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Why is the wage share falling in emerging economies? Industry level evidence

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Abstract

This article presents an econometric analysis of the wage share in seven emerging economies. We focus on the effect of globalisation, captured by participation in global value chains and financial integration, indicators of bargaining power of labour and technological change on the wage share. We use input-output tables that allow us to obtain detailed measures of global value chain participation, and sectoral data to distinguish the effect on high- and low-skilled workers and within manufacturing and service industries. We find a negative effect of offshoring from advanced to emerging economies, as well as negative effects of financial integration. Our findings suggest that the transmission mechanism is a reduction in labours' bargaining power vis-à-vis capital. We find a robust positive effect of union density on the wage share but no evidence of a negative effect of technological change.

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Keywords: wage share; income distribution; emerging economies; global value chains; union density; technological change

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1. Introduction

The share of wages in GDP has declined in both developed and developing countries since the 1980s. While there has been a growing body of recent research on the causes of the decline in the wage share in the advanced economies, analyses of the dynamics of the wage share in emerging economies are scarce. Moreover, the existing literature is based on aggregate country level data or pooled analysis of both developed and developing countries, and does not provide a specific analysis relevant to the context of the emerging economies. This article presents an econometric analysis of the determinants of the wage share using sectoral data for emerging economies.

Previous research has highlighted the impact of technological change, globalisation, changes in government policy, and labour market institutions to explain the decline in the wage share (Stockhammer, 2016; IMF, 2017; Jayadev, 2007; Harrison, 2002; Diwan, 2001). Since many of those factors are either determined at a sectoral level or have developed differently across sectors, a sector level analysis has advantages over previous research that uses country-level data. Furthermore, it allows to focus on the decline in the within sector wage share which was the main driver of the trend of increasing inequality in functional income distribution (IMF, 2017; Karabarbounis & Neiman, 2014).

We identify three channels via which global value chains, defined as the offshoring of tasks from the advanced to the emerging economies, can negatively affect the wage share. The first channel suggests that integration into global value chains increases capital intensity of production in the emerging economies, as offshored tasks are likely to be more capital intensive than domestic tasks in capital scarce countries. The second implies that offshoring leads to a change in the elasticity of substitution between capital and labour. Through the third channel, global value chains can alter the bargaining power between labour and capital, by changing the degree of international competition in the product market, by providing efficiency gains that

might not necessarily be equally shared between capital and labour, and/or by increasing the fall-back options of capital.

We test these hypotheses econometrically using a sector-level dataset for seven emerging economies (Brazil, China, India, Indonesia, Mexico, South Korea, Turkey) for the period of 1995- 2009, which allows us to differentiate results by high-, medium-, and low-skilled workers within manufacturing and service industries. International input-output tables, which were not fully exploited in the previous research, allow us to obtain detailed measures of participation in the global value chain. Another novelty of the article is a detailed analysis of the impact of direct and indirect measures of the bargaining power of labour on the wage share in the context of emerging economies, as well as an account of the role of technological change. Furthermore, we use a dynamic panel data estimation method that takes the endogeneity of our explanatory variables into account.

Our results cast doubt on the first two channels, while we find evidence for a negative impact of globalisation on the bargaining power of labour in emerging economies. This suggests that the decline in the wage share is not an inevitable outcome of trade integration, but can be altered by institutions for a level playing field. This is especially relevant for countries pursuing export orientated growth strategies.

The rest of the article is organised as follows. Section 2 provides a review of the theoretical and empirical literature with an aim to pin down the effects of globalisation in general, and global value chain integration in particular, on functional income distribution, as well as the impact of measures of bargaining power and technological change. Section 3 presents our data, estimation methodology and specifications. Section 4 introduces the stylised facts of our sample. Section 5 presents the estimation results and section 6 concludes.

2. Determinants of the wage share

2.1 The effect of globalisation on the wage share

Traditional trade theory based on the Heckscher-Ohlin – Stolper-Samuelson theorem predicts that in a labour abundant country, trade liberalisation would lead to an increase in the return to labour relative to capital. Likewise, capital account openness can reduce the relative price of capital in capital-scarce countries (IMF, 2017). If the elasticity of substitution between capital and labour is lower than one, the wage share will increase in the relatively more labour abundant emerging economies. In contrast, according to new trade theories trade can provide the recipient country with new technologies, and lead to trade-induced technological change. This will have a negative effect on the wage share for a given capital-output ratio if technological change is capital augmenting and the elasticity of substitution between labour and capital is larger than one; if it is below one, the effect will be positive (Bentolila & Saint-Paul, 2003).

More recent contributions discuss the effect of globalisation in the context of intra-industry offshoring and foreign direct investment (FDI) via the creation of global value chains (Feenstra & Hanson, 1997; Grossman & Rossi-Hansberg, 2008). Two arguments prevail in the recent literature: Firstly, firms in capital abundant countries will offshore labour intensive tasks to benefit from lower wages in labour abundant countries (IMF, 2017). This implies an increase in capital intensity in advanced economies and a decline in capital intensity in emerging and developing countries. If the elasticity of substitution between capital and labour is higher than one in advanced countries, while it is lower than one in the rest of the world, this process is expected to lead to declining labour shares worldwide. Elsby, et al. (2013) suggest that even if the elasticity of substitution is above one in all countries, offshored tasks can be considered capital intensive in emerging economies, even though they are relatively labour intensive in advanced countries. Feenstra and Hanson (1997) suggest that offshoring increases wages for

high-skilled workers worldwide, since tasks that are considered low-skill intensive in advanced countries are high-skill intensive in emerging economies. However, again the overall effect on the wage share depends on the elasticities of substitution. Consequently, the mechanisms discussed so far rely on specific assumptions about the values of two parameters: if the elasticity of substitution is below (above) one in emerging economies, and offshored tasks are relatively capital (labour) intensive, the wage share will rise. Importantly for our empirical analysis, according to the hypothesis discussed above, the effect of globalisation on the wage share is enacted through a change in the relative quantities of capital and labour.

The second argument, put forward by the IMF (2017), is that in the context of declining prices of capital relative to labour (due to technological change), the tasks most likely to be offshored are those with a relatively low elasticity of substitution as capital will simply be substituted for labour in tasks with a high elasticity. This does not necessarily imply a change in capital intensity – rather, the share of tasks with overall low elasticity of substitution increases, which can depress the wage share in the emerging host economies. However, this mechanism relies on the additional assumption that offshored tasks do not have a higher labour share than the average task in the host country, due to factors other than the elasticity of substitution (for example due to a different distribution parameter in the production function).[1] If this hypothesis holds, we should expect a change in the elasticity of substitution in the emerging economies, especially in sectors that are hosts of offshoring from the advanced economies.

[1] The argument can be rationalised by differentiating the labour share derived from a constant elasticity of substitution production function (Bentolila & Saint-Paul, 2003) with respect to the elasticity of substitution:
$\frac{\partial WS}{\partial \rho} = \ln\left(b.\left(A.\frac{K}{Y}\right)\right).\left(b.\left(A.\frac{K}{Y}\right)^{\rho}\right) > 0$
Where Y and K stands for output and capital; A is capital augmenting technological change; b is the 'distribution parameter' and ρ is positively related to the elasticity of substitution. Since the derive is positive, a decline in ρ will decrease the wage share.

Additionally, globalisation in general and integration into global value chains in particular can change the relative bargaining power between labour and capital. We identify three possible mechanisms. First, the political economy approach emphasises the asymmetry between the fall-back options of capital vis-à-vis labour due to the increase in the mobility of capital and the increase in the elasticity of labour demand (Onaran, 2009; Harrison, 2002; Rodrik, 1998). On the one hand, this creates a threat effect by capital to relocate or outsource. On the other hand, countries compete via wage moderation in order to guarantee their attractiveness as destinations for relocation, which may create a race to the bottom in the wage share (Burke and Epstein, 2001). Second, trade openness can increase the competitive pressure on firms. This is more likely to take place in the case of trade in intermediate goods, where there are established mechanisms for bidding for low cost of production between the alternative firms which are part of the global value chain of a multinational corporation (Anner, et al., 2005). While this could lead to a reduction in the mark-up and thus increase the wage share, the pressure on the mark-up may also make firms less accommodating in terms of wage demands of workers. If profits are squeezed due to competition, capital could attempt to recuperate their share by reducing labour costs. However, trade in the last decades has often taken the form of vertical integration of multinational corporations, thereby leading to increased concentration rather than increased competition.[2] Reduced competition allows firms to charge a higher mark-up on costs, which will decrease the wage share (Joskow, 2008). Third, even if competition is unaltered – the emergence of global value chains has created efficiency gains and opened new opportunities for exploiting differences in labour costs and markets across countries. However, the distribution of these gains depends on the relative bargaining power of capital and labour.

[2] Intra-firm exports make up one third of global exports in 2015. For the USA, where data availability is best, around half of all imports from emerging economies and developing countries are intra-firm transactions (Lakatos & Ohnsorge, 2017).

Summing up, we distinguished three channels via which global value chains can negatively affect the wage share. The first implies an increase in capital intensity and should therefore be reflected in the capital-output ratio. The second implies a change in the elasticity of substitution between capital and labour over time, i.e. a declining elasticity as global value chains take hold. Lastly, globalisation can alter the bargaining power between labour and capital by putting downward pressure on wages, changing the degree of competition, or creating efficiency gains, which may not be passed on to labour. The driver for offshoring is differences in labour costs, which implies the need to distinguish between offshoring coming from advanced versus other emerging economies.

Several empirical studies find substantial negative effects of variables measuring trade intensity (imports plus exports as a ratio to GDP) and FDI on the wage share (Doan & Wan, 2017; Stockhammer, 2016; Onaran, 2009; Harrison, 2002; Jayadev, 2007). Research using sector level data for emerging economies is scarce. IMF (2017) includes emerging and advanced countries in their sector level estimations, but they do not provide estimations for emerging economies only. They find negative effects of trade linkages, a measure related to offshoring, for tradable sectors. Furthermore, their country level estimations, also for a pool of advanced and emerging economies, indicate that global value chain integration is the strongest driver of the decline of the wage share in emerging economies. IMF (2017) does not find a significant effect of financial globalisation for the sector level estimation, although there is evidence for a positive effect in their country-level estimations for emerging economies. Interestingly, IMF (2017) interpret their findings as the impact of a decreasing relative price of capital, which is difficult to reconcile with the fact that the relative price of capital is controlled for in their model. This suggests that they are more likely to pick up a bargaining effect.

Globalisation in general, and deregulation of international capital flows in particular, has also been followed by currency crises. Diwan (2001) has highlighted how the wage share is negatively affected by banking and exchange rate crises, indicating that labour is forced to bear most of the costs. Blecker (2012) argues that an increase in the cost of intermediate inputs, for example due to a currency depreciation, induces a bargaining process between capital and labour. As each party try to shift the additional costs onto the other party, inflation increases. The impact on the wage share is ambiguous and depends on the relative bargaining power of capital and labour. There is also evidence for a hysteresis effect after the currency crisis, indicating that the wage share might remain at a lower level for years (Diwan, 2001; Onaran, 2009).

2.2 Bargaining power and technological change

Different economic schools of thought have distinct starting points for their analysis of functional income distribution. Contributions in the tradition of New Classical and New Keynesian Economics base their analysis on a production function framework, with optimising firms that apply marginalist pricing, so that distribution is determined by technological parameters like the factor elasticity of output (Bentolila & Saint-Paul, 2003). However, in imperfect goods- and labour markets, bargaining power and mark-up are shift parameters that can impact the wage share. Economists working in the tradition of Political Economy[3] usually reject the existence of continuous and differentiable production functions and start from the assumption of imperfectly competitive markets where firms apply a variant of mark-up pricing (Lavoie, 2014:47-64). The mark-up, in turn, determines income distribution. However, despite different theoretical starting points, both literature streams arrive at a bargaining framework to analyse the distribution of income.

[3] In the following, we refer to the Marxist, Institutionalist and post-Keynesian/Kaleckian analysis as the Political Economy approach.

Measures of bargaining power can be categorised into direct and indirect factors. Direct factors strengthen workers' voice in negotiations, whereas indirect factors improve their fall-back options in case negotiations break down. Several empirical articles have confirmed an impact of direct measures of bargaining power, such as strike activity, collective bargaining arrangements and minimum wages, on the wage share (ILO, 2011; Kristal, 2010; EC, 2007; Bentolila & Saint-Paul, 2003). Union density is the most commonly used variable with the best data availability and the most robust positive effect on the wage share in country level estimations of advanced countries (Stockhammer, 2016). Nevertheless, the actual effect of unions may be underestimated in empirical studies since collective bargaining coverage greatly exceeds union membership in some countries (Visser, 2006). IMF (2017) find no significant effect of union density in most specifications.

Welfare state retrenchment is found to be an important determinant of the fall in the wage share, suggesting that labours' position improves if they can rely on the fall-back option of a social wage to meet their basic needs in case of losing their job (Stockhammer, 2016; Onaran, 2009; Jayadev, 2007; Harrison, 2002).

The effect of variables measuring the strictness of product and labour market regulations are mixed and not robust in the case of advanced economies (Stockhammer, 2016; EC, 2007; IMF 2007).

Additionally, inequality in personal income distribution can have a negative impact on functional income distribution. There is some research on the effects of changes in the wage share on personal inequality (Daudey & Garcia-Penalosa, 2007) but not on the effects of the latter on the wage share. The increase in personal inequality affects the command over resources and power relations. Increasing economic and political power in the hands of a small elite allows them what Stiglitz (2012) calls 'regulatory capture' – i.e. to limit redistribution as well as to shape the rules in areas ranging from corporate governance to product and labour

market regulation in their interest. Consequently, we would expect a negative effect of personal distribution on the wage share.

Recent literature emphasises how technological progress in the last decades was driven by Information and Communication Technology (ICT), that allowed to replace workers by machines for tasks that are easily automatized (IMF, 2017) and contributed to a decline in the price of capital relative to labour which led to an increase in the capital-output ratio (Karabarbounis & Neiman, 2014). The New Keynesian framework expects a negative (positive) effect of technological progress or an increase in the capital-output ratio on the wage share if capital acts as a gross substitute (complement) for labour. Again, here the result depends on the elasticity of substitution between capital and labour: a rise in capital intensity leads to a lower wage share if the elasticity is larger than one. It is usually assumed that capital is a substitute for unskilled labour, whereas it complements skilled workers. Theories in the tradition of Political Economy also consider a negative impact of the capital-output ratio on the wage share. If firms have a profit rate target, an increase in the capital stock will be associated with a higher mark-up to increase profits and keep the profit rate constant (Lavoie, 2014:162-163). However, this negative relation between the capital-output ratio and the wage share is independent of substitution effects between capital and labour. Technological change, e.g. an increase in labour productivity, will reduce the wage share if workers are not able to enforce a wage rise that is in line with the productivity increase (Bhaduri, 2006). Furthermore, if technological change facilitates replacement of workers by machines, this increases the credibility of the firing threat and thereby reduces labour's bargaining power. Therefore, the Political Economy approach also considers a social effect of technological change (Marglin, 1974), however does not necessarily imply a skill bias. This interpretation stands in stark contrast to the New Keynesian framework discussed above where the effect of changes in

productivity will depend on the elasticity of substitution, and is therefore independent of workers' bargaining power.

There are only a few studies on emerging economies who include measures of technological change in empirical analyses of the wage share, due to lack of internationally comparable data prior to the release of the WIOD database. Harrison (2002) finds an elasticity of substitution smaller than one in a panel of emerging economies and developing countries, while Doan and Wan (2017) and Karabarbounis and Neiman (2014) find an elasticity larger than one, although the latter article does not differentiate between emerging and advanced economies. IMF (2017) fail to find a significant effect of the relative price of capital on the wage share for tradable sectors, while there is some evidence for a negative effect in non-tradable sectors, however, they also pool advanced and emerging economies. Summing up, evidence for an elasticity of substitution higher than one, and thereby for a negative effect of technological change in emerging economies, is mixed, and analysis at the sector level are scarce and do not differentiate between emerging and advanced economies.

Empirically, most studies use aggregate country level panel data, which does not allow to differentiate the results across skill groups and industries. Karabarbounis and Neiman (2014) and IMF (2017) use sectoral as well as country panel data; however, they pool advanced and emerging economies and do not distinguish their offshoring measure by country of origin.

3. Empirical model and methodology

We estimate a general model that controls for the effect of globalisation, bargaining power and technological change on the wage share. Our baseline specification takes the following form:

$$WS_{c,i,t} = \alpha_{WS} WS_{c,i,t-1} + \alpha_G GROWTH_{c,i,t} + \alpha_{CI} \ln(CAPITAL\ INTENSITY)_{c,i,t}$$
$$+\alpha_{glob} GLOBALISATION_{c,i,t} + \alpha_{barg} BARGAINING_{c,i,t} + \varepsilon_{c,i,t} \quad (1)$$

WS is the adjusted wage share in sector *i* of country *c*, which is measured as labour compensation as a ratio to value added adjusted for the labour income of the self-employed, imputed based on the assumption that their hourly labour income is equal to the average hourly labour income of the employees in the sector.[4] Furthermore, we estimate separate specifications for the share of the labour compensation of high-, medium- and low-skilled workers in sectoral value added. Low-, medium- and high-skilled refers to workers with primary, secondary and tertiary education, respectively (Timmer, et al., 2015). Variable definitions and data sources are listed in table A1 in the appendix.

CAPITAL INTENSITY, our main proxy for the substitution of labour with capital, is measured as the logarithm of total capital stock as a ratio to value added. Under the assumption of optimising firms, the variable will capture changes in relative prices of capital and labour, induced either by globalisation or technological change. Consequently, we expect a negative (positive) effect of *CAPITAL INTENSITY* on the wage share if the elasticity of substitution between capital and labour is larger (smaller) than one. It would be desirable to include a measure of capital augmenting technological change, as, in contrast to labour-augmenting technological change, it can affect the wage share for a given capital-output ratio. However, (imperfect) proxies like total factor productivity or the ICT capital stock are not available for our sample. Karabarbounis and Neiman (2014) provide evidence that the potential bias

[4] We use a sector-level dataset for 7 emerging economies (Brazil, China, India, Indonesia, Mexico, South Korea, and Turkey) based on the WIOD database for the period of 1995- 2009. The choice of countries and time period is determined by the availability of data. Where the wage share was constant for several years in a row (indicating extrapolation of data by the providers of the database) and where data from the WORLD KLEMS database was available (e.g. for Korea) we extrapolate through splicing. More precisely, we link the wage share from WIOD with the growth rate of the adjusted wage share from KLEMS. The series have correlations of 0.9 and above. We exclude outlier sectors where the percentage change in the wage share exceeds 50% in one year. This is the case in two manufacturing and one service sector in Brazil and Turkey respectively, i.e. six sectors in total.

resulting from the omission this variable is negligible. Similarly, in Section 5 we argue that we see little reason for concern in our estimations.

Furthermore, we include *GROWTH*, measured as the logarithmic change in value added, to account for the counter-cyclicality of the wage share (Kalecki, 1954).

As suggested by the literature on global value chains, we are mainly interested in the effect of offshoring of tasks from advanced countries on the wage share in emerging economies. Therefore, in the baseline specification we capture the effect of *GLOBALISATION* by intra-industry intermediate exports (by supplying sector), based on the World Input-Output Database (WIOD; Timmer, et al., 2015). Furthermore, we differentiate exports by destination based on two country groups defined as 'high-wage' countries (Australia, Canada, Europe, Japan, Russia, and the USA), and 'low-wage countries' (including countries in our sample, Taiwan, and the rest of the world). In alternative specifications, we also control for the impact of total exports at the sector level as a broad measure of trade openness. We also estimate the impact of inward and outward FDI, offshoring (defined as inter-industry intermediate imports by using sector), and final imports by supplying sector at the sector level. Additionally, we test the impact of financial globalisation measured by non-FDI and total foreign assets and liabilities at the country level.

$BARGAINING$ is a group of variables related to industrial relations and labour market institutions which include union density at the country level (Visser, 2015). In alternative specifications, we also test for the impact of country-level minimum wages as a ratio to sectoral average labour compensation per employee, government spending and an index of labour market institutions at the country level. An increase in any of the bargaining measures is expected to have a positive impact on the wage share, given that potential negative effects of an increase in wages on employment should be captured by the capital-output ratio.

Given that technological change is likely to be a function of past or current values of the wage share, we have to take potential endogeneity into account (Acemoglu, 2003; Hein, 2014). Similarly, sectors with relatively lower wage shares might be the target of offshoring, thereby leading to a negative effect of a higher wage share on exports. The bias arising when ignoring this problem of endogeneity in estimations using the within estimator will be opposite to the direction of the reverse causality (Wooldridge, 2002). Indeed, this could explain the finding of high and significant negative effects of technological change on the wage share in previous contributions, which do not properly account for endogeneity (Doan & Wan, 2017; Karabarbounis & Neiman, 2014). The effect of globalisation could be understated for the same reason. Accounting for reverse causality in a dynamic model requires the use of instrumental variables. We use the General Method of Moments (GMM) estimator introduced by Arellano and Bond (1991) because it provides readily available 'internal' instruments based on lagged values of the explanatory variables.

We adopt an estimation strategy that starts with the most general specification and the most robust estimator (one-step difference GMM) and work our way toward the most parsimonious model with the most efficient estimator (two-step difference GMM with standard errors adjusted for heteroscedasticity and Windmeijer (2005) small sample error correction), following Kiviet, et al. (2015).[5] We start with the estimation of a fairly unrestricted Autoregressive Distributed Lag model including the contemporaneous and lagged value of all explanatory variables and the first and second lag of the dependent variable. All estimations include year dummies to account for unobserved shocks and mitigate cross-sectional dependence. Due to the relatively small number of cross sections, we restrict our instrument

[5] We also experimented with the system GMM estimator which includes additional moment conditions that can be applied to the model estimated in level instead of differences. We obtain a very low Hansen test which is driven by the instruments for the level equation, as can be deducted from the incremental Sargan test on this group of instruments. This speaks against the validity of the 'stationarity assumption' and thereby renders this estimation method unreliable. Put differently, it confirms our choice of difference GMM as the main estimation method. Results are available upon request.

set with the fifth lag (starting from the second lag for the endogenous variables) and one instrument column per variable ('collapsed' instrument set). We treat all variables, except union density, as endogenous. Subsequently, for each specification, we perform a 'testing down' procedure by dropping variables with the lowest p-value, until we are left with at least one measure per variable. [6]

We exclude the following sectors from all estimations: Agriculture, Hunting, Forestry and Fishing, Mining and Quarrying, Coke and Refined Petroleum, as well as mostly publicly owned sectors (Public Administration and Defence; Compulsory Social Security; Education; Human Health and Social Work Activities). This is because the wage setting behaviour in these industries may not be determined by the same forces as other sectors. For example, publicly owned not-for-profit companies will typically have a wage share of 100%, while value added in Agriculture and Mining will fluctuate with changes in commodity prices. Furthermore, we exclude the real estate sector whose value added largely constitutes imputed rents (Timmer, et al., 2007). Table A2 in the appendix presents the list of sectors.

4. Stylised facts

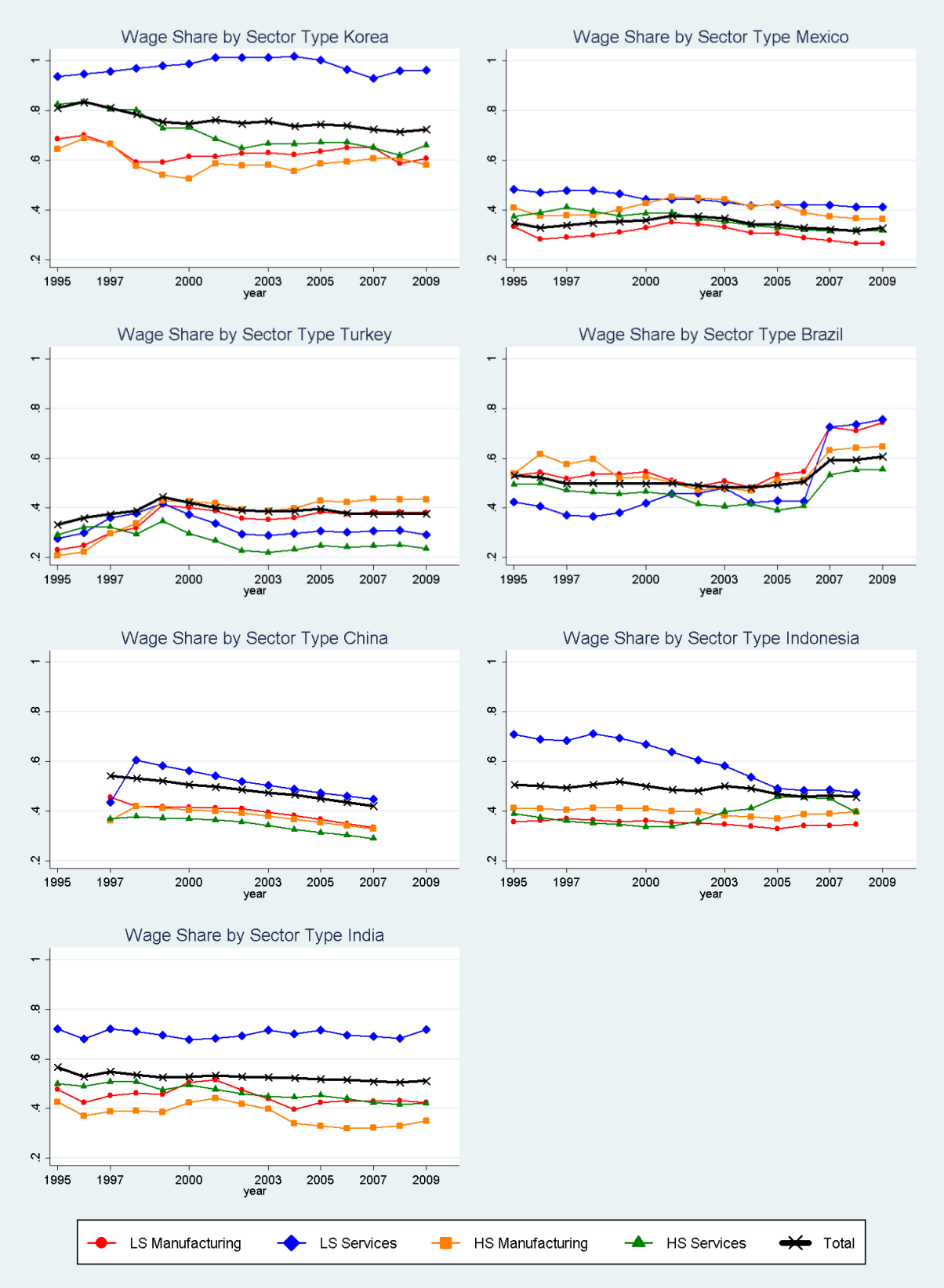
The country level wage share declined in all countries in our sample between 1995 and 2007 apart from Brazil. It is interesting that the wage share in Brazil also appears to decline until 2003, a year which marks a radical policy shift to the Workers' Party. The newly elected party pursued a strong expansion of the welfare state, including an increase in the minimum wage and anti-poverty public spending programmes like Bolsa Família. Interestingly, the political

[6] As any other estimator, the GMM estimator is based on the assumption that we have no omitted time-varying variable that is correlated with the wage share and any of our covariates. For this reason, it is important to account for a lagged dependent variable as well as to start the estimations based on a general model that allows for several lags of the explanatory variables. Additionally, given that we cannot exclude the possibility that we omit some important covariates, such as a measure of capital-augmenting technological change, the use of the GMM estimator mitigates potential endogeneity (and therefore bias) of our explanatory variables, as long as the correlation between these omitted factors and our explanatory variables is only contemporaneous.

context in which policies like minimum wage increases are implemented, seem to matter in terms of the impact on the wage share. For example, Turkey also experienced a substantial increase in the minimum wage during the same period under the conservative government of Justice and Development Party, which was, however, accompanied by a decline in the wage share.

While the observed decline in the aggregate country-level labour share is a well-documented fact, there is only limited analysis at the sectoral level. We find that the trend observed in the aggregate country level wage share is mirrored at the sectoral level, albeit with differences between manufacturing and services sectors as well as high (HS) and low skilled (LS) sector groups and across countries as can be seen in Figure 1 below.

Figure 1: Wage share by sector groups

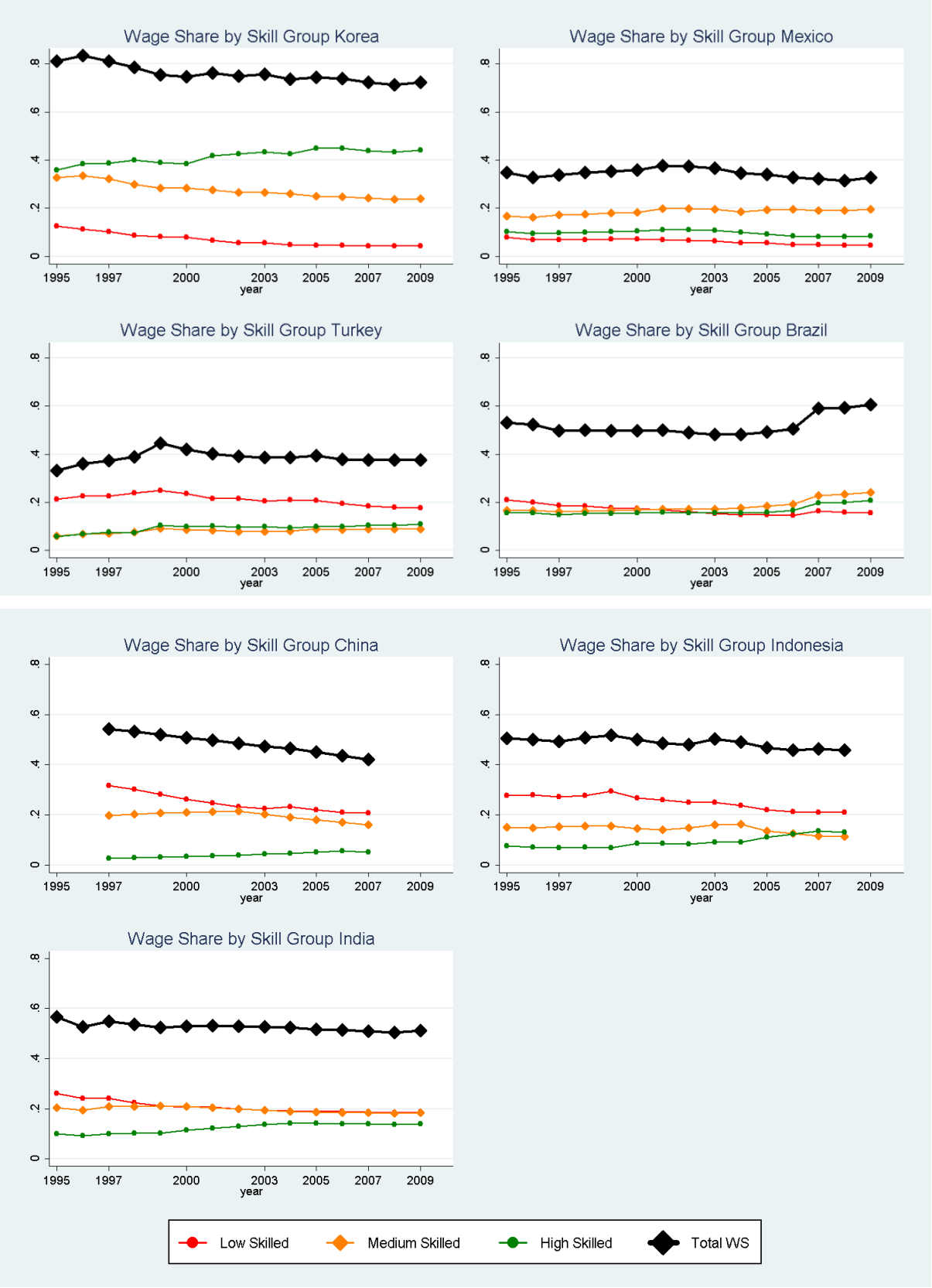


Source: Own calculations based on WIOD. The graph for the total wage share includes all sectors. Sector level graphs exclude: Agriculture, Hunting, Forestry and Fishing; and Mining and Quarrying; Coke and Refined Petroleum; Public Administration and Defence; Compulsory Social Security; Education; Human Health and Social Work Activities and Real Estate. HS and LS stands for high and low skilled sectors respectively.

Despite the diversity of the wage share dynamics across countries and sectors, the wage share declined in the majority (56%) of sectors. Moreover, 86.1% of those sectors, where the wage share decreased, experienced a decline of more than 3% percent between 1995 and 2007. This confirms previous findings that attribute the decline of the country-level wage share to a decline of the wage share within sectors (IMF, 2017; Karabarbounis & Neiman, 2014). The wage share declined most strongly and consistently in high-skilled manufacturing sectors like Chemicals and Chemical Products and Machinery and Equipment as well as low-skilled sectors like Basic Metals and Fabricated Metal. There is also evidence of a decline in service sectors like Renting of Machinery and Equipment and Other Business Activities and Financial Intermediation. The latter may be related to the effects of currency crises and privatization in the banking industry in the emerging economies.

Next, Figure 2 presents the wage share of high-, medium- and low-skilled workers (as defined by their level of education) in value added of the sector, where we observe a stronger skill bias.

Figure 2: Wage share by skill group as defined by workers' education



Source: Own calculations based on WIOD.

While the share of high skilled workers' wage bill in total value added increased in some countries, the picture is dominated by declining wage shares of both medium and low skilled workers. Importantly, a decline in the wage share of workers as defined by their education may reflect losing out with respect to capital, workers of another skill group or a change in the educational composition of the workforce. One advantage of using this data to distinguish different effects across skill-groups over estimations for groups of high- and low-skilled sectors (e.g. as in IMF, 2007) is that it does not require the restrictive assumption that the wage share in the low-skilled sectors reflects predominantly the share of low-skilled workers in those sectors.

Variables accounting for globalisation show similar patterns across all countries. Intra-industry intermediate exports and offshoring increased in all countries in both high and low skilled manufacturing sectors. There is also evidence for a positive trend in service sectors, especially those categorised as high-skilled, although the magnitudes are generally much lower than in manufacturing. The years of the Great Recession are the only exception to this otherwise increasing trend, which resumed in 2010 in all countries.

We observe slightly increasing or stagnating capital-output ratios in manufacturing sectors across most countries. Exceptions are Korea and China, where capital intensity declined.

Union density declined in Korea, Mexico, Turkey, India and China, while it followed an inverted U-shape pattern in Indonesia and increased in Brazil.

5. Estimation Results

As emerging markets are usually the destination of offshoring, we start our analysis by focusing on the impact of intra-industry intermediate exports, which corresponds to the origin of

intermediate imports (offshoring) to the advanced countries. Table 1 reports the estimation results.

Table 1: The effect of intra-industry intermediate exports on the wage share

	1	2	3	4	5	6	7	8
Sector group	Total	Manu	Services	Manu	Total	Manu	Manu	Manu
Skill group	All	All	All	All	All	HS	MS	LS
growth	-0.200	-0.125	0.208	-0.115	-0.153	-0.017	-0.006	-0.044*
	(0.213)	(0.353)	(0.248)	(0.164)	(0.122)	(0.419)	(0.721)	(0.050)
Capital_Intensity			0.569**					
			(0.016)					
Capital_Intensity_(t-1)	0.008	0.039	-0.461**	0.029	-0.022	0.035**	-0.002	-0.033
	(0.856)	(0.412)	(0.033)	(0.562)	(0.573)	(0.022)	(0.927)	(0.217)
exports_LW	-0.214		2.902		-0.303			
	(0.771)		(0.677)		(0.603)			
exports_LW_(t-1)		-0.492		-0.071		-0.017	0.162	-0.174
		(0.359)		(0.921)		(0.956)	(0.445)	(0.639)
exports_HW			-6.308	-0.888				
			(0.193)	(0.290)				
exports_HW_(t-1)	-0.827**	-0.562*			-0.483	-0.453**	-0.309*	0.505
	(0.044)	(0.085)			(0.272)	(0.026)	(0.077)	(0.217)
union_density_(t-1)	0.297***	0.200**	0.213	0.184**	0.257***	0.074**	0.101*	0.053
	(0.008)	(0.034)	(0.122)	(0.044)	(0.007)	(0.018)	(0.089)	(0.434)
Capital_intensity *exports_(t-1)				-0.232				
				(0.299)				
Wage_Share_(t-1)	0.602***	0.442*	0.964***	0.472**	0.778***			
	(0.003)	(0.076)	(0.000)	(0.029)	(0.000)			
Wage_Share_(t-2)	0.083	0.036		0.023	0.062			
	(0.324)	(0.675)		(0.803)	(0.357)			
Wage_Share_HS_(t-1)						0.918***		
						(0.000)		
Wage_Share_MS_(t-1)							0.740***	
							(0.000)	
Wage_Share_LS_(t-1)								0.744***
								(0.000)
Hansen_pval	0.033	0.117	0.877	0.235	0.060	0.017	0.002	0.001
AR1_pval	0.001	0.037	0.003	0.023	0.000	0.000	0.012	0.000
AR2_pval	0.999	0.315	0.410	0.202	0.597	0.194	0.139	0.981
Instruments	31	31	32	35	33	32	32	32
Sectors	141	89	52	89	141	89	89	89
F-test	10.522	6.032	10.986	7.722	13.614	31.461	15.859	29.249
Observations	1227	777	481	777	1439	827	827	827
Period	98-07	98-07	97-07	98-07	98-09	97-07	97-07	97-07

Notes: The dependent variable is the sectoral adjusted wage share. Estimation method is 'difference GMM' with one instrument column per variable. P-values below the estimation coefficients in parenthesis. ***, **, * denote statistical significant at the 1%, 5% and 10% level. Hansen_pval is the p-value of the Hansen test of overidentifying restrictions for all instruments. AR1 and AR2_pval is the p-value of the Arellano-Bond test for autocorrelation of first and second order in the residuals. Instruments denote the number of instruments used. Sectors, F-test and Observations are the number of cross sections, the F-test statistic and the number of observations.

Specification (1) presents the results for the pool of manufacturing and service sectors, and is estimated for the period 1998-2007, excluding the years after the Great Recession.[7] We find a

[7] The years 1995-97 drop out due to the inclusion of lagged values and the necessity to use instruments.

negative impact of exports to high-wage countries on the wage share, but no significant effect of exports to the rest of the world. Furthermore, we find a positive impact of union density, which captures the direct bargaining power impact. Capital intensity is not significant with a positive coefficient, indicating an elasticity between capital and labour that is close to or smaller than one. This has two interesting consequences: First, it reinforces the interpretation that the effect of intermediate exports reflects the impact of globalisation on the bargaining power of labour. If intermediate exports capture the effect of trade-induced technological change, a low elasticity of substitution would suggest a positive impact on the wage share. Consequently, our finding of a negative effect of exports suggests that the bargaining effect outweighs a potential positive technology effect. Second, it casts doubt on the hypothesis that a decline in the relative price of capital was the main driver of the decline in the wage share. Specification (2-3) report estimations for manufacturing and service sectors separately. Results in specification (2) indicate that the effect of exports is driven by manufacturing sectors.[8] In services, based on Specification (3), we find a positive and significant effect of capital intensity (based on the sum of the lagged and contemporaneous variables), which provides evidence for an elasticity of substitution of lower than one. Union density has a significant positive effect in manufacturing, and it also has a positive effect, albeit borderline insignificant, in services, suggesting that unions can improve the wage share in both sector groups.

Specification (4) includes an interaction term between exports to high-wage countries and the capital-output ratio. This controls for the hypothesis that trade within global value chains has led to a decline in the elasticity of substitution between capital and labour in the emerging economies, and thereby lowered the wage share. However, we do not find evidence for this mechanism as the variable is statistically insignificant. Furthermore, albeit

[8] Restricting our sample to manufacturing sectors only also improves the value of the Hansen test, confirming the validity of our instruments

insignificant, the sign is negative, suggesting that the elasticity is higher in sectors which are strongly exposed to global value chains.

Next, we extend our estimations to 2009, the last year of our sample in specification (5), thereby including the first two years of the Great Recession. Only union density remains to be significant, which confirms the upmost relevance of bargaining power for the wage share. As two years of extremely different labour market conditions during the Great Recession may distort the effect of underlying determinants of income distribution, in the rest of the section, we report results only for the pre-crisis period.

Estimations for different skill-groups in manufacturing for the period of 1997-2007 separately, as reported in specifications (6-8), indicate that exports and union density affect medium- and high-skilled workers alike, while growth is the only statistically significant variable for low-skilled workers.[9] This finding is more in line with traditional trade theory based on Heckscher-Ohlin – Stolper-Samuelson – assuming relative scarcity of skilled labour in the emerging economies – than with the new trade theory of skill-biased trade induced technological change of Feenstra and Hanson (1997) that predict that high-skilled workers will gain, and unskilled workers will lose in both developed and developing countries.

Table 2 reports results for the other dimension of globalisation: intra-industry intermediate imports (narrow offshoring), other imports and FDI, estimated for all sectors as well as manufacturing and services separately.

[9] However, results can only be seen as indicative due to the low p-value of the Hansen test. Furthermore, the coefficient for medium-skilled workers turns insignificant if we control for shifts in labour supply, by including the share of medium skilled-workers in total labour force, defined as the share of the labour force that has attained up to Post-secondary education. Nevertheless, results must be interpreted with caution, because of potential measurement issues related to informal employment.

Table 2: The effect of offshoring and FDI on the wage share

	1	2	3	4	5	6	7
Sector group	Total	Manu	Services	Manu	Total	Total	Total
growth	-0.278**	-0.154	-0.048	-0.115	-0.671*	0.017	-0.301*
	(0.028)	(0.125)	(0.589)	(0.161)	(0.093)	(0.937)	(0.094)
Capital_Intensity	-0.042	-0.033	0.089	-0.028			0.222
	(0.456)	(0.641)	(0.319)	(0.707)			(0.141)
Capital_Intensity_(t-1)					0.119	-0.173	
					(0.254)	(0.130)	
offshoring _LW	0.089	0.076	32.930**	0.188			
	(0.885)	(0.881)	(0.028)	(0.732)			
offshoring _HW	-0.300						
	(0.612)						
offshoring _HW_(t-1)		0.365	-13.947***	0.543			
		(0.554)	(0.002)	(0.436)			
final_imports				0.008			
				(0.931)			
Inward_FDI					0.166		
					(0.458)		
Inward_FDI_(t-1)						-0.001	
						(0.997)	
Outward_FDI					-2.265		1.414
					(0.686)		(0.686)
union_density		0.051		0.049		0.026	1.015
		(0.264)		(0.348)		(0.916)	(0.658)
union_density_(t-1)	0.227**		0.239**		12.682***		
	(0.030)		(0.035)		(0.005)		
Wage_Share_(t-1)	0.367***	0.450*	0.746***	0.519**	0.780	-0.098	0.852**
	(0.004)	(0.075)	(0.001)	(0.026)	(0.145)	(0.864)	(0.023)
Wage_Share_(t-2)	0.099	-0.011		-0.041	0.220		
	(0.154)	(0.918)		(0.654)	(0.501)		
Hansen_pval	0.066	0.047	0.950	0.065	0.932	0.345	0.815
AR1_pval	0.003	0.085	0.022	0.050	0.103	0.873	0.130
AR2_pval	0.492	0.304	0.273	0.191	0.356	0.596	0.410
Instruments	31	31	32	35	20	20	19
Sectors	141	89	52	89	23	45	23
F-test	8.804	4.616	16.546	6.683	4.981	4.012	10.300
Observations	1266	790	481	790	107	338	114
Period	98-07	98-07	97-07	98-07	98-07	97-07	97-07

Notes: The dependent variable is the sectoral adjusted wage share. Estimation method is 'difference GMM' with one instrument column per variable. P-values below the estimation coefficients in parenthesis. ***, **, * denote statistical significant at the 1%, 5% and 10% level. Hansen_pval is the p-value of the Hansen test of overidentifying restrictions for all instruments. AR1 and AR2_pval is the p-value of the Arellano-Bond test for autocorrelation of first and second order in the residuals. Instruments denote the number of instruments used. Sectors, F-test and Observations are the number of cross sections, the F-test statistic and the number of observations.

Offshoring is insignificant for the total pool of sectors as well as in manufacturing (specification 1-2). However, offshoring to high-wage countries has a negative impact on the wage share in services, while offshoring to low-wage countries has a positive effect

(specification 3). Offshoring is generally higher in high-skilled sectors, suggesting that the effect might be driven by multinationals with headquarters in high-wage countries.

We also include imports of consumption and capital goods (final imports) in specification (4), as these products might substitute domestic production and thereby contribute to a decline in the wage share. However, we do not find a statistically significant effect. We also tested the robustness of the results using final imports by supply country, differentiating between imports from high-wage and low-wage countries, with no significant results. With respect to the control variables, we confirm the positive impact of union density in specifications (1) and (3), while capital intensity is insignificant. Growth exhibits the expected negative sign in all specifications, although it is only significant for the estimation including all sectors.

Next, we test for the impact of FDI on the wage share. We differentiate between outward and inward FDI, however, the data availability at the sector level is limited. Outward FDI data is only available for Korea and Turkey, while we can include Mexico in estimations with Inward FDI only. Furthermore, many data points are missing due to data protection issues. While we find no significant effect of this variable in any of our estimations, the results can only be considered indicative given the data quality and the limited number of cross-sections, which additionally casts doubt on the applicability of the GMM estimator which was conceived for large panels. Again, we find a significant impact of union density in specification (5).

Out of the different measures of globalisation, intra-industry exports have the most robust effect on the wage share, in line with theories emphasising the effect of global value chain participation. Therefore, Table 3 includes additional variables mentioned in section 2 to our baseline specification (2) in Table (1) – i.e. for manufacturing sectors only.

Table 3: The effect of other control variables

	1	2	3	4	5	6	7
growth	-0.098	-0.101	-0.138	-0.129	-0.125	-0.105***	-0.041
	(0.297)	(0.244)	(0.147)	(0.129)	(0.322)	(0.007)	(0.426)
Capital_Intensity_(t-1)	0.048	0.033	0.026	0.021	0.048	0.005	0.025
	(0.271)	(0.510)	(0.639)	(0.693)	(0.301)	(0.881)	(0.508)
exports_LW_(t-1)	-0.598		-0.900	-0.921	-0.587	-0.605	-0.639
	(0.217)		(0.151)	(0.116)	(0.263)	(0.261)	(0.262)
exports_HW_(t-1)	-0.760*		-0.083	-0.044	-0.617*	-0.674*	-0.631*
	(0.072)		(0.813)	(0.899)	(0.073)	(0.063)	(0.089)
union_density_(t-1)	0.216*	0.113	0.102	0.079	0.186*	0.245**	0.175
	(0.056)	(0.232)	(0.319)	(0.444)	(0.077)	(0.023)	(0.118)
Wage_Share_(t-1)	0.423*	0.511**	0.418	0.414	0.461**	0.573***	0.442**
	(0.092)	(0.031)	(0.106)	(0.104)	(0.035)	(0.000)	(0.038)
Wage_Share_(t-2)	0.042	-0.027	0.009	0.015	0.024	0.002	0.051
	(0.612)	(0.765)	(0.921)	(0.861)	(0.749)	(0.982)	(0.590)
currency_crisis	-0.017						
	(0.250)						
total_exports_HW_(t-1)		0.009					
		(0.947)					
total_exports_LW_(t-1)		-0.251					
		(0.456)					
non-FDI positions			-0.040*				
			(0.060)				
financial globalisation				-0.045*			
				(0.050)			
financial development					-0.752		
					(0.434)		
Gini_net						-0.001	
						(0.647)	
LMI							-0.022
							(0.762)
Hansen_pval	0.094	0.016	0.042	0.043	0.148	0.022	0.026
AR1_pval	0.092	0.028	0.045	0.049	0.019	0.001	0.075
AR2_pval	0.182	0.112	0.306	0.305	0.206	0.154	0.162
Instruments	32	31	32	32	35	35	32
Sectors	89	89	76	76	89	89	89
F-test	5.479	5.239	4.011	4.204	4.988	10.461	7.400
Observations	777	777	681	681	777	777	777
Period	98-07	98-07	98-07	98-07	98-07	98-07	98-07

Notes: The dependent variable is the sectoral adjusted wage share. Estimation method is 'difference GMM' with one instrument column per variable. P-values below the estimation coefficients in parenthesis. ***, **, * denote statistical significant at the 1%, 5% and 10% level. Hansen_pval is the p-value of the Hansen test of overidentifying restrictions for all instruments. AR1 and AR2_pval is the p-value of the Arellano-Bond test for autocorrelation of first and second order in the residuals. Instruments denote the number of instruments used. Sectors, F-test and Observations are the number of cross sections, the F-test statistic and the number of observations.

Specification (1) in Table 3 includes a dummy for exchange rate crises which is equal to one in years when the country experienced a rate of depreciation in the nominal exchange rate (local

currency/dollar) that exceed 25 percent as suggested by Diwan (2001). We find no significant effect on the wage share, while exports to high-wage countries and union density remain robust.

Specification (2) replaces intra-industry intermediate exports with total exports, i.e. including exports of capital and final goods. We find no significant effect of this broad measure of exports. This suggests that the negative effect on wages is induced through global value chains rather than general trade openness.

Specifications (3-4) control for the (logarithm) of non-FDI foreign assets plus liabilities (non-FDI positions) and the (logarithm) of total foreign assets plus liabilities (financial globalisation), both measured as a ratio to GDP at the country level. Notably, both variables have the expected negative sign, while exports turn statistically insignificant, pointing toward a high relevance of financial flows and stocks, as well as a potential correlation between trade and financial integration. While this could suggest that financial openness has an even stronger impact on the wage share than trade openness, results can only be seen as indicative since no adequate variable is available at the sector level and due to the low value of the Hansen test.

Specification (5) controls for domestic financial development by including intermediate inputs supplied by the Financial Intermediation sector of the home country to other sectors of the economy (i.e. it is measured at the sector level). There is some evidence of a negative effect of financialization and increased financial activities on the wage share in non-financial industries in advanced countries (Lin & Tomaskovic-Devey, 2013). However, our proxy measures the extent to which non-financial companies outsource financial activities to the financial sector. This might be an insufficient indicator, because it does not capture an increase of financial activities that take place inside the company. Better measures of the impact of financialization might be interest and dividend payments as well as non-operating/financial incomes of the firms, which are, unfortunately, not available for our sample at either sectoral or country level. Specification (6) controls for personal inequality measured by the GINI

coefficient after taxes and transfers. Specification (7) controls for labour market institutions by including an index measuring a large set of labour laws covering different forms of employment (e.g. the right of part-time vs. full-time workers), regulation of working time and dismissals, employee representation and the regulation of industrial action (Adams, et al., 2016). While we do not find any of these variables to have a significant effect on the wage share exports and union density are robust to their inclusion. Estimations controlling for minimum wages as a ratio to average labour compensation per worker did not yield significant results, possibly due to the different institutional context in which they are implemented and the fact that comparable data is only available for Korea, Turkey, Brazil and Mexico. We also account for the impact of indirect measures of bargaining power by including total government consumption in our baseline, but the variable is insignificant. One possible explanation is that the measure is too broad to reflect the details of spending essential to the bargaining power of labour, such as public spending on social protection or health and education.[10]

Summing up, our results suggest that the expansion of global value chains, rather than simple trade openness, as well as financial globalisation had a negative impact on the wage share. Offshoring in advanced economies puts downward pressure on the wage share in these countries (Guschanski and Onaran, 2017), while workers in emerging economies, the destination of the offshored tasks, are equally losing out with respect to capital. This result is robust when we control for potential channels like the increase in capital intensity. Furthermore, our findings casts doubt on the hypotheses that the effect is driven by trade-induced technological change or a change in the elasticity of substitution between capital and labour. There are three other mechanisms which can provide an explanation: First, integration to the global value chains may lead to suppression of wage increases in emerging economies as countries attempt to increase their competitiveness in terms of labour costs. Second, vertical

[10] The results are available upon request

integration could increase the market share of the firm, reduce competition and thereby increase the mark-up, which the firm is able to charge on unit costs. Alternatively, an increase in competitive pressure might make firms less accommodating to wage demands of workers. Third, efficiency gains through global value chains may increase profits, which however are not shared with labour. All these mechanisms require a weakening of the bargaining power of labour due to both institutional changes and increased fall-back options of capital vis-à-vis labour in a globalised economy.

6. Conclusion

Our findings lend strong support to the hypothesis that globalisation decreased the bargaining power of labour vis-à-vis capital and contributed to a decline in the wage share in the emerging economies. The negative effect works via integration into global value chains and financial globalisation rather than through general trade openness. We find evidence of an elasticity of substitution between capital and labour that is close to unity or lower based on a positive, albeit mostly insignificant impact of capital intensity on the wage share. Consequently, if the increase in capital intensity in the emerging economies is a result of global value chain participation, there should have been a negligible, or even a positive effect on the wage share. We also do not find evidence for the hypothesis that strong exposure to global value chains induced a decline in the elasticity of substitution between capital and labour. Our finding can be interpreted as an indication that overly technical approaches to income distribution are too simplistic, and that institutional and social factors should be given more attention.

The results suggest that workers have not benefitted as much as capital from the efficiency gains of international trade due to the decline in workers' bargaining power. We find evidence that this decline is related to a strong deterioration in union density. Other institutional factors such as government expenditure, labour market institutions and financial development

were not statistically significant. However, data availability for these measures for emerging economies is limited. Firm level data might be a promising direction for further research, in particular for shedding light on the impact of further aspects of financial activities, private equity funds and shareholder value orientation on the wage share.

Our findings have important policy implications. Rising inequality is not an inevitable outcome of increasing globalisation. Tackling income inequality requires a restructuring of the institutional framework in which bargaining takes place and a level playing field where the bargaining power of labour is more in balance with that of capital. The impact of globalisation is likely to be significantly moderated and/or offset by stronger bargaining power of labour, for example via an improvement in the trade union legislation or collective bargaining coverage. Furthermore, our results suggest that a simple attempt to reduce income inequality through skill-upgrading will not work, as high- and medium-skilled workers have experienced the strongest negative impact of globalisation among all workers in the emerging economies.

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Appendix

Table A1: Descriptive statistics and data sources

Variable definition	Observations	Mean	Standard Deviation	Minimum	Maximum	Source
$\text{wage share} = \frac{\text{labour compensation}}{\text{value added}}$	1779	0.4672	0.1794	0.1284	1.0629	WIOD
$\text{wage share(high\_skilled)} = \frac{\text{labour compensation(high\_skilled)}}{\text{value added}}$	1703	0.1152	0.1108	0.0040	0.7019	WIOD
$\text{wage share(medium\_skilled)} = \frac{\text{labour compensation(medium\_skilled)}}{\text{value added}}$	1703	0.1947	0.0988	0.0293	0.6301	WIOD
$\text{wage share(low\_skilled)} = \frac{\text{labour compensation(low\_skilled)}}{\text{value added}}$	1679	0.1587	0.1043	0.0025	0.6635	WIOD
$\text{Capital Intensity} = \frac{\text{Capital Stock}}{\text{value added}}$	1911	1.2154	1.3669	0.0054	8.0322	WIOD
$\text{growth} = \Delta\ln(\text{real value added})$	1804	0.0570	0.1019	-0.7388	0.7086	WIOD
$\text{union density} = \frac{\text{union members}}{\text{total employees}}$	1722	0.2706	0.1894	0.0495	0.7362	ICTWSS 5.1
$\text{exports high\_wage} = \frac{\text{intra\_industry intermediate exports to high\_wage countries}}{\text{gross output}}$	1911	0.0151	0.0249	0	0.2583	WIOD
$\text{exports low\_wage} = \frac{\text{intra\_industry intermediate exports to the rest of the world}}{\text{gross output}}$	1911	0.0128	0.0255	0	0.2123	WIOD
$\text{total exports high\_wage} = \frac{\text{total exports to high\_wage countries}}{\text{gross output}}$	1820	0.1186	0.1495	0	0.9473	WIOD
$\text{total exports low\_wage} = \frac{\text{total exports to low\_wage countries}}{\text{gross output}}$	1820	0.0487	0.0642	0	0.4629	WIOD
$\text{offshoring high\_wage} = \frac{\text{offshoring to high\_wage countries}}{\text{gross output}}$	1911	0.0201	0.0369	$3.67*10^{-6}$	0.3473	WIOD
$\text{offshoring low\_wage} = \frac{\text{offshoring to the Rest of the World}}{\text{gross output}}$	1911	0.0119	0.0226	$2.04*10^{-7}$	0.2408	WIOD
$\text{final imports} = \frac{\text{imports of capital and consumption goods (by supply sector)}}{\text{gross output}}$	1820	0.0621	0.1511	$6.01*10^{-5}$	2.0017	WIOD

$\frac{\text{FDI outflows}}{\text{gross output}}$	186	0.0035	0.0119	-0.0869	0.0542	OECD
$\frac{\text{FDI inflows}}{\text{gross output}}$	440	0.0170	0.0635	-0.2443	0.7002	OECD
$\text{financial globalisation} = \frac{\text{total foreign assets} + \text{total foreign liabilities}}{\text{GDP}}$	1638	0.8134	0.3055	0.3824	2.3867	Lane, et al. 2007
$\text{non\_FDI positions} = \frac{\text{non\_FDI foreign assets} + \text{non\_FDI foreign liabilities}}{\text{GDP}}$	1638	0.6566	0.2734	0.3471	2.0776	Lane, et al. 2007
financial development	1820	0.0252	0.0267	$3.04*10^{-4}$	0.2583	WIOD
Gini coefficient (after taxes and transfers)	1911	42.4094	6.9029	30.2150	51.4359	SWIID
Strictness of labour market institutions	1911	2.5054	0.3573	1.7321	3.0448	Adams, et al. 2016

Table A2 – Sectoral classification and skill taxonomy

Description	ISIC3 code	Skill classification (IMF, 2007)
Manufacturing		
Food products, beverages and tobacco	15-16	low
Textiles, wearing apparel, leather and related products	17-19	low
Wood and Products of Wood and Cork	20	low
Pulp, Paper, Printing and Publishing	21-22	high
Chemicals and chemical products	24	high
Rubber and Plastics	25	high
Other Non-Metallic Mineral	26	high
Basic metals and fabricated metal products, except machinery and equipment	27-28	low
Machinery and equipment n.e.c.	29	high
Electrical and optical equipment	30-33	high
Transport equipment	34-35	low
Manufacturing, n.e.c.; Recycling	36-37	low
Services		
Electricity, Gas and Water Supply (Utilities)	E	high
Construction	F	low
Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles		low
Sale, Maintenance and Repair of Motor Vehicles and Motorcycles; Retail Sale of Fuel	50	low
Wholesale Trade and Commission Trade, Except of Motor Vehicles and Motorcycles	51	low
Retail Trade, Except of Motor Vehicles and Motorcycles; Repair of Household Goods	52	low
Hotels and Restaurants	H	low
Transport and storage	60-63	high
Post and Telecommunications	64	high
Financial Intermediation	J	high
Renting of Machinery and Equipment and Other Business Activities	71-74	high