societal structures in the investigation of inequality, it requires explicit consideration of power relations and marginalisation (Crenshaw, Cho and McCall 2013). This makes it uniquely compatible with a growth model perspective, which considers power relations on the macro level.

This paper argues that from a growth model perspective, taking intersecting inequalities into account is relevant for theory formulation for three reasons, for which we discuss the literature in the next paragraphs: First, income differences are highly and persistently linked to intersectional characteristics; second, in consumption-led growth models intersecting gender and race characteristics interact with disparities in household wealth and thus debt; and third, in export-led growth models employment in the high-wage export and in the low-wage domestic service sector is marked by intersecting gender and race differences.

For income inequality, both a racial and a gender wage gaps are consistently documented in the U.S. (Manduca 2018; Blau and Kahn 2020; England, Levine and Mishel 2020; Alonso-Villar and Del Rio 2021). Consequently, White and male workers are more likely to be able to finance consumption out of their earnings than Black people and women. Taking the intersecting gender and race characteristics into account, Latina women are even more disadvantaged than Black women relative to White males (Trab 2017). Racial and ethnic wage gaps are larger for men than for women, and gender differences are

smaller for racial and ethnic minorities (Brewer, Conrad and King 2011). This income gap can be explained by occupational stratification following intersecting gender and race characteristics (Arestis, Charles and Fontana 2014). White women, Black women, Hispanic men and Black men are more likely to work in service occupations, while more White men are employed in managerial and financial occupations (Arestis, Charles and Fontana 2014). In Germany, also persistent gender wage gaps exist (Boll and Lagemann 2018; Kunze 2018). Even though no literature computes racial wage gaps in Germany, a persistent immigrant wage gap is well reported (Beyer 2019; Ingwersen and Thomsen 2021). The intersection of race (respectively migration background) and gender for defining low-income groups can thus be specified empirically, which adds detail to the macroeconomic growth model theory of income inequality.

Regarding wealth and debt, the wealth gap, which is linked to debt disparities, is much larger than income inequalities. The literature documents both persistent gender wealth gaps (Sierminska, Frick and Grabka 2010; Schneebaum, Rehm, Mader and Hollan 2018; Cordova, Grabka and Sierminska 2022) and racial wealth gaps (Derenoncourt 2022). In the U.S., the median net wealth of White households is twelve times higher than that of Black households; more than one quarter of Black households have zero or negative wealth (Jones 2017). Since housing is the main component of private households' wealth (Rehm and Schnetzer 2015), it is also the most important driver of the racial and gender wealth gaps (Shapiro, Meschede and Osoro 2013; Schneebaum, Rehm, Mader and Hollan 2018). These differences are reinforced by differential returns that rise with the level of wealth (Ederer, Mayerhofer and Rehm 2021). In housing, gender gaps in returns explain up to thirty percent of the gender gap in wealth accumulation (Goldsmith-Pinkham and Shue 2020). Furthermore, racial segregation in the spatial variation of homeownership decreases upward economic mobility of Black individuals by reducing access to networks, labour and capital markets, which in turn facilitates racial wealth and income gaps (Andrews, Casey, Cradley and Logan 2017). Baccaro and Pontusson (2016) link housing wealth and debt to growth model theory by arguing that trends in residential house prices track indebtedness because rising house prices on the one hand result in increased borrowing, and higher asset prices on the other hand imply higher collateral values that facilitate debt-financed consumption, Rising property prices (which provide the collateral to finance expenditure cascades) and (resulting) household debt had mainly contributed to economic growth prior to the 2007 economic crises (Stockhammer and Wildauer 2015), which is associated with asset and/or property price bubbles (Stockhammer and Onaran 2012) that contributed (among other factors) to the financial crisis in 2007 (Stockhammer 2015). Even though Black households have lower wealth, Charron-Chénier and Seamster (2021) show that White families have more debt than Black families: They have higher mortgage debt, higher vehicle debt and more personal debt. Furthermore, homeownership for Blacks and Latinx is significantly lower than those of White (Perry 2019) first, because the bottom 50%, to which many Black households belong as outlined in the previous paragraph, tend to rent (Fligstein, Hastings and Godlstein 2017) and second, Black people experience discrimination in mortgage lending (Bayer, Ferreira and Ross 2014). Thus, the White Upper Class contributes mainly to debt-led consumption and hence contributed to the financial crises. Further, Atalay et al. (2020) state that households respond to increases in housing wealth by significantly increasing their debt, since a higher percent of White than Black households have housing wealth (Avery and Rendall 2002), White households also contribute to increasing private debt in the US. Overall, White households have higher mortgage debt and higher personal debt (Charron-Chénier 2018), thus, White households contributed significantly more to the 2008 financial crisis. In turn, regarding mortgage debt, Black households suffered more from the financial economic crises because their mortgage debt fluctuated much more,

with a total rise of mortgage debt by 200 percent from 2001 to 2007 with a decline by 40 percent from 2007 to 2013 (Seamster and Charron-Chénier 2017). Whereas White households experience less fluctuation: Mortgage debt increased by 40 percent from 2001 to 2007 and declined by 10 percent from 2007 to 2003 (2017).The literature thus suggests that racial and gender income and wealth gaps in the United States imply that its debt-led consumption model was fuelled, on the one hand, by intersectional income inequality which disadvantaged women and non-Whites, and on the other hand by household debt, which was mainly taken up by White upper-middle class households.

The intersectional aspects of the export-led growth model relate mainly to the dualization of the labour market. Based on Thelen's (2012, 2015a, 2015b) theory on labour market, Baccaro and Benassi (2016) argue that exporting firms' cost-cutting contributed to a segregation between labour market insiders and outsiders, with the former employed in secure export sector jobs in the manufacturing industries and the latter in domestically oriented low-end service industries. The export sector is characterised by high coordination and institutionalized protection within core manufacturing sectors, while in particular, the private service sector constitutes a "less regulated periphery" (Thelen 2015b). Trade unions in the export sector manage to develop resilient protective institutions in manufacturing , while the weakness of service sector trade unions leads to increases in marginal part-time work in the low-wage service segment in Germany (Marx and Starke 2017). Hence, collective bargaining in the export sector contributes significantly to resilient dualization within export-led growth. The low-wage sector expansion is key to the German export-led growth model because low wages in the service sector kept domestic prices low, which permits the export sector to retain its international competitiveness Baccaro and Pontusson 2016). At the same time, manufacturing workers' purchasing power is retained as nominal wages remain constant (Baccaro and Pontusson 2016) and productivity is high, as collective action in the export sector is kept at bay. Coalitions of export-oriented manufacturing firms and skilled workers (Thelen 2015a), that claim to represent the "national interest"(Thelen 2015b), manage to impose a positive perspective export-led growth on society (Baccaro and Pontusson 2016; Baccaro and Pontusson 2018, 2019b; Baccaro and Pontusson 2019a).

Adding socio-demographic characteristics to labour market dualization, Benassi (2017) states that labour market labour market outsiders include besides low-end service sector employees migrants and A-typical workers. Focussing in migrant occupational segmentation, Krings (2021) shows that while in the 80s manufacturing was a core (and relatively well-paying low-wage job segment) sector for migrant workers, meanwhile, the share of foreign-born employment in industries declined. Whereas the share of foreign-born employment in (low-wage) services shows a positive trend (Krings 2021). Migrants are since more likely to be employed in non-unionised workplaces and the service sector. Low-wage employment in the service sector thus contributes to the persistence of a migrant wage gap (Krings 2021). More recently, a dualization within the export sector between core workers and agency staff has taken place (Eichhorst, Marx and Tobsch 2015). Agency staff with insecure temporary jobs are more likely occupied by immigrants in both the service and the export sector (Muffels 2015). Furthermore, gender and migration characteristics intersect in marginal employment in the outsider segment. For example in the service of cleaning, two-thirds of all cleaning staff are women, one third is non-German and more than half of cleaning staff work on a "marginal" part-time bases (that is they don't earn more than 450 Euro per month) (Schulten and Schulze-Buschoff). In the context of Gender, mini-Jobs, which are mainly carried out by women (Bosch 2018 in Krings 2021) are an example for atypical work. Regarding gender, in high-income countries, men dominate the (export-oriented) industrial sector, while women are overrepresented in the (domestic) service sector (2011). "Typical

male" branches are chemical products and automobiles, while typical male jobs are technician and engineer (Hausmann, Kleinert and Leuze 2015; Ahrens and Scheele 2022). Women are more likely to be employed in the restaurant sector, hairdressing, retailing, and the care sector (Hausmann, Kleinert and Leuze 2015). "Male" jobs are thus associated with manufacturing industries in the export sector, while outsider jobs in the service sector are "female" domains. The female-dominated service sector is difficult to unionize and expanded hand-in-hand with a low-wage segment in Germany (Leschke (2015). In contrast, in the export-oriented manufacturing sector, strong unions were able to negotiate wages that are comparable to jobs requiring a university degree (Baccaro and Pontusson 2016). Nevertheless, by the transformation to an export-led growth model, collective bargaining lost power and which reduces the ability of industrial relations to transmit productivity growth into wage growth across all sectors (Baccaro and Benassi 2016). Intersecting gender, origin and class characteristics thus play a role in the determination of the individual's location in the employment structure and determine whether an individual is employed in the insider segment of the labour market. The growth models literature explains the differences in wages (and working conditions) between the export sector and the domestic service sector through industrial relations and in particular the relative strength of unions. However, while relative union strength can explain the wage differential between the export sector and the service sector, it does not explain why women or migrants should "choose" to sort into the low-paying service sector unless gendered preferences – which would need to be textbook neoclassical and thus immutable – are brought into play. The intersectionality literature contributes to the understanding of this apparent puzzle by emphasizing that gender and race intersect in the labour market under concrete institutional conditions, creating both wage inequality and gendered stereotypes (Brown and Misra 2003).

Gender and migration background are thus key determinants of the likelihood to be employed in the export-oriented manufacturing sector. This paper investigates whether the export-oriented growth model in Germany led to socio-economic inequality along the dimensions of class, origin and gender through the employment probabilities in the export sector. It makes three main contributions to the literature: First, it bridges the macroeconomic-political economy growth models literature and the legal-distributional intersectional literature by providing an analysis of export-led growth models from an intersectional perspective. Second, it combines the analytical growth models approach with a microeconometric distributional analysis and third, it thus provides evidence for the power that certain intersectional groups exert within the export-led growth model, and which leads to the marginalisation and discrimination of other groups. The next section describes the method applied in the analysis.

3. Methodology

Since the outcome variable is binary, we use a logistic regression in order to answer the question how likely workers with a certain combination of gender, origin, and class characteristics are to be employed in the German export sector, and thus benefit from the export-led growth model. The probability of employment in the export sector is predicted using binary variables which we permit to interact in order to capture their possibly interlinked effects, as is standard in intersectional research (Rouhani 2014; Tao and McNeely 2019).

We estimate first an additive model, which represents the standard (non-intersectional) approach of controlling for each characteristic separately (Rouhani 2014). In a second step, the full set of possible two-way interactions are introduced, and a third step estimates the fully intersectional model. The full model is as follows:

Equation 1

$$Ln\ [p/(1-p)]_{rt} = \alpha+\beta_1 GEN_{rt}+\beta_2 OR_{rt}+\beta_3 CLA_{rt}+\beta_4 (GEN*OR)_{rt}+\beta_5 (GEN*CLA)_{rt}+\beta_6 (OR*CLA)_{rt}+\beta_7 (GEN*OR*CLA)_{rt}+\beta_8 X_{rt}+\varepsilon_{rt}$$

p is the probability of individual r being employed in the export sector at time t, GEN denotes gender, OR origin, CLA class, and the vector X_{rt} contains wave dummies. We apply sample weights and use robust standard errors. Gender (0=male; 1=female), origin (0=German-born; 1=non-German-born), and class (0=low-class; 1=high-class) are coded as binary variables. The reference categories are men, German-born and high-class. Based on the logistic regression, we estimate average marginal effects since these capture the size of the effect of intersecting gender, origin and class characteristics more precisely.

4. Data

The data comes from the Socio-Economic Panel (SOEP) provided by the German Institute for Economic Research (DIW). The SOEP is a high-quality, nationally representative longitudinal panel dataset of private households. Crucially for our research question, the SOEP contains not only employment data but also socio-demographic characteristics at the individual level, including information on gender, origin and class background. Since the German export-led growth model was fully established by 2005 as discussed in the literature review, we include the SOEP waves from 2005 to 2019 in our analysis. Finally, the sample is restricted to employees between the age of 17 and 72 who completed their education, thus excluding pensioners, interns, volunteers, the unemployed, those in military service and trainees. The full sample then consists of 200.857 observations.

While standard Anglo-American intersectional research uses race as an analytical category, this paper focuses on migration background instead, as discussed in the. Migration background is thus defined as being (non-)German-born.[2] We follow the growth model literature's origin in post-Keynesian economics (Baccaro and Pontusson 2016, 2019a) by computing class according to working class status. The class position is operationalised by a simplified version of Erikson, Goldthorpe and Portocarero's (1979) class scheme which distinguishes between five groups: Working class (manual workers), middle class job segments (small self-employed with and without employees), higher and lower managerial positions, clerical work and agricultural work). Workers are denoted as low-class while the rest is classified as high-class. [3]

In order to classify employees into export- or import-oriented sectors, we combine the 2-digit sectoral data from the National Accounts with SOEP-data. Baccaro and Benassi (2016) include nace-codes D21 through D37[4] to classify sectors as (export-oriented) high-end manufacturing. We add more detail our classification, computing the export shares of industries from 2009 to 2019 of National Accounts. We find that the Top export industries are the automobile industry, mechanical engineering, chemical industry, metal industry and data processing industry[5]. Hence, similarly to Baccaro and Benassi (2016), these industries collectively form the "export sector" for the purpose of this paper. Following

[2] We check for the robustness of our results using current nationality instead of nationality at birth in section 6.
[3] We check for the robustness of our results using working-class status of parents instead of working-class status of the individual itself in section 6.
[4] High-end manufacturing (nace-codes D21 – D37): paper and pulp, petroleum products, chemicals, rubber and plastics, non-metallic mineral products, metal products, machinery, electrical and optical equipment, transportation equipment and manufacturing NEC.
[5] For a graphical representation of export shares, see Figures 4 in Appendix A. National Accounts only provide data from 2009 on.

Schwarzer (2017), each individual is defined as working either in the export sector or in the non-export sector based on their main employment as classified by SOEP (2-digit-nace)[6].

Table 1 reports the summary statistics. Of our full sample, 25.357 (12.62 %) individuals work in the export sector, while 175.500 (87.38 %) individuals work in the non-export sector. 50.38% of the sample are male, 83.93% are of German origin, and 72.44% are defined as high-class.

Table 1: Summary statistics

	Mean	Standard deviation	Percent (reference category)
Employment in the export sector (EXP)	0.126	0.332	12.62
Gender (GEN)	1.496	0.500	50.38
Origin (OR)	1.160	0.367	83.93
Class (CLA)	1.276	0.447	72.44

Source: own calculations; data: SOEP (2022)

Table 2 descriptively shows the intersectional representation in the export sector, averaged from 2005-2019. Values above one denote over-representation relative to our full sample, while values below one show under-representation. For instance, with a value of 1.08 German low-class men are only slightly more likely to work in the export sector than in the non-export sector. Most overrepresented in the export sector is, perhaps surprisingly, the group of non-German low-class men, followed by German high-class men and women. By far most underrepresented is the group of German low-class women. In general, non-German and female workers are underrepresented in the export sector, with the important exceptions of non-German low-class men and German high-class women.

Table 2: Relative frequency of intersecting gender, origin and class groups in the export sector (2015-2019)

		Origin			
		German		Non-German	
	Class	High-class	Low-class	High-class	Low-class
Gender	Man	2.30	1.08	0.98	3.74
	Woman	2.39	0.13	0.69	0.58

Note: This table shows the relative frequency of each group in comparison to the full sample, averaged for the years 2005-2019. A value of exactly one denotes representation in the export sector that is equal to the group's share in all workers, while above (below) one denotes over-(under-)representation.
Source: own calculations; data: SOEP (2022)

At first brush, these descriptive data thus suggest that the employment benefits of the German export model accrue mainly to low-class non-German men, and high-class German men and women.

[6] For the assignment of sectors to SOEP-2-nace-codes see Table 8 in Appendix A.

However, as noted in Section 2, the literature finds that individuals with a migration background are employed in lower-tier jobs within the export sector. Next, we therefore explore the job-level differentiation in more detail, to provide some insights into the potential class divisions by migration background.

Table 3 shows how workers by origin and by gender are distributed across occupational segments in the export-sector, as defined by the Erikson-Goldthorpe scheme (1979). It shows that 70 percent of non-German workers are employed in working-class positions compared to only about 40 percent of Germans. This picture reverses for managerial positions, which are occupied by about 45 percent of German workers in contrast to only 23 percent of non-German workers. Regarding gender, the usual stereotypical job distribution emerges, as described in the literature review: While about 52 percent of men are employed as manual workers, this number is only about 26 percent for women; at about 30 percent, they are much more represented in clerical positions compared to about 6 percent for men. In conclusion, the overrepresentation of low-class non-German men in the export sector is contravened by them working in manual jobs, while managerial jobs are occupied mainly by German-born men and women.

Table 3: Relative percent of separate gender and origin groups in the export sector based on Erikson, Goldthorpe and Portocarero (1979)

in %	German	Non-German	Men	Women
Working class	40.4	70.0	51.9	26.2
Self-employed	1.81	0.9	1.8	0.9
Managerial positions	44.9	22.9	39.8	43.3
Clerical work	12.8	6.2	6.4	29.5
Agricultural work	0.06	0.0	0.0	0.1
Sum	100	100	100	100

Note: This table shows the percent of each group in comparison to each full export-sector occupational segment, averaged for the years 2005-2019.
Source: own calculations; data: SOEP (2022)

5. Results

This section investigates whether these differences in employment probabilities, especially for non-German workers and for women, hold in a multivariate setting which takes the intersectional nature of these characteristics into account. Table 4 shows the results of the logistic regression from Equation 1, while Table 5 and Table 6 report the average marginal effects derived from them.

All effects of gender, nationality, and class are highly statistically significant both individually and in their two- and three-way interactions (Table 4). The magnitudes of the average marginal effects show that there are large positive individual effects for being male on the employment probability in the export sector, as well as of being low-class and – slightly smaller – of being non-German. The two-way interactions show that these effects potentiate each other: Being a non-German male, being a low-class male, and being a low-class non-German raise the probability of being employed in the export

sector economically significantly. This is consistent with the findings of the previous descriptive section. On the other hand, being a woman – German or non-German, high- or low-class – is associated with a lower probability of working in the export sector. In this case, the descriptive result for high-class German women does not appear to carry over to the multivariate case.

Table 4: Logistic regression coefficients - Predicted odds of being employed in the export sector

Dependent variable: Probability of being employed in the export sector	Separate categories	Gender* Nationality	Gender* Class	Class* Nationality	Gender* Nationality* Class
Gender	0.298***	0.316***	0.322***	0.297***	0.339***
	(0.008)	(0.009)	(0.010)	(0.008)	(0.011)
Origin	1.376***	1.493***	1.385***	1.099**	1.249***
	(0.039)	(0.050)	(0.039)	(0.049)	(0.069)
Class	1.956***	1.961***	2.055***	1.833***	1.955***
	(0.044)	(0.045)	(0.053)	(0.047)	(0.056)
Gender* Origin		0.718***			0.663***
		(0.047)			(0.062)
Gender* Class			0.776***		0.723***
			(0.044)		(0.048)
Origin*Class				1.465***	1.310***
				(0.086)	(0.092)
Gender* Origin*Class					1.509***
					(0.208)
Year dummies	x	x	x	x	x
Constant	0.177***	0.175***	0.173***	0.182***	0.175***
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
McFaddens R-squared	0.074	0.074	0.074	0.075	0.075
Prob > chi2	0.000	0.000	0.000	0.000	0.000
Akaike crit. (AIC)	3.74e+08	3.73e+08	3.73e+08	3.73e+08	3.73e+08
Observations	200.857	200.857	200.857	200.857	200.857

Note: This table shows the results of a logistic regression of gender, national origin, and class and their two- and three-way interactions on the probability of being employed in the export sector. Reference categories are male, German-born, and high-class. Sample weights and robust standard errors are applied. *** p<.01, ** p<.05, * p<.1
Source: own calculations; data: SOEP (2022)

Table 5: Average marginal effects - Predicted probabilities of being employed in the export sector by intersecting gender, origin and class characteristics (Additive model and two-way interactions)

	Separate categories	Multiplicative model including two-way interactions		
		Nationality* Gender	Gender* Class	Class* Nationality
Separate categories				
Man	0.183***	0.183***	0.182***	0.183***
	(0.002)	(0.002)	(0.002)	(0.002)
Woman	0.063***	0.064***	0.062***	0.063***
	(0.001)	(0.001)	(0.001)	(0.001)
German-born	0.125***	0.125***	0.125***	0.125***
	(0.001)	(0.001)	(0.001)	(0.001)
Non-German-born	0.162***	0.162***	0.163***	0.155***
	(0.003)	(0.003)	(0.003)	(0.003)
Low-class	0.182***	0.182***	0.180***	0.180***
	(0.002)	(0.002)	(0.002)	(0.002)
High-class	0.104***	0.104***	0.104***	0.104***
	(0.001)	(0.001)	(0.001)	(0.001)
Two-way interactions				
Man | German-born		0.173***		
		(0.002)		
Woman | German-born		0.063***		
		(0.001)		
Man | Non-German-born		0.237***		
		(0.005)		
Woman | Non-German		0.067***		
		(0.003)		
Man | Low-class			0.263***	
			(0.004)	
Woman | Low-class			0.082***	
			(0.003)	
Man | High-class			0.148***	
			(0.002)	
Woman | High-class			0.053***	
			(0.001)	
German | Low-class				0.170***
				(0.003)
German | High-class				0.102***
				(0.001)
Non-German | Low-class				0.243***
				(0.006)
Non-German | High-class				0.111***
				(0.004)

Note: This table shows the average marginal effects of the logistic regression in Table 4 by gender, national origin, and class, and their two-way interactions. *** p<.01, ** p<.05, * p<.1
Source: own calculations; data: SOEP (2022)

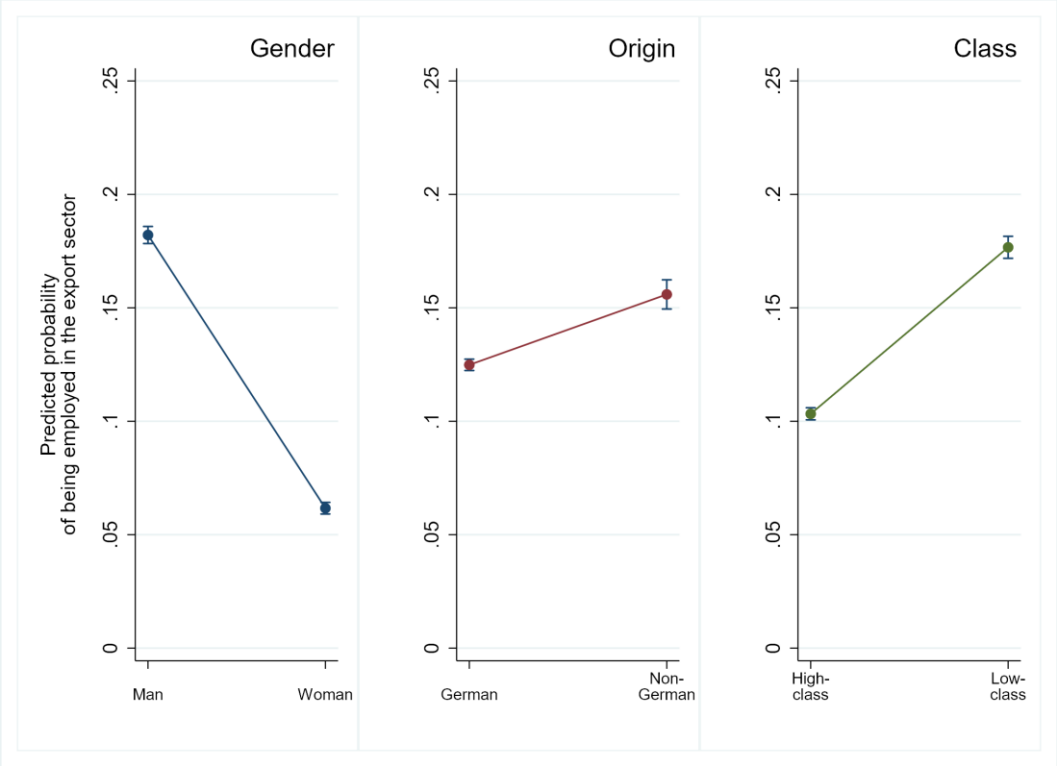
Table 6: Average marginal effects - Predicted probabilities of being employed in the export sector by intersecting gender, origin and class characteristics (based on Equation 1)

Separate categories		
Man	1.183***	(0.002)
Woman	0.064***	(0.001)
German-born	0.125***	(0.001)
Non-German-born	0.155***	(0.003)
Low-class	0.189***	(0.002)
High-class	0.104***	(0.001)
Two-way interactions		
Man | German-born	0.176***	(0.002)
Woman | German-born	0.060***	(0.001)
Man | Non-German-born	0.213***	(0.005)
Woman | Non-German-born	0.077***	(0.002)
Man | Low-class	0.256***	(0.003)
Woman | Low-class	0.093***	(0.002)
Man | High-class	0.150***	(0.002)
Woman | High-class	0.050***	(0.001)
German | Low-class	0.170***	(0.003)
German | High-class	0.102***	(0.001)
Non-German | Low-class	0.243***	(0.006)
Non-German | High-class	0.111***	(0.004)
Three-way interactions		
Man | German | Low-class	0.242***	(0.004)
Woman | German | Low-class	0.087***	(0.002)
Man | Non-German |Low-class	0.339***	(0.008)
Woman| Non-German | Low-class	0.132***	(0.004)
Man| German | High-class	0.148***	(0.002)
Woman | German | High-class	0.049***	(0.001)
Man | Non-German | High-class	0.161***	(0.006)
Woman | Non-German | High-class	0.054***	(0.002)

Note: This table shows the average marginal effects of the logistic regression in Table 4 by gender, national origin, and class, and their two- and three-way interactions. *** p<.01, ** p<.05, * p<.1
Source: own calculations; data: SOEP (2022)

Figures 1 to 3 show graphically how these effects vary when we move from the individual, additive relationship between gender, origin to the two-way interactions, and to the full model based on the average marginal effects from Table 6 and on the standard errors from Table 4. Figure 1 shows that men are about three times more likely than women to work in the export sector, which is both statistically and economically significant. A non-German-born-origin, on the other hand, increases the likelihood of being employed in the export sector, as does belonging to low-class.

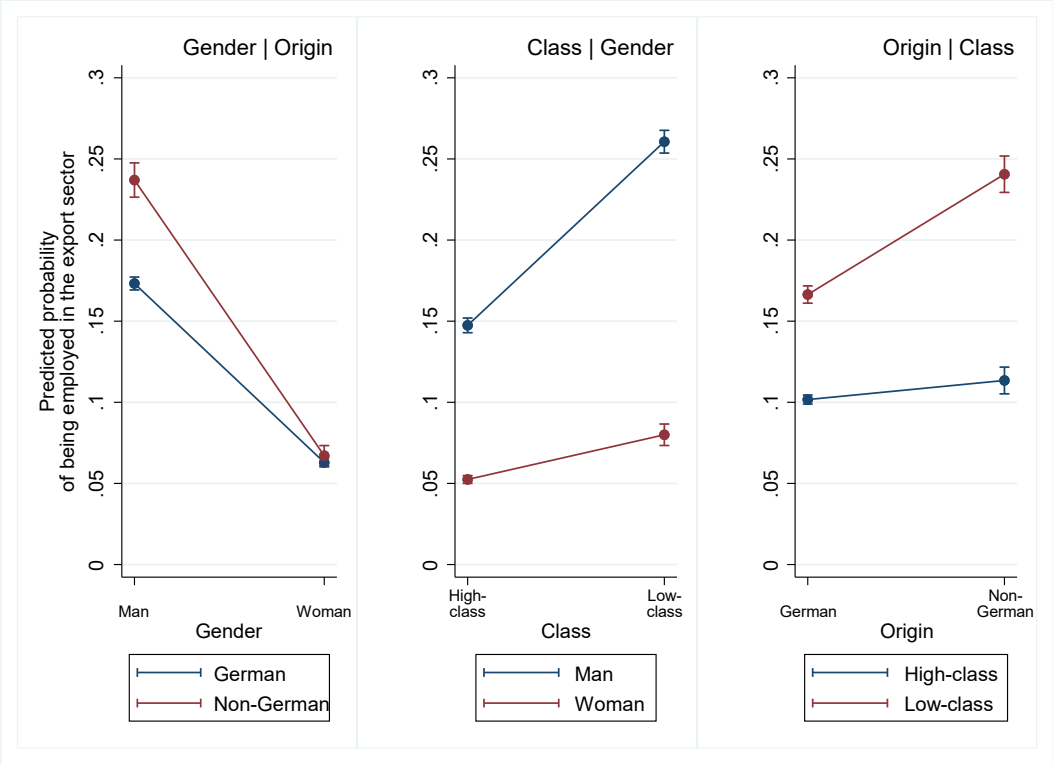
Figure 1: Predicted probabilities of employment in the export sector by gender, origin and class (additive model)



Source: own calculations; data: SOEP (2022); based on Table 5

Figure 2 illustrates the average marginal effects of the two-way interactions. The first panel shows that, while gender trumps nationality, its effects differ for German and non-German workers. In particular, non-native men appear to be relatively more likely to be employed in the export sector. The second panel shows that the effects of (low) class are stronger for men than for women, while the third panel shows that class interacts differently with nationality for natives and non-Germans. While being low-class is associated with a significantly higher employment probability in the export sector in both cases, the effect is stronger for non-Germans; being high-class affects Germans and non-Germans similarly.

Figure 2: Predicted probabilities of being employed in the export sector by intersecting gender, origin and class characteristics (Two-way interactions)

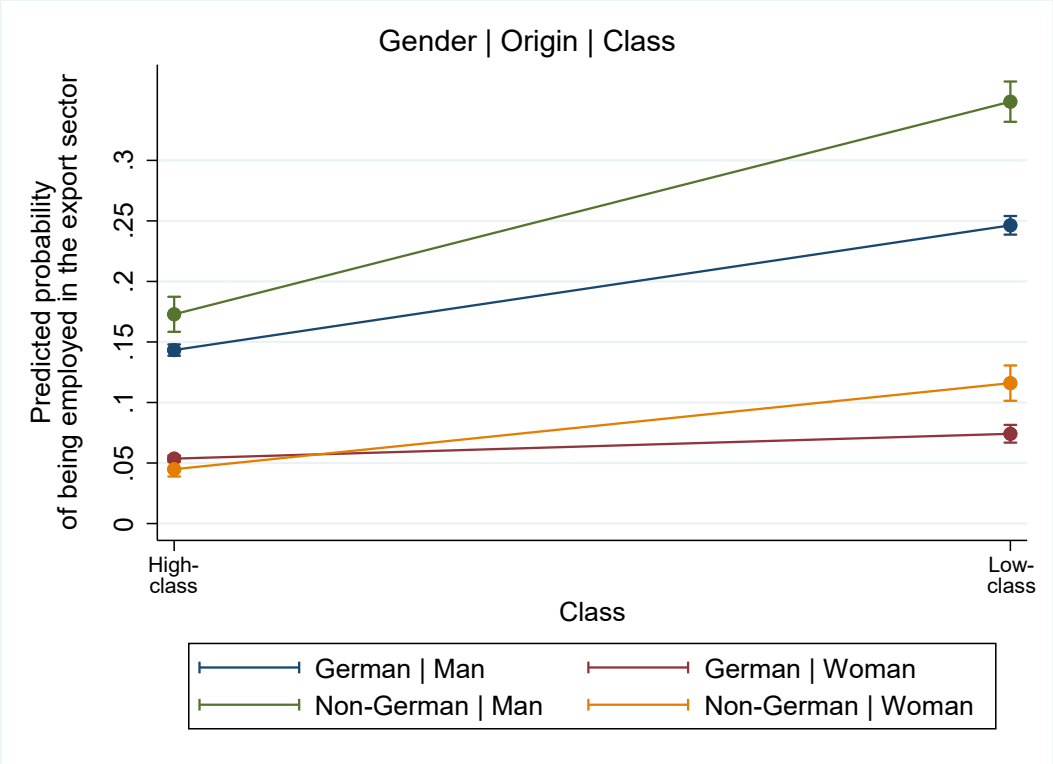


Source: own calculations; data: SOEP (2022); based on Table 5

Finally, Figure 3 shows the average marginal effects for the full model, intersecting gender, nationality and class characteristics. The stark difference between men (top two lines) and women (bottom lines) remains, but it adds nuance: being non-German increases the likelihood of working in the export sector in comparison to natives of the same gender, except for high-class women. Having a low-class background raises the probability of employment in the export sector for all groups considered here, but especially for men.

These findings suggest that the German export sector is be more conducive for men than for women, but does not seem to deter migrants. Class – especially low-class status – plays an important role in particular for (migrant) men.

Figure 3: Predicted probabilities of being employed in the export sector by intersecting gender, origin and class characteristics (Three-way interaction)



Source: own calculations based on average marginal effects (Table 5); data: SOEP (2022)

In conclusion, the econometric results point to a complex interplay of the three categories of intersectionality considered here: Women face a substantially lower probability of being employed in the well-paying export sector, but the opposite is the case for individuals with a low-class and especially with a migration background. As a consequence of this interaction, groups affected by what is commonly understood as two-axes discrimination – that is, the combinations of origin (non-German) and class (low-class) or the interaction between gender (women) and origin (non-German) – face, if anything, *higher* probabilities of working in the export sector. The group of non-German low-class women, which is considered to hold the combination of gender, origin and class characteristics that is confronted the most by societal discrimination, is the group with the highest employment probability among women – but lower than all groups of men. At the other extreme, it is not the group of high-class German men, which is considered to experience the least societal discrimination, that has the highest probability of being employed in the export sector, but the group of non-German low-class men. Thus, male workers benefit more from the labour market dualization between the export and the service sector and, by extension, the export-led growth regime. Women, in contrast, have lower chances of benefitting from labour market dualization and the better-paid jobs in the export sector.

Going into more detail beyond this main finding, the results show that non-German individuals are more influenced by the interaction between gender and class than Germans. Concretely, both non-German men and women face a higher probability of being employed in the export sector when they belong to the lower class. This ties in well with the descriptive evidence, which showed that within this sector, the group of non-German workers is overrepresented in working-class jobs.

The results suggest that the dual labour market composition of the German export-led growth regime is closely intertwined with societal discrimination, especially sexist dynamics. Regarding employment in the export sector, we find that the German export-led growth system favours low-class non-German men (albeit in menial positions within the export sector) while it disadvantages women.

6. Robustness test

We perform extensive robustness checks on our results. First, we expand our vector of controls; second, we alter the specification of our main explanatory variables migration and class background; and third, we vary the definition of our dependent variable, namely which industries are included in the export sector. Table 7 reports the average marginal effects of these robustness checks.[7]

First, we add socio-economic controls that may influence employment probabilities. These are, first, age, second, a dummy variable controlling for the presence of children in the household, and third, an interaction term for children and gender in column (1). The logistic regression results and average marginal effect sizes remain largely identical to the main model regarding both direction and statistical significance.

Second, we replace migration background, which is defined as German-born in the main model, with nationality (column 2). We also check for the robustness of our results when the class status, which is defined for the individual in the main model, is approximated by the class status of the individual's parents (column 3). The results are qualitatively robust to both of these changes. Presumably due to the substantially smaller number of observations for parental class status, however, several interaction terms turn insignificant (see Table 7 in the Appendix).

Third, we vary the number of industries included in the export sector from five in the main model to the top-three (column 4) and to the top-seven (column 5) in order to ensure that our definition of the export sector, albeit based on the literature, does not affect the findings. In the former case, the export sector then encompasses the automobile industry, mechanical engineering, and the chemical industry; in the latter case, in addition to these, the data processing industry, metals, electrical equipment, nutrition and beverages industries are defined as the export sector.[8] The results are, again, qualitatively unchanged from the main model.

[7] For the results of the logistic regression, see Table 9 in Appendix B.

[8] For a graphical representation of export shares, see Figures 4 in Appendix A.

Table 7: Robustness Check: Average marginal effects - Predicted probabilities of being employed in the export sector by intersecting gender, origin and class characteristics

	Including binary children variable		Alternative specification: Nationality		Alternative specification: Class		Top-3 export sectors		Top-7 export sectors	
Separate categories										
Man	0.182***	(0.002)	0.182***	(0.002)	0.197***	(0.008)	0.233***	(0.002)	0.252***	(0.002)
Woman	0.062***	(0.001)	0.062***	(0.001)	0.063***	(0.005)	0.097***	(0.002)	0.111***	(0.002)
German	0.125***	(0.001)	0.129***	(0.001)	0.129***	(0.005)	0.168***	(0.001)	0.184***	(0.002)
Non-German	0.152***	(0.003)	0.140***	(0.004)	0.192***	(0.015)	0.200***	(0.004)	0.219***	(0.004)
Low-class	0.177***	(0.002)	0.181***	(0.003)	0.168***	(0.008)	0.248***	(0.003)	0.275***	(0.003)
High-class	0.103***	(0.001)	0.103***	(0.001)	0.118***	(0.006	0.136***	(0.002)	0.148***	(0.002)
Two-way interactions										
Man | German	0.174***	(0.002)	0.180***	(0.002)	0.184***	(0.008)	0.225***	(0.002)	0.243***	(0.002)
Woman | German	0.060***	(0.001)	0.062***	(0.001)	0.058***	(0.005)	0.094***	(0.002)	0.108***	(0.002)
Man | Non-German	0.218***	(0.006)	0.187***	(0.007)	0.269***	(0.025)	0.274***	(0.006)	0.295***	(0.006)
Woman | Non-German	0.066***	(0.003)	0.067***	(0.004)	0.092***	(0.014)	0.107***	(0.004)	0.120***	(0.004
Man | Low-class	0.260***	(0.004)	0.264***	(0.004)	0.246***	(0.013)	0.335***	(0.004)	0.367***	(0.004)
Woman | Low-class	0.081***	(0.003)	0.085***	(0.003)	0.068***	(0.008)	0.147***	(0.004)	0.169***	(0.005)
Man | High-class	0.148***	(0.002)	0.146***	(0.002)	0.164***	(0.009)	0.189**	(0.003)	0.203***	(0.003)
Woman | High-class	0.052***	(0.001)	0.053***	(0.001)	0.060***	(0.006)	0.075***	(0.002)	0.085***	(0.002)
German | Low-class	0.167***	(0.003)	0.177***	0.003)	0.161***	(0.009)	0.238***	(0.003)	0.263***	(0.003)
German | High-class	0.102***	(0.001)	0.103***	(0.001)	0.106***	(0.006)	0.134***	(0.002)	0.146***	(0.002)
Non-German | Low-class	0.238***	(0.006)	0.216***	(0.007)	0.207***	(0.020)***	0.310***	(0.006)	0.350***	(0.007)
Non-German | High-class	0.111***	(0.004)	0.096***	(0.005)	0.182***	(0.021)	0.150***	(0.005)	0.158***	(0.005)
Three-way interactions										
Man | German | Low-class	0.246***	(0.004)	0.259***	(0.004)	0.234***	(0.014)	0.323***	(0.004)	0.351***	(0.004)
Woman | German | Low-class	0.075***	(0.004)	0.084***	(0.004)	0.065***	(0.009)	0.139***	(0.005)	0.161***	(0.004)
Man | Non-German |Low-class	0.341***	(0.009)	0.320***	(0.011)	0.304***	(0.032)	0.411**	(0.009)	0.465***	(0.009)
Woman| Non-German | Low-class	0.119***	(0.008)	0.095***	(0.009)	0.082***	0.017	0.194***	(0.009)	0.218***	(0.010)
Man| German | High-class	0.144***	(0.002)	0.147***	(0.002)	0.148***	(0.010)	0.185***	(0.003)	0.198***	(0.003)
Woman | German | High-class	0.053***	(0.001)	0.052***	(0.001)	0.052***	(0.006)	0.076***	(0.002)	0.086***	(0.002)
Man | Non-German | High-class	0.168***	(0.007)	0.132***	(0.008)	0.245***	(0.033=	0.217***	(0.008)	0.226***	(0.008)
Woman | Non-German | High-class	0.045***	(0.003)	0.056***	(0.006)	0.099***	(0.020)	0.072***	(0.004)	0.080***	(0.005)

Source: own calculation; data: SOEP (2022); *** p<.01, ** p<.05, * p<.1; Four iterations with STATA; Based on Table 7

7. Conclusion

This paper investigates the distributional effects of the German export-led growth model from an intersectional perspective, combining the analytical, macroeconomic approach of the former with the micro-econometric distributional analysis of the latter. Concretely, we estimate a logistic regression for the effects of gender, migration background, and class on the employment probability in the well-paying export sector using SOEP data for 2005-2019.

We find that the effects of gender, migration, and class background interact in a complex way in determining employment probabilities in the export sector. First and foremost, the data point to a clear negative effect of being female on working in this core sector of the German economy. In fact, being a woman trumps both migration background and class statistically and economically significantly. Second, both a low-class background and especially a migration background *increase* the likelihood of employment in the export sector. As a consequence of this interaction, some potentially surprising results arise from an intersectional perspective: The group considered the most at risk for discrimination, low-class migrant women, has the highest probability of working in the export sector among all groups of women (but lower than all groups of men). The group with the highest overall likelihood of employment in the export sector are not native, high-class men, but migrant, low-class men. We therefore conclude that male workers profit more from the labour market dualization between the export sector and the domestically-oriented service sector in the German export-led growth model, while female workers have lower chances of benefitting from export-led growth. However, since low-class non-German men occupy mainly working class positions, they benefit less from the exporter wage premium, which is a privilege for skilled workers.

Going into more detail beyond this main finding, however, shows that there is dualization within the export sector. In particular, the positive effect of belonging to a low class impacts both male and female non-German workers' employment probability more than German workers'. This is corroborated by descriptive evidence, which showed that individuals with a migrant background are more likely to work in menial jobs within the export sector. These findings are robust to a battery of robustness checks, which varied the dependent variable, the main explanatory variables, and the controls.

Our results speak to the importance of power relations within the export-led growth model. They extend growth model literature, which focuses on the functional distribution and the macro-level, by a multi-dimensional personal distribution at the micro-level. They therefore have direct policy implications, which focus on reducing occupational segregation by gender, migration and class background. These range from fundamental institutional aspects like higher minimum wages, support for unionization, wage guidelines, anti-discrimination legislation and enforcement to reduce gender and racial/ethnic wage discrimination to workplace policies including diversity strategies for recruiting, hiring and retaining individuals from different backgrounds and with different identities to support women of different ethnic groups. In particular, for the automobile sector, gender sensitization training and flexible working hours would help promote gender equality. However, as long as powerful social blocs, i.e. coalitions of export-oriented manufacturing firms and skilled workers who manage to impose a positive perspective of export-led growth on society (Baccaro and Pontusson 2016) intersectional inequalities will perpetuate. Our findings thus support Onaran's (2017) "equality-led growth regime" that has the potential to reduce all dimensions of inequality.

Our results are in line with current research. Muffels (2015) shows that agency staff with insecure temporary jobs are more likely occupied by immigrants in both the service and the export sector. Thus, even though low-class non-German men have the highest probability of being employed in the export sector, they benefit less from high wages. Further, our results concerning the divide between migrants in the workers positions and non-migrants in higher positions, are in line with Eichhorst, Marx and Tobsch (2015) who provide evidence for a dualization within the export sector that is a segregation between core workers and agency workers.

Intersectional research within the growth models theory is still in its infancy. Therefore, much remains to be done. First, differences or similarities found by investigating the flip side of the export sector in the German export-led growth model, the domestically oriented service sector, might yield a more nuanced analysis than it was possible here. Second, a difference-in-difference analysis before and after 2005, which arguably marks the beginning of the German export-led growth model, would strengthen the case for the effect of intersectional societal categories. A third step could be to compare the results with other export-led growth models, for example with Japan, or with other growth regimes, in particular, the debt-led growth model in the United Kingdom and the United States. Finally, applying qualitative and mixed-methods would be more in line with intersectionality research strategies, and they lend themselves to investigating the potential discrimination uncovered in the first-brush quantitative approach in this paper.

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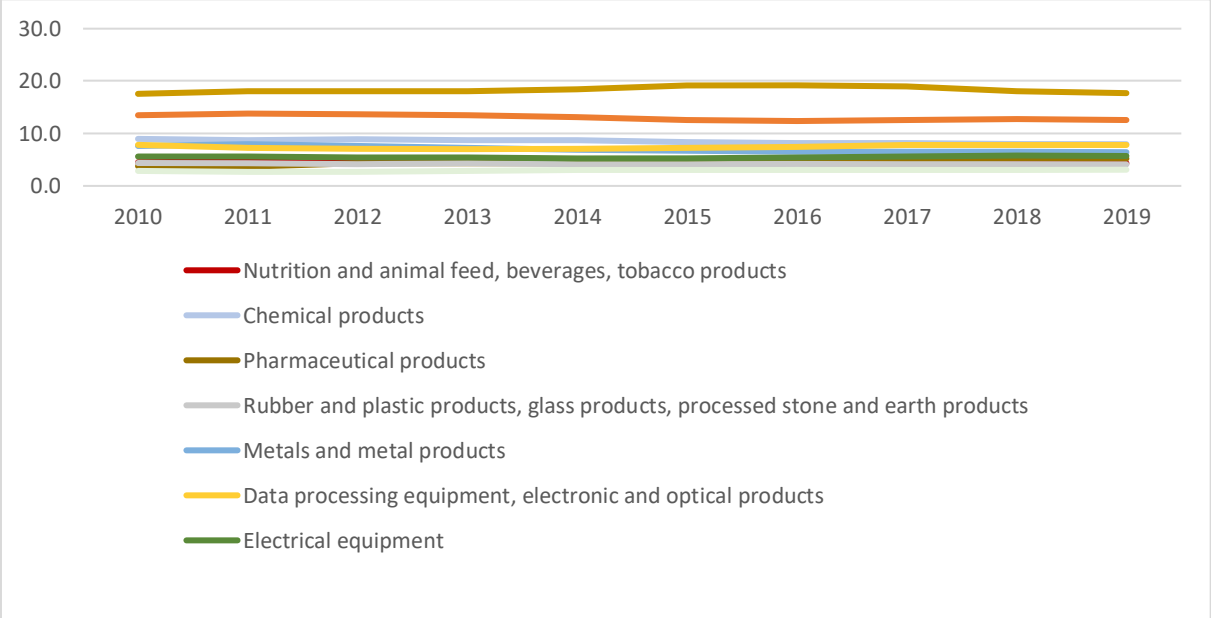
Appendix A. Methodology

Figure 4: Top-ten export industries based on export shares



Source: own calculations; data: National Accounts (2022)

Table 8: Sectors and nace codes

Top	Export sector	nace (2005-2012)	nace02 (2013-2019)
1	Motor vehicles and parts	34, 35	29, 30
2	Machinery	29	28
3	Chemical products	24	20
4	Data processing equipment, electrical and optical products	30, 32, 33	26
5	Metals and metal products	27, 28	24, 25
6	Electrical equipment	31	27
7	Nutrition and animal feed, beverages, tobacco products	15, 16	10, 11, 12

Based on Schwarzer (2017)

Appendix B. Robustness

Table 9: Robustness Check: Logistic regression - Predicted odds of being employed in the export sector by intersecting gender, origin and class characteristics

	Extra controls	Alternative specification: Origin (Migration background)	Alternative specification: Class (Parent's working class status)	Top-3-export sectors	Top-7-export sectors
Gender	0.366***	0.320***	0.318***	0.340***	0.362***
	(0.014)	(0.010)	(0.045)	(0.013)	(0.010)
Origin	1.196***	0.890*	1.880***	1.226***	1.225***
	(0.067)	(0.065)	(0.370)	(0.077)	(0.064)
Class	1.940***	2.022***	1.766***	1.373***	2.106***
	(0.056)	(0.055)	(0.190)	(0.047)	(0.055)
Gender* Origin	0.696***	1,210	1,064	0.593***	0.770***
	(0.66)	(0.144)	(0.336)	(0.066)	(0.065)
Gender* Class	1.328***	0.818***	0.761	0.836***	0.936
	(0.050)	(0.050)	(0.152)	(0.075)	0.052
Origin*Class	1.328***	1.536***	0.761	1,059	1.195***
	(0.093)	(0.140)	(0.191)	(0.088)	(0.080)
Gender* Origin*Class	1.502***	0.702**	0.841	1.764***	1.317**
	(0.207)	(0.122)	(0.377)	(0.309)	(0.157)
Year dummies	x	x	x	x	x
Constant	0.243***	0.180***	0.227**	0.118***	0.237***
	(0.016)	(0.008)	(0.153)	(0.007)	(0.009)
Children	1.180***				
	(0.031)				
Children * gender	0.748***				
	(0.038)				
age	0.991***				
	(0.001)				
McFaddens R-suqared	0.078	0.073	0.066	0.047	0.074
Prob > chi2	0.000	0.000	0.000	0.000	0.000
Akaike crit. (AIC)	3.72e+08	3.74e+08	1.88e+07	2.90e+08	4.46e+08
Number of observations	200857	200857	9.89	200857	200857

Note: This table shows the results of a logistic regression of gender, national origin, and class and their two- and three-way interactions on the probability of being employed in the export sector. Reference categories are male, German-born, and high-class. Sample weights and robust standard errors are applied. *** p<.01, ** p<.05, * p<.1
Source: own calculations; data: SOEP (2022)