





# Policy Brief

# Rising inequality in the UK and the political economy of Brexit: lessons for policy

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#### **Abstract:**

The EU Referendum in the UK on 23 June laid bare long existing divisions in the country. Throughout the campaign, the leave side diverted their discontent to a scapegoat of immigration and fuelled xenophobia. While there is consensus that the result is linked to inequality, the impact of migration on inequality is contested. Our recent research shows that inequality in the UK increased not because of migration, i.e. the mobility of labour, but because of the increased fallback options of capital related to increased capital mobility in the form of FDI and financialisation; declining fallback options of labour related to the decline in collective bargaining power, deregulation of the labour market, zero hours contracts and false self-employed contracts, austerity, housing crisis and rising household debt, which itself is linked to financialisation and inequality. The irony is that in fact, migration does not have a negative impact on the share of wages in total income and real wages even in the service sectors predominantly hiring low-skilled labour, which also employ a large share of migrants. The quick conclusions related to the impact of immigration on inequality, without adequately decomposing the impact of all other factors, misses the point that correlation is not causation. The real solution to inequality requires regulating finance and the corporate governance of corporations, taming capital mobility, increasing public investment in social infrastructure and housing, regulating the labour market and improving the legislation to increase the voice of trade unions and collective bargaining coverage. In an alternative economy where the balance of power shifts in favour of labour and unions have a strong voice, if migrants come to work, it is possible to set the terms and conditions under which they work by the local workforce. Conversely, in the current situation where the bargaining power of workers has been dramatically eroded with respect to capital, high capital mobility and low wages elsewhere in Eastern Europe and the world will mean the firms will relocate or offshore parts of their production abroad, even if migration can be limited after Brexit.

**Keywords:** UK Referendum, Brexit, Europe, inequality, wages, globalization, migration, capital mobility, financialisation, bargaining, union density, government spending

**JEL codes:** E12, E22, E25

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## Rising inequality in the UK and the political economy of Brexit:

# lessons for policy

The EU Referendum in the UK on 23 June laid bare long existing divisions in the country. A very divisive campaign for leave deepened the scars in the society further. After decades of deindustrialization, rising inequality, deteriorating working conditions, loss of voice, followed by the Great Recession and austerity, the majority of the working people felt the only way to express their discontent about their living and working conditions is to vote to leave. Throughout the campaign, the leave side diverted their discontent to a scapegoat of immigration and fuelled xenophobia. Various Brexit campaigns created an illusion that conditions can only improve if Britain takes control of its borders, which they claimed to be impossible as a member of the European Union. According to survey evidence fears of immigration are more pronounced among voters in a more vulnerable position in the labour market, and in the post-industrial north-eastern towns, with also a clear divide between generations, with around two-thirds of the over 55s voting to leave and 70 per cent of the under 25s voting to stay (Hobolt, 2016; Ashcroft, 2016; Burn-Murdoch, 2016). The disenfranchised communities did not feel that they have anything more to lose due to the economic risks of Brexit or loss of workers' rights under a conservative exit scenario, which sadly is likely to prove wrong.

Since the referendum, there is an increase in reports from think tanks and investment funds that link the result to inequality and globalisation (e.g. Resolution Foundation; Pimco; Bank of America; Hermes; Standard Life, reported by Allen, 2016 and Farrell, 2016). Globalisation of markets for goods, services, capital and labour is seen to reduce some workers' wages through placing them in direct competition with workers from across the world, and to create winners and losers. There is increasing concern that this will lead to political backlash and protectionism as eventually losers cast their vote.

The elephant in the room is the actual causes of rising inequality: Our recent research shows that inequality in the UK increased not because of migration, i.e. the mobility of labour, but because of the increased fallback options of capital related to increased capital mobility in the form of FDI and financialisation; declining fallback options of labour related to the decline in collective bargaining power, deregulation of the labour market, zero hours contracts and false self-employed contracts, austerity, housing crisis and rising household debt, which itself is linked to financialisation and inequality (Guschanski and Onaran, 2016, forthcoming). As our data shows this is not a new phenomenon but a process that gained momentum since the 1980s, when increased globalisation and Thatcherism initiated a poisonous mix of austerity, deregulation of product and labour markets and slashing of workers' rights. The irony is that in fact, according to our research results migration does not have a negative impact on either the share of wages in total income or real wages even in the service sectors predominantly hiring low-skilled labour, which also employ a large share of migrants, as we discuss in more detail below. The quick conclusions related to the impact of immigration on inequality, without adequately decomposing the impact of all other factors, misses the point that correlation is not causation. The simultaneous rise in immigration and inequality does not mean that the former causes the latter. This debate on migration based on myths also misses how migrants contribute to overcoming the care deficit in an ageing society, an especially striking fact given that a majority of voters over 65 years voted to leave (Ashcroft, 2016), and that migrants are net contributors to the social security system.

Migrants are visible to the people, but what firms and financial firms in the City and offshore tax havens do is less visible and comprehensible. The real solution to inequality requires regulating finance and the corporate governance of corporations, taming capital mobility, increasing public investment in social infrastructure and housing, regulating the labour market and improving the legislation to increase the voice of trade unions and collective bargaining coverage. In an alternative economy where the balance of power shifts in favour of labour and unions have a strong voice, if migrants come to work, it is possible to set the terms and conditions under which they work by the local workforce. Conversely, in the current situation where the bargaining power of workers has been dramatically eroded with respect to capital, high capital mobility and low wages elsewhere in Eastern Europe and the world will mean the firms will relocate or offshore parts of their production abroad, even if migration can be limited after Brexit. If migrants will not be allowed to come, firms will go to where they are, and it is a lot harder to set the conditions of work abroad to avoid a global race to the bottom in wages.

In the following, we summarise our econometric analysis about the causes of the rise in inequality and the fall in the wage share (labour compensation as a ratio to value added) in the UK using sectoral data with country specific estimations (Guschanski and Onaran, 2016, forthcoming). We analyse the effects separately in manufacturing and service industries, and also distinguish between sectors using predominantly high and low-skilled labour. Our research also covers other selected OECD countries (Austria, Denmark, France, Germany, Italy, Spain, Sweden, the US).

#### What happened to working peoples' share in income in the UK?

There has been a significant decline in the share of wages in GDP in the UK since the 1980s. This was accompanied by another trend towards greater inequality in personal income distribution, particularly by increases in income shares of the top 1% of the distribution. Figure 1 shows the wage share in different sectors. In the UK services sectors using predominantly low-skilled labour, the wage share experienced a steady reduction since the mid-1990s and is 5 percentage-points lower in 2009 than it was in 1981. Labour in the low-skilled manufacturing sectors has also lost out in relation to its position in the early 1980s by 4 percentage-points in 2009. Turning to high-skilled sectors, wage share in services experienced a sharp decline by 9 percentage-points between 1984 and 1994 and afterwards stabilised at a lower level. The wage share in high-skilled manufacturing is highly volatile and, at 71 percent in 2009, it is 10 percentage-points lower than its peak in 1981, and close to its lowest level of 67 percent in 1996.

## The role of the Great Recession

The rise in inequality and stagnation in wages have been two of the fundamental flaws in our economic model, which have been at the root of the Great Recession, and we are far from correcting this imbalance. Historically, the wage share tends to rise during recessions as companies hold on to workers and productivity falls more than real wages, and then the wage share falls during the recovery. But during the 2008 recession and its aftermath the labour share did the opposite: it fell soon after the initial year of the recession, and when the recovery began the aggregate wage share kept falling. Real pay is still about 9% lower compared to its peak in

early 2008. After the longest and most dramatic period of decline in real wages since the Victorian times, waged and salaried people in Britain may be once again under pressure due to the uncertainty and a potential recession after Brexit. The share of wages in UK GDP fell from 67.7% in 2007 to 65.8% in 2015. This two percentage-point fall in labour's share in income comes on top of a three-decade long fall in the share of wages from its peak of 76.2% in 1975.

#### Institutional and economic changes that impacted the position of labour

While the Brexit campaign was largely dominated by an anti-migrant rhetoric, our estimations show that it actually has a positive effect on the wage share in Britain, while other factors explain the rise in inequality, with the destruction of collective bargaining institutions, globalisation and financialisation at the forefront. Table 1 and 2 in the Appendix summarises the estimation results for the wage share, and real wage (labour compensation as a ratio to people engaged).

#### Fall in the bargaining power of workers

We observe a strong decline in union density for all industries in the UK as can be seen in Figure 2. While this is a general trend in all countries, the fall has been strongest in the UK starting from the 1980s after the Thatcherite policies. Union density is highest in manufacturing sectors and lowest in low-skilled service sectors. Union density in aggregate in the UK decreased by 24.4 percentage points from 49.9% in 1981 to 25.4% in 2013. Similarly, collective bargaining coverage has seen the strongest decline in the UK, from its peak of 80% in 1979 to 31.2% in 2011.

Our results show that there is a robust and strong positive effect of collective bargaining coverage as well as union density on the wage share in the UK which is clearly driven by high and low-skilled manufacturing sectors.<sup>1</sup>

Additionally, our results show that social government spending (in health, education, social care) has a strong positive impact on the wage share, pointing towards the negative consequences of austerity policies and decreasing fallback options of labour.

We also find a negative impact of personal income inequality on the wage share in the UK. The rise in personal income inequality, in particular, the income share of the top percentile reflects the impact of political capture and the control over resources by a narrow elite circle.

#### **Financialisation**

Financial activities and the prominence of financial institutions gained momentum since the 1980s. Similar to globalisation, this process of financialisation has increased the fallback options for capital which can now be more easily invested in various financial assets. Furthermore,

<sup>&</sup>lt;sup>1</sup> We experimented with a measure of sectoral level union density but fail to find a robust positive effect. A similar observation is made for France and the US. It is interesting to note that these three countries are characterised by a (relatively) low level of bargaining coordination and union density and higher level of bargaining coverage.

financialisation changed industrial relations and led to a 'shareholder value orientation' as a consequence of hostile takeovers of listed companies. Financialised firms adopt a 'downsize and distribute' strategy, which reduces prospects for labour to agree on a beneficial compromise. Financialisation, coupled by rising inequality and house price bubbles, has also had important impacts on households, above all through a remarkable rise in household debt.

In the UK, we find a robust negative effect of household debt and financial payments of non-financial corporations (dividends and interest) on the wage share in both manufacturing and service sectors alike.<sup>2</sup> This finding complements recent research that finds a negative impact of financialisation on investment of non-financial companies (Tori and Onaran, 2015). Financial income of non-financial corporations, on the other hand, has a positive impact in some specifications.

#### Globalisation

The broad trend of globalisation has brought with it increased options for firms to relocate to other countries or register their status offshore. Furthermore, the terrain on which trade unions must confront firms has changed dramatically over the last two decades as a result of changes in the way production is organised. Rather than concentrating activities under a single roof, and maintaining tight control over the whole production process, firms can now coordinate their activities in increasingly complex and dispersed ways, involving outsourcing, networked collaborations and market-based transactions. The increasing prominence of multinational companies that are structured in this way exerts further negative pressure on workers' bargaining power, for instance through the increasing use of relocation threat to gain concessions in negotiations.

While we find that globalisation measured as intermediate imports (as a ratio to domestic demand) and outward Foreign Direct Investment (FDI, as a ratio to the number of employees) had a strong impact on the wage share in all countries, the effects are less strong in the UK than in continental Europe. In the UK there is some evidence for a negative effect of outward FDI on the wage share driven by manufacturing and service sectors alike. There is also some evidence of a negative effect of intermediate imports (international outsourcing) in manufacturing, but the effect is rarely statistically significant.

#### Migration

The impact of labour migration on the wages is theoretically ambiguous. It depends on whether migrant labour substitutes the domestic workers and pushes down wages, or acts as a complement to labour being performed locally, rather than a direct competitor. The channels

<sup>&</sup>lt;sup>2</sup> Household debt appears to have a positive effect on wages as opposed to its negative effect on the wage share. However, given that lending to lower income households was much less aggressive in the UK than in the US, this finding most probably reflects the fact that low-income households are credit constrained.

<sup>&</sup>lt;sup>3</sup>Outward FDI has a positive impact on average wages, but the negative impact on the wage share indicates that the wage increases fall behind the rise in productivity.

through which migration affects wages could, very broadly, be differentiated between the impact of migration on productivity and employment. Previous research has shown that migration is related to increased innovation, measured by the registration of patents, and is therefore positively linked to productivity in the UK, and that migrants to the UK are higher educated than the average British worker (Rolfe, et al. 2013; Saleheen, and Shadforth, 2006). Depending on the nature of the technological advancement and the bargaining power of labour this could lead to an increase in both wages and the wage share. Furthermore, migrants might increase the overall skill level of the workforce and thereby facilitate tasks or open up new business areas. Turning to the effect on employment, technological advancement and new business opportunities might also increase labour demand for domestic workers. Furthermore, migrants often bring in knowledge about markets and economies of their home countries and therefore open the possibility for expansion of the business activities via new export markets, which might have a positive impact on the wage share (Huber, et al. 2010; Rolfe, et al. 2013). Even migrants with low skills do not always substitute domestic labour, if their labour supply as well as demand is increasing the overall demand for labour in the economy.

The share of foreign workforce (by nationality) in total workforce increased from 2.8% in 1984 to 7.6% in 2010. Interestingly, we find a very robust positive impact of migration (the share of foreign workforce (by nationality) in total workforce) on the wage share as well as real wages in both manufacturing and service sectors alike. Most importantly, contrary to political propaganda from several parties prior to the Brexit debate, the impact is especially significant and positive in the low-skilled service sectors, again on both wages and the wage share. Despite the evidence in Rolfe, et al. (2013) regarding the positive impact of migration on productivity in the UK, it is interesting that the increase in wages seems to be strong enough to more than offset the impact of migration productivity and lead to a rise in the wage share as well. Obviously, there is need for more research on the reasons why increased immigration is associated with a higher wage rate as well as the impact of migration on different types of native workers, not just using sectoral average wage data but also individual household labour force survey data. We would rather not derive too strong conclusions regarding the positive impact of migration on wages in particular; however on a cautious note evidence based on our results as well as the literature indicate that more migration need not lead to lower wages, lower wage share and worse working conditions if unions and regulations are strong.

# *Technology*

The share of ICT (information and communication technology) capital services in value added is usually applied as a measure of technological change in the literature. We observe a steady increase in the share of ICT capital services measures across all sectors. However, we do not find a significant negative effect of ICT or non-ICT capital services on the wage share in the UK, when other factors mentioned above are controlled for. Hence, technological change has not been the main driver of rising inequality in the UK. However, there is some evidence of a negative effect on average wages.

# Lessons for policy in the UK and Europe

Since the 1980s, and in a more accelerated way after the Great Recession, the UK has been the leader of damaging austerity, low-wage and precarious employment practices in the name of flexibility, and financialisation.

It is, however, also true that despite the rights secured by the European trade union movement in the last decades, the labour market policies in the EU Member States (MS) have been far from rosy (Onaran, 2016). Individual EU MS and the European Commission (EC) have long encouraged wage moderation, explicitly recommending real wage growth below productivity growth to increase the international competitiveness of the countries. Furthermore, there is still much to do in tackling the political impact of rising inequality, and the policy flaws and democratic deficit in the EU institutions. However, let us be clear: these policies have not been imposed on the UK by the EC; the UK has been the leader of anti-labour low road labour market policies, and used globalisation as a pretext to implement them and to claim that there is no alternative.

Progressive movements and trade unions in the UK should now work to lead high road labour market policies and a wage-led recovery and improve cooperation with pro-labour forces in Europe.

We have <u>strong empirical evidence</u> to reject the myth that we cannot have pro-labour policies in the age of globalisation. Both the UK and Europe as a whole is strong enough to pursue an egalitarian, wage-led growth strategy and would benefit from a coordinated boost to the wage share. As such, the UK and other progressives in Europe could, and should, take a step forward in terms of radically reversing the fall in the wage share globally.

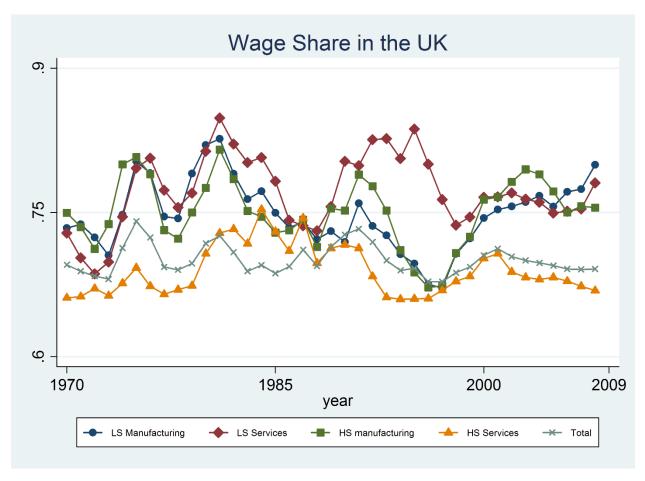
Negative effects of openness or global integration are not an unavoidable destiny, rather an outcome of the current domestic and international policies. Openness and regional integration can also be managed in a way to benefit both the richer and poorer partners if trade and investment flows are designed as part of an egalitarian and growth-oriented international economic policy. In the European context, labour movements have more common ground than they currently exploit. There is scope for international cooperation, in case the coordination failure can be overcome.

The fall in the wage share has been a deliberate outcome of policies that led to the fall in the bargaining power of labour, welfare state retrenchment, and financialisation. The combination of these policies has led to the vicious circle of rising inequality, financialisation, chronically low demand, a slowdown in accumulation and productivity, and low growth and fewer or bad quality jobs both in the UK and Europe (Tori and Onaran, 2015; Onaran and Obst, 2015). The empirical evidence shows that to break this vicious circle we need alternative economic policies based on a coordinated policy mix of equality-led development and public investment.

The strategy of a wage-led development requires labour market policies aiming at predistribution as well as redistribution. These include strengthening the bargaining power of labour, ensuring higher collective bargaining coverage, increasing the statutory minimum wage to the level of a living wage, enforcing gender equality, introducing and enforcing pay ratios to moderate wage inequality, restoring the progressivity of the tax system, and ending public sector pay freezes. Furthermore, income distribution policies need to be embedded into a broader macroeconomic and industrial policy mix targeting equality, full employment, and ecological sustainability. This requires regulating finance and implementing a public investment programme centred on substantial public investment in green physical infrastructure in renewable energy, public transport and housing and social infrastructure in care, education, and health. Free movement of labour in this context can only positively contribute to the local communities, and an appropriate public infrastructure ensures that there is an adequate supply of health, education and care services and housing in a vibrant community.

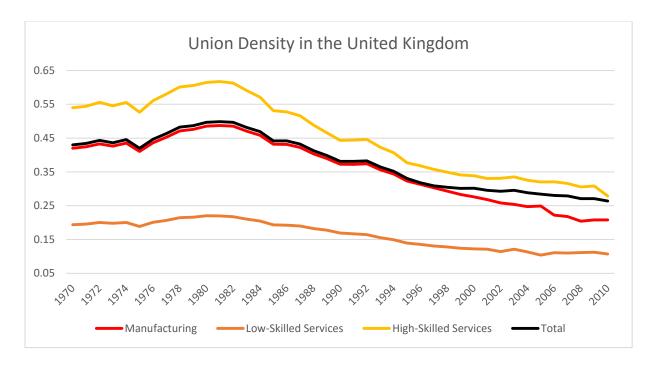
Labour market policy is not the only issue where working people in the UK need to coordinate with the progressive forces in Europe. We should not let the Brexit vote to stand in the way of international cooperation. As part of a European alliance, we can work for financial regulation, tax coordination, ecological sustainability and implement a coordinated public investment policy far better than we could on our own. The UK labour movement needs to coordinate with European labour movements to push for more coordination of investment, social and labour market policies and regulation of capital markets.

Figure 1



Source: See Guschanski and Onaran (2016, forthcoming) for data sources.

Figure 2



Source: See Guschanski and Onaran (2016, forthcoming) for data sources.

Appendix Table 1: Estimation results for the wage share in the UK

	Within Estimator						First Difference Estimator									
	GBR_1	GBR_2	GBR_3	GBR_4	GBR_5	GBR_6	GBR_7	GBR_8	GBR_1	GBR_2	GBR_3	GBR_4	GBR_5	GBR_6	GBR_7	GBR_8
growth	-0.341**	-0.380**	-0.333**	-0.264**	-0.265**	-0.275**	-0.125*	-0.117	-0.154***	-0.153***	-0.160***	-0.235***	-0.234***	-0.238***	-0.073	-0.073
	(0.017)	(0.014)	(0.009)	(0.015)	(0.015)	(0.012)	(0.098)	(0.114)	(0.003)	(0.003)	(0.002)	(0.000)	(0.000)	(0.000)	(0.245)	(0.256)
capital stock_t-1	0.118**	0.114***	0.130**						0.185***	0.189***	0.196***					
	(0.012)	(0.006)	(0.012)						(0.006)	(0.005)	(0.003)					1
	-0.197	-0.259	-0.113						-0.254	-0.237	-0.230*					1
	(0.464)	(0.330)	(0.622)						(0.101)	(0.118)	(0.111)					
other imports_t-1	0.114***	0.044	0.143***						0.032	0.038	0.041					T
	(0.005)	(0.399)	(0.004)						(0.477)	(0.407)	(0.351)					T
social government_t-1		0.020**			0.001		0.020*	0.018*		-0.005			-0.006		0.002	0.002
		(0.010)			(0.801)		(0.052)	(0.061)		(0.498)			(0.400)		(0.920)	(0.927)
bargaining cov_t-1			0.003			0.003*					0.005**			0.001		
			(0.123)			(0.079)					(0.012)			(0.392)		1
ICT capital_t-1				-0.001	-0.002	0.019**	-0.012	-0.019				0.016	0.019	0.024	0.030	0.031
				(0.865)	(0.802)	(0.045)	(0.706)	(0.584)				(0.292)	(0.224)	(0.143)	(0.481)	(0.392)
non-ICT capital_t-1				-0.033	-0.033	-0.062	0.058	0.064				0.110*	0.112*	0.099*	0.027	0.026
				(0.449)	(0.447)	(0.202)	(0.296)	(0.270)				(0.070)	(0.067)	(0.100)	(0.764)	(0.752)
outward FDI_t-1				0.097	0.094	0.107	-0.125**	-0.118**				-0.006	-0.007	-0.004	-0.069	-0.070
				(0.557)	(0.578)	(0.520)	(0.017)	(0.020)				(0.943)	(0.937)	(0.966)	(0.418)	(0.438)
hh debt_t-1							-0.283***	-0.268***							-0.226	-0.226
							(0.004)	(0.002)							(0.210)	(0.209)
fin. income_t-1							0.030*	0.020***							0.023*	0.023*
							(0.055)	(0.001)							(0.079)	(0.093)
fin. payments_t-1							-0.102***	-0.103***							-0.089*	-0.089**
							(0.000)	(0.000)							(0.052)	(0.042)
migration_t-1							1.425***	2.080***							1.436*	1.403*
							(0.000)	(0.000)							(0.072)	(0.085)
gini_t-1								-0.008**								0.001
								(0.028)								(0.945)
constant	0.626***	0.454***	0.493***	0.501**	0.478*	0.350	1.873***	2.062***								
	(0.000)	(0.000)	(0.000)	(0.039)	(0.065)	(0.207)	(0.000)	(0.000)								
withR2	0.208	0.248	0.225	0.077	0.077	0.106	0.092	0.097	0.087	0.084	0.116	0.093	0.093	0.092	0.011	0.001
F-test	11.944	10.223	10.797	5.476	6.224	5.228	5561.640	1071.984	4.783	3.699	4.957	4.756	3.899	3.872	1.567	1.463
obs	182	182	182	266	266	266	132	132	169	169	169	247	247	247	114	114
number of sectors	11	11	11	18	18	18	18	18	11	11	11	18	18	18	17	17

Notes: The dependent variable is the within sector wage share. Estimation period is 1988-2008. All estimations exclude Agriculture, Hunting, Forestry and Fishing; and Mining and Quarrying sectors as well as public sectors (Public Administration and Defence; Compulsory Social Security; Education; Human Health and Social Work Activities). Estimation methods in column titles. P-values below the estimation coefficients in parenthesis. \*, \*\*, \*\*\* denote statistical significant at the 1%, 5% and 10% level, respectively. Source: See Guschanski and Onaran (2016, forthcoming) for data sources. The estimations for separate sector and skill groups are available upon request.

Appendix Table 2

Dependent variable:	Average labour compensation in the UK								
	(1)	(2)	(3)	(4)					
growth	1.060	1.064	12.988**	13.684**					
	(0.891)	(0.712)	(0.027)	(0.021)					
capital stock_t-1	-0.176								
	(0.962)								
int. imports_t-1	3.266								
	(0.796)								
other imports_t-1	14.410***								
<del>-</del>	(0.001)								
social government_t-1	3.639***	2.334***	1.103	0.870					
	(0.002)	(0.000)	(0.292)	(0.398)					
ICT capital_t-1		1.594***	-10.578***	-11.150***					
		(0.005)	(0.000)	(0.000)					
non-ICT capital_t-1		-17.071***	2.914	3.474					
		(0.000)	(0.346)	(0.281)					
outward FDI_t-1		49.129***	19.148**	19.344**					
		(0.000)	(0.022)	(0.021)					
hh debt_t-1			17.146**	18.304**					
			(0.027)	(0.017)					
fin. income_t-1			3.540***	2.734***					
			(0.003)	(0.000)					
fin. payments_t-1			-5.117***	-5.294***					
			(0.000)	(0.000)					
migration_t-1			88.969***	146.114***					
			(0.000)	(0.000)					
gini_t-1				-0.689***					
				(0.001)					
constant	-17.252*	-82.766***	-104.494***	-87.409***					
	(0.051)	(0.000)	(0.000)	(0.001)					
withR2	0.483	0.711	0.689	0.691					
F-test	148.981	390.489	2286.033	1652.401					
obs	184	265	125	125					
number of sectors	11	18	18	18					

Notes: The dependent variable is the within sector average labour compensation in the UK as a ratio to total people engaged, adjusting for the labour income of the self-employed. Estimation period is 1988-2008. All estimations exclude Agriculture, Hunting, Forestry and Fishing; and Mining and Quarrying sectors as well as public sectors (Public Administration and Defence; Compulsory Social Security; Education; Human Health and Social Work Activities). The estimation method is the within-estimator with standard errors robust to serial correlation within sectors, cross-sectional correlation between sectors as well as general heteroscedasticity. P-values below the estimation coefficients in parenthesis. \*, \*\*, \*\*\* denote statistical significant at the 1%, 5% and 10% level, respectively. See Guschanski and Onaran (2016, forthcoming) for data sources. The estimations for separate sector and skill groups are available upon request.

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