HIGH ROAD OR COMMON NEOLIBERAL TRAJECTORY? COLLECTIVE BARGAINING, WAGE SHARE, AND VARIETIES OF CAPITALISM

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Abstract

Wage shares have been falling since the 1980s across developing and developed countries. There has also been a downward trend with labour market institutions in these countries, with a few exceptions. This thesis analyzes these trends using firstly an extended literature review and secondly an econometrics analysis of a panel of 36 countries over 39 years. The extended literature review identified two broad competing narratives surrounding this topic: the mainstream and the alternative growth narratives. They both focus on two different growth regimes, the former, posits that growth is profit-led and the latter that growth is wage-led. Both are not 'zero sum' processes and seem to offer the same end result (growth and development). However, profit-led growth seems to have two problems. First, at least in the medium run, there is a trade-off between growth and income distribution. And secondly, profit-led growth is contradictory at the global level. Wage-led growth, which offers a 'high road' approach, seems far more appealing. Furthermore, several authors, including in South Africa, have claimed that regime-switching (to wage-led growth), is possible, and it seems that labour market institutions may play an important role in facilitating such a switch. However, the empirical literature, especially regarding middle- and low-income countries, is sparse and inconclusive. The panel data analysis provided by this thesis was not conclusive in establishing whether the wage-led, high road path is still viable for countries like South Africa. However, it did not find strong evidence of the contrary. The thesis concluded that there is scope for further research in this field and makes certain suggestions in this regard.

JEL Classification: E12, E24, J01, J51

Keywords: Varieties of Capitalism, Wage Share, Union Density, Wage-led, Profit-led, Collective Bargaining, Common Neoliberal trajectory, Globalization.

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Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction

1.1. Context

Wage shares[1], the share of national income attributable to labour, have been falling since the 1970s across developing, developed and emerging market economies (Stockhammer, 2013: 2). A similar trend is evident in systems of labour market institutions. Nevertheless, it is significant that these downward trajectories are not universal. There remains a considerable variation in wage shares and labour market systems between countries (Schmitt and Mitukiewicz, 2012: 263; Cette *et al.,* 2019: 36).

The two broad competing narratives about wage share and labour market institutions are the mainstream and alternative wage-led growth narratives. In the mainstream narrative, growth is profit-led. And both falling wage shares and declining labour market institutions are driven by efficient technological change, financialization, and globalization and are necessary for the path of profit-led growth (Schmitt and Mitukiewicz, 2012: 260).

The alternative wage-led growth narrative emphasizes the positive relationship between wage share and aggregate demand and hence profits, investment, and growth (Onaran, 2019: 448). Post-Keynesians like Palley (2017) argue that whether a country is a wage- or profit-led is not beyond that country's control. Countries that are profit-led can switch to a wage-led growth regime through appropriate policies that increase domestic aggregate demand. China's 'rebalancing' policies and Brazil's macroeconomic, labour market, and social policies in the 2000s can be seen in this light (Mano and Zhang, 2018: 3; Carvalho and Rugitsky, 2016: 2).

However, there is a collective action problem concerning regime-switching. Countries that are currently profit-led would not be able to switch unilaterally because the relative increase in labour costs would undermine competitiveness. The higher aggregate

[1] Wage share is the share of GDP attributable to labour; it is at current national prices and is measured as a percentage of GDP.

demand generated by the higher wage bill would simply be reflected in increased imports. Collective action between countries is very difficult because of the weakness of regional and multilateral institutions (especially the International Labour Organization (ILO)).

It would be for the greater economic good (in terms of, for example, higher economic growth and improved income distribution at a global and country-level) if all countries made the switch from profit to wage-led growth regimes (Onaran and Galanis, 2012: 43). Onaran and Galanis (2012) argue that if higher wage share is associated with not just higher aggregate demand, but also increased productivity, countries can benefit by unilaterally implementing wage-led growth. And it may be that labour market institutions are key to avoiding a 'race to the bottom' and to unilaterally switching to a wage- led growth path.

The Varieties of Capitalism (VOC) literature provides a historically rooted, country-level, institutional explanation of why countries with very different institutional configurations (such as the USA and Sweden) might experience a different 'comparative institutional advantage' (Baccaro and Howell, 2011: 538). Two categorizations are brought to light with VOC: Coordinated Market Economies (CMEs) and Liberal Market Economies (LMEs). CMEs and LMEs will be explained in more detail below. Competitive markets underpin the way in which LMEs and the firms within them are coordinated. While for CMEs this is fostered through "strategic interactions" with various players in the economy such as labour market institutions (Hall and Gingerich, 2009: 5). It is argued by Baccaro and Howell (2011: 538) that CMEs provide evidence that an alternative to LMEs in this era of neoliberal policies is still possible. And it is also an indication of why the downward trends in wage shares and labour market institutions are not universal. An important undertaking of the thesis is to investigate whether VOC considerations are salient for middle-income countries, like South Africa, in the current conjuncture.

This thesis focuses on whether developing and, more specifically, middle-income countries, such as South Africa, can switch from profit-led regimes to wage-led regimes

by embracing high road strategies. The high road incorporates high wages and high productivity, the alternative is a low road route which encompasses low wages, low quality, and low productivity. While, both routes are potentially profitable for individual firms, the former is much more beneficial for workers (Wright and Rogers, 2015: 229).

1.2. Goals

Habiyaremye (at an HSRC (2021) initiative), Lavoie and Stockhammer (2013) and Onaran (2019), argue that South Africa can and should switch to a wage-led regime. This suggests a very broad research agenda which is beyond the scope of the current study. The goal of the current study is to address a subset of questions that would be necessary to assess Habiyaremye's claim. Thus, the goal of the thesis is to investigate whether the 'high road', wage-led growth path is viable and whether the VoC considerations are salient for middle-income countries like South Africa in the current conjuncture or alternatively, suggests that the profit-led path is inevitable. It is beyond the thesis's scope to attempt to provide a definitive empirical answer to this hypothesis. Instead, the aim is to provide the necessary groundwork by clarifying the underpinning arguments and contributing to the empirical literature.

As such, the subgoals of the research are as follows:

I. To investigate the claim posited by literature that South Africa and many other middle-income countries are profit-led and explore the factors shaping regime type in such countries. In addition to this, an exploration of the literature of Post-Kaleckian, Post-Keynesian, Neoclassical Labour Economics (NLE), and Varieties of Capitalism (VoC) theories will be undertaken. This exploration does not merely serve as preliminary to empirical work. Clarifying the debate and refining the key questions is an essential task in itself.

II. To investigate the extent to which VoC considerations are still empirically relevant by
    a) exploring the extent to which institutional variety remains a significant determinant of wage share.

b) probing whether such institutional variety represents protection against competition or high-road capitalism.

1.3. Method

Subgoal I will be approached using an extended literature review. Subgoal II will be explored using panel data analysis of a sample of 36 countries observed over 39 years. This will be used to estimate two primary regressions, the first is with wage share as the dependent variable to address subgoal IIa and the second is with the export share as the dependent variable to address subgoal IIb. The independent/control variables are labour market institutions, level of development and globalization variables.

1.4. Chapter Outline

The thesis is structured as follows: Chapter 2 describes the methodology used in the thesis. The next chapter, Chapter 3, is the Extended Literature Review which allows for an exploration of the literature surrounding the wage-led and profit-led regimes and the Varieties of Capitalism literature. Chapter 4 describes the data used to investigate subgoal II. Chapter 5 describes the econometric (panel data) analysis and discusses the key results. And finally, Chapter 6 concludes and makes recommendations for further research.

Chapter 2: Methodology

2.1. Introduction

This chapter lays out the methodology that will be carried out in this study. Sections 2.2 explains the essence of methodology: what is it that makes a good research study? Section 2.3 applies this to subgoal I (the extended literature review), and section 2.4 applies it to the empirical analysis and describes the quantitative methodology to be followed in Chapter 5.

2.2. The Making of Good Research

This study, excluding the extended literature review, relies on quantitative data to inform its analysis. Addressing subgoals IIa and IIb will involve the formulation of hypotheses and gathering empirical evidence, as well as a subsequent discussion of the results.

Four things make a good research study: objectivity, reliability, and internal and external validity (Rehman and Alharthi, 2016: 53). A good research study is objective. What is meant by this is that it is free of biases – it does not allow the researcher's personal feelings to filter through in the research (Rehman and Alharthi, 2016: 53). The subgoal II of this research study is quantitative–with panel data analysis. The data collected from sources such as the World Bank is quantifiable and measurable, which adds to the study's objectivity. However, while quantitative research is in principle 'objective', there are often major problems regarding data availability and quality, and the researcher has to make choices about which data to use and how hypotheses are formulated. It is therefore very important to mix good qualitative research with any quantitative analysis (Rehman and Alharthi, 2016: 53).

Another feature of a good study is reliability. This feature is observed when the findings of the current study are similar to other research studies in the same field (Rehman and Alharthi, 2016: 54). The extended literature review in chapter 3 is a good reference point. From what will be seen in this chapter, many authors find that high road arguments are salient for high-income, OECD and non-OECD countries; the focal point is if this holds for middle-income countries like South Africa. The reliability of this research study is enhanced with the inclusion of a section that details the different variables used in this research. In addition to this, the limitations surrounding the data will also be highlighted.

The last two attributes in good research studies are external and internal validity. The former has to do with how generalizable the research is (Rehman and Alharthi, 2016: 54). After an exploration of literature and running the appropriate econometric tests, the study will have findings on which to report on. The essential point here and with regards to a good research study, in general, is that the ability of these findings to be applied to larger samples. Internal validity pertains to the independent variables of the research study, such as labour market institutions, having an effect on one of the dependent variables of the research, without there being an effect from other variables (Rehman and Alharthi, 2016: 54). When focusing on the relationship between these two variables, it is critical to hold other factors/variables constant (Rehman and Alharthi, 2016: 54).

2.3. Addressing Subgoal I: The Extended Literature Review

The first task in carrying out this research is the exploration of the literature using an extended literature review. This is the qualitative part of our main goal. This is a necessary first step to get acquainted with the research that precedes this study – what has been observed and discovered in the realm of wage- and profit-led regimes and Varieties of Capitalism (VoC) literature (Creswell, 2014). The use of the extended literature review is essential. This lies in the fact that it is exploratory – the researcher is striving to gain and portray a comprehension of the topic at hand (Creswell, 2014: 61). The focus literature is Post-Kaleckian, Post-Keynesian, Neoclassical Labour Economics (NLE) and VoC literature. By doing so, we get to show results of similar studies in this field (Creswell, 2014: 60).

This chapter enables the reader and the researcher to see the bigger picture. Tackling the research, in general, can be seen as a funnel. The paper's literature review is the bigger part of the funnel – observing, reviewing, and understanding the debate forms the broader aspect of our research (Creswell, 2014: 60). And as the study proceeds, a more refined, narrow, and focused perspective will be presented.

In the preceding subsection, internal validity and external validity were touched on and these features of a good research study are also key for the qualitative nature of the study. With internal validity, there must be coherence between the theory and observations made in the extended literature review and the findings made in this study (Bryman, 2012: 390). For external validity, the important question to ask is can this study be applied to, say, high-income countries when the findings are developed? Or fellow middle-income countries that may not be covered in this paper. In the same way that this study and more particularly, the extended literature review explores studies carried out for developed countries and applies that to developing countries such as South Africa; these findings be applied in the reverse? This is the essence of external validity – the generalizability of this study (Bryman, 2012: 390).

Making a statement that South Africa and many other countries are profit-led is a finding established in many research papers in the field. When collecting data and analyzing it, referring back to studies that make these claims will improve the validity

of the research (Creswell, 2014: 60). It is important to note that the use of the extended literature review does not just serve as preliminary to the empirical work in chapter 5, as literature reviews tend to (Creswell, 2014: 60). It is an essential task in itself; it aims to clarify the critical debate and refine the critical questions of the study.

2.4. Addressing Subgoal II: Panel Data Analysis

Subgoal II will be developed in the literature review and explored econometrically using panel data analysis. Panel data analysis is a combination of using time series data (indicated by a subscript 't' in the equations) and cross-sectional data (indicated by subscript 'i' by each variable in the equations) (Gujarati and Porter, 2009: 22). The subscripts follow as "it". It is the analysis of the same observations (cross-sectional unit) over a period of time – incorporates cross-sectional and time series data (Gujarati and Porter, 2009: 23). The panel data analysis will be done in two stages using regression models in both instances. The table below consists of the variables and their codes that will be used for the panel data analysis.

Table 2.1 Variable names and code used in Panel data analysis

Variable Name	Code
Wage Share	w_s
Union Density	u_d
Collective Bargaining	c_b
Financial Globalization	f_g
Trade Globalization	t_g
GDP per Capita	gdppc
Export Share	ex_s
Global South Dummy	global_south
Time Dummy	_2007_2018

2.4.1. Graphical Analysis

Scatterplots with straight lines will show how the different variables trend over time across the cross-sectional units. Graphical analysis is undertaken in Chapter 4 where the different variables used in the study are discussed. For this research, the time period starts from 1980 and ends in 2018. Neoliberalism and the policies underlying it started to gain momentum in the 1970s and 1980s, the use of this timeframe can show how this trajectory had an impact, if any, on labour market institutions and the wage share too (Kentikelenis and Babb, 2019: 1720). A total of 36 countries were observed, how this sample was obtained is discussed below.

2.4.2. Hypothesis Formation

2.4.2.1. Subgoal IIa: Exploring the extent to which institutional variety remains a significant determinant of wage share

One of the hypotheses that is being tested in this study is whether institutional variety (discussed in Chapter 3) is a significant determinant of the wage share. Labour market systems are the variable of focus, and this is captured by Xi_{it} in Equation 1. The hypotheses would follow as:

H0: $\beta_1 = 0$; Institutional Variety is not a significant determinant of the wage share (there is no relationship between Institutional Variety and the wage share).

H1: $\beta_1 > 0$; Institutional Variety is a significant determinant of the wage share (there is a relationship between institutional variety and the wage share).

Hypothesis 1: Testing Subgoal IIa

Rejecting our null would mean that there is a positive relationship between Institutional variety and the wage share. This is what we would expect *a priori* – stronger (and more effective) labour market institutions would have a positive and meaningful (significant) effect on the wage share. In contrast, failing to reject our null means that there is no relationship between the two variables, therefore concluding that institutional variety is not a significant determinant of the dependent variable, the wage share.

The following regression model will be employed to investigate subgoal IIa:

$$Y_{it} = \beta_0 + \beta_1 Xi_{it} + \beta_2 Xii_{it} + \beta_3 Xiii_{it} + u_{it}$$

(Equation 1)

Where, the Y_{it}, the dependent variable (wage share), Xi_{it} represents labour market systems/institutions, Xii_{it} represents a set of variables to account for trade and globalization, $Xiii_{it}$ represents the level of development, and u_{it} is the error term which takes into account missing variables and noise (Gujarati and Porter, 2009: 4). The β_1 terms are coefficient that will be estimated econometrically. These set of variables are used to operationalise and proxy these concepts, and the dataset from which these are obtained is describe in Chapter 4.

The empirical methodology will be based on Arif (2021), who considered the determinants of wage share for both OECD and non-OECD countries. Arif's (2021)

study linked wage share to a different set of supply-side factors (i.e., economic sophistication). The methodology in this study can be used for the supply-side considerations captured by the Xi_{it} variable. Stockhammer's (2013) study is also similar. It focuses on the determinants of wage share – technology, globalization, and welfare state retrenchment – using panel data analysis for a mix of advanced, developing, and emerging market economies from 1970 – 2007. This is very similar to the sample used in the thesis, the difference lies in the timeframe used for this study, which was from 1970 to 2018.

2.4.2.2. Subgoal IIb: Probing whether such institutional variety represents protection against competition or high-road capitalism

The intention here is to address goal IIb. Dividing Subgoal II into two parts is necessary because we want to cover two important aspects in our study. The first was gauging if there is a relationship between institutional variety and the wage share and now what is key is to analyze what this institutional variety means with regards to export competitiveness/high-road capitalism. In doing so, this study builds on Schmitt and Mitukiewicz (2012) finding that institutional variety does not come at the expense of competitiveness; countries need to break down the hurdle of self-interest and embrace international (wage) coordination to ultimately address the collective action problem. By addressing subgoal IIb we are testing the following hypotheses:

H_0: $\beta_2 = 0$; There is no relationship between the institutional variety and export competitiveness

H_1: $\beta_2 > 0$; There is a positive relationship between institutional variety and export competitiveness

Hypothesis 2: Testing Goal IIb

By rejecting the null, we would be concluding that there is a relationship between institutional variety and export competitiveness. This would further suggest that the former does not come at the expense of the latter – strong labour market institutions could do well for countries if they embrace them as opposed to undermining them in the spirit of lower costs (and higher profits). On the other hand, if we fail to reject the null, that suggests that there is no relationship between the two variables and would

suggest that institutional variety does come at the expense of how competitive countries are in the global market.

The following regression model will be used to test the assertion, i.e., that wage share and collective bargaining are 'efficient':

$$Y_{it} = \beta_0 + \beta_1 Xi_{it} + \beta_2 Xii_{it} + \beta_3 Xiii_{it} + \beta_4 Xiv_{it} + u_{it}$$

(Equation 2)

Where the Y_{it} is export competitiveness, which is proxied by export share. β_0 is the intercept coefficient. Xi_{it} is the same as in equation 1 and 1.1, which is labour market institutions. Xii_{it} is the wage share, $Xiii_{it}$ represents the level of development Xiv_{it} represents a set of variables to account for trade and globalization, and u_{it} is the error term.

2.4.3. Hypothesis Testing Procedure

The statistical software used will produce estimated equations from equation 1 and 2. From these estimated equations, it will be possible to comprehend the relationships that occur between the independent variables and the dependent variable. And in doing so, observing whether the independent variables have significant relationship with the dependent variable. Whether or not these relationships are significant will be dependent on the probability values (or p-value) of the t-statistics of the respective variable.

The probability value is defined by Gujarati and Porter (2009: 122) as “the lowest significance level at which a null hypothesis can be rejected.” There are three levels of significance – 1%, 5% and the 10% level. The p-value is associated with a statistic, this can be the t-statistic, F-statistic or Chi-squared (χ^2) statistic. Whether or not the statistic in question is significant or not is dependent on the numerical value of the p-value and whether this number is below or above a particular significance level. If:

(i) the p-value is less than 1%, the relevant statistic is significant at the 1% level. And the null is rejected at this level (Gujarati and Porter, 2009: 114).

(ii) the p-value is greater than 1% but less than 5% then the relevant statistic is significant at the 5% level but not at the 1% level. The null is rejected at the 5% level (Gujarati and Porter, 2009: 114).

(iii) the p-value is greater than 5% but less than 10%, then the relevant statistic is significant at the 10% level but not at the 5% level. And thus, the null is rejected at the 10% level (Gujarati and Porter, 2009: 114).

(iv) the p-value is greater than 10%, the relevant statistic is insignificant, and we fail to reject the null hypothesis (Gujarati and Porter, 2009: 114).

The other way in which we can conclude is by comparing our test statistic (or any other statistic in question), here forth called t-statistic to the appropriate t-critical value. There are two possible outcomes by comparing these values. If:

(i) the t-statistic is greater than the t-critical value then we reject the null hypothesis and

(ii) the t-statistic is less than the t-critical value then we fail to reject the null (Gujarati and Porter, 2009).

2.4.4. Econometrics Test for Validity

This section will deal with the tests that will help ensure that the study is valid. The way in which this section will proceed is by stating the problem that might be encountered in the study and stating the purpose of carrying out the test. The first few problems stated are the violations of the Classical Linear Regression Model (CLRM). What follows after these are the discussions of tests for stationarity and cointegration.

Multicollinearity

Multicollinearity is a violation of a CLRM which involves the independent variables being related with one another (Gujarati and Porter, 2009: 321). Correlation Matrices provide a means of which we can discern whether there is evidence of multicollinearity. The correlation matrix involves observing the associations that exist between the dependent variables and the independent variables and at the same time it shows the associations that occur between the independent variables, this is key for observing if there is potential multicollinearity (Gujarati and Porter, 2009: 348). The values (R_{ij}) on the correlation matrix range from 0 to 1, and if the value is greater than 0.8 then there is evidence of multicollinearity (Gujarati and Porter, 2009: 337).

The Variance Inflation Factor equation is a more formal way of testing for this problem (Gujarati and Porter, 2009). It involves running regressions with the independent variables as the dependent variable. From this output the auxiliary R^2 is obtained and inserted in the equation: VIF = 1/1- Auxiliary R^2 (Gujarati and Porter, 2009: 328). If a VIF result of 10 or greater is yielded, then there is potentially multicollinearity and further remedial measures may need to be undertaken. Remedying multicollinearity involves dropping, adding, or transforming variables or not taking any action as it may boil down to problems with the actual dataset being used (Gujarati and Porter, 2009: 351).

Tests for Stationarity

According to Gujarati and Porter (2009: 740), stationarity is when the "mean and variance are constant over time and the value of the covariance between the two time periods depends only on the distance or gap or lag between the two time periods and not the actual time at which the covariance is computed." This test can be performed using the Augmented Dickey-Fuller (ADF) Test and various other tests for panel least squares data, such as the Levin, Lin & Chu test, Im, Pesaran and Shin W-stat test, ADF-Fisher Chi-square test and, the PP- Fisher Chi-square tests.

The null hypothesis of these tests is that the series, the wage share, or export share series for example, are non-stationary. (Gujarati and Porter, 2009: 750). If the null is rejected, then then we will need to carry out the test at first differences because of the results in level terms are non-stationarity. If we fail to reject our null as the statistics are insignificant and conclude that the wage share series (or the series in question) is stationary at first differences. If we find that our series is stationary, we classify the series as I (0), I (1), or I (2) (Gujarati and Porter, 2009: 746). If the series is stationary in level terms it is classified as I (0), if the series is stationary at first differences, then we calculate the series as I (1) and so forth (Gujarati and Porter, 2009: 746). Why is it important to test for stationarity? An important reason for testing for stationarity is that we could be working with spurious regression (those that appear to be related but are in actual fact not) (Brookes, 2008: 319). This can furthermore affect the validity of our research if non-stationary data is incorporated (Brookes, 2008: 319).

Cointegration

Cointegration is defined as "a long-term relationship between variables" (Gujarati and Porter, 2009: 762) This concept also highlights the importance of testing for stationarity. When a non-stationary series is regressed on another this can produce a spurious regression – a regression in which we see two or more series related to one another but are not (Gujarati and Porter, 2009: 762). If it can be shown that the results are cointegrated then we do not have a spurious regression. The series may be individually non-stationary, but their linear combination is not, this would suggest that there is cointegration (Gujarati and Porter, 2009: 763). How do we test for cointegration? The answer to this is running an Augmented Engler Granger (AEG) test on the residuals (Gujarati and Porter, 2009: 763). The null of this test is that 'the residuals are non-stationary' (has a unit root/ there is no cointegration between the variables (Gujarati and Porter, 2009: 764).

Autocorrelation

A problem that can be encountered when carrying out the regression is autocorrelation; this is defined as the error term being correlated with itself (Gujarati and Porter, 2009: 66). Autocorrelation may be introduced into the data because of interpolation and extrapolation of the dataset, which was carried out by original sources of the datasets as well as the researcher for this study (Gujarati and Porter, 2009: 417), this violation (of the CLRM) can be identified using the Durbin-Watson d test. This test involves the estimating of residuals and lagging them. With these lagged residuals, a regression is run of the original residuals output against the lagged residuals. Whether the sign of the coefficient – ρ – from these regression outputs is positive or negative ultimately determines whether the hypothesis will be one of positive or negative autocorrelation. In order to remedy the problem of autocorrelation the Generalized Least Squares method can be used. This is if the autocorrelation is not as a consequence of mis-specifying the model (Gujarati and Porter, 2009: 441). What would happen if we carried on despite there being autocorrelation would be that the Ordinary Least Squares (OLS) estimators would not be BLUE – Best Linear Unbiased Estimators (Gujarati and Porter, 2009: 423).

Heteroskedasticity

Heteroskedasticity is defined as non-constant variance of the error term, this violates the assumption of homoskedasticity (equal variance/spread) (Gujarati and Porter, 2009: 365). The tests for this violation of the CLRM starts with eyeballing the data using graphical analysis. These graphs are scatterplots of the residuals squared generated from the main equation on the Y-axis against the various variables used in the study (Gujarati and Porter, 2009: 377). A formal test for heteroskedasticity is the Breusch-Pagan-Godfrey (BPG) test (Gujarati and Porter, 2009: 385). The null of this test is that the error term is homoskedastic and the alternative is that the error term is heteroskedastic This test involves taking the squared residuals, similar to the eyeball test and regressing them on all the explanatory variables. With this regression the Chi-squared (χ^2) observed is obtained and compared to a critical value in the χ^2 table. If there is evidence of this, remedial measures can be taken. Transforming the variables, for instance, by carrying out a log transformation, then using the Panel Cross-Section Heteroskedasticity Test in EViews to observe if this problem was dealt with by carrying out this transformation (Gujarati and Porter, 2009: 395).

2.4.5. Model Selection

The F-statistic, Adjusted R^2, and log-likelihood are essential in selecting which models to go ahead with when discussing the final results. The F-statistic tells us whether the independent variables collectively explain the dependent variable (Gujarati and Porter, 2009: 238). The Adjusted R^2 statistic will also allow us to see how much (in percentage terms) of the variation in the independent variables, in each case, will explain the dependent variable (Gujarati and Porter, 2009: 203). The log-likelihood is a statistic that measures the goodness of fit for the data, it can be positive or negative and the higher this statistic the better the model.

The Hausman Test is key in deciding which model, be it Fixed Effects or Random Effects, would be most appropriate to draw conclusions from (Gujarati and Porter, 2009: 604). In addition to drawing inferences from the Panel Least Squares (PLS) Model, the model that will be deemed most appropriate by this test will be used alongside the PLS.

Chapter 3: Extended Literature Review

3.1. Introduction

As mentioned in the introduction of this paper, wage shares have been falling in a myriad of countries around the world, with a few exceptions to the case (Lavoie and Stockhammer, 2013: 4; Onaran, 2019: 447; Burger, 2015: 160). This is also evident in labour market institutions; however, a few countries have experienced upward and constant trends (Berg, 2015: 20). The different regime types that countries take, profit- and wage-led regimes are also acknowledged around this subject matter. These regimes play an essential role in determining the trajectory of the wage share and, of course, labour market institutions. As we acknowledge these factors, the next step is to investigate the theories and empirical studies underpinning these developments using an extended literature review.

The aim of this chapter is to address subgoal I. To investigate the claim posited by literature that South Africa and many other middle-income countries are profit-led and explore the factors shaping regime type in such countries. Furthermore, an exploration of the literature of Post-Kaleckian, Post-Keynesian, Neoclassical Labour Economics (NLE), and Varieties of Capitalism (VoC) theories will be undertaken. This exploration does not merely serve as preliminary to empirical work. Clarifying the debate and refining the key questions is an essential task in itself.

This chapter will attempt to unpack these issues by firstly, in section 3.2, developing a conceptual framework; this section will explore the wage- and profit-led narratives and the supply-side arguments. The following section, section 3.3, deals with the empirical literature surrounding this topic. The discussion will involve empirical studies regarding the wage- and profit-led identification and the saliency of the Varieties of Capitalism. And the chapter will end with a discussion of the studies on South Africa and similar economies, this will involve an exploration of Neoclassical Labour Economics (NLE).

3.2. Conceptual Framework

3.2.1. Introduction

In this section, there will be a discussion surrounding the different narratives in the literature and the key arguments. These narratives are the mainstream narrative and the

alternative wage-led narrative. They both emphasize two different types of regimes with different ways of achieving growth. These regimes have the same aim – achieving growth and development – but have different routes of getting there. These elements tie in with the interesting question of how the supply-side comes into the picture, the importance of institutions and the Varieties of Capitalism (VoC).

3.2.2. Wage and Profit-led narratives: Macroeconomic Initiatives

It is possible to discern two broad competing narratives about the wage share and labour market institutions in the literature. The mainstream narrative is that growth is profit-led rather than wage-led; where growth is regarded as profit-led, wages are treated as a cost (Onaran, 2019: 449). In this narrative, both falling wage shares and declining labour market institutions are driven by globalization, efficient technological change and financialization (Lavoie and Stockhammer, 2013: 18).

These three elements are attributable to the detriment of labour market institutions and the wage share in that they are a part of the neoliberal trajectory. The neoliberal trajectory provides a foundation for the assumptions of orthodox economic thinking – having higher real wages causes unemployment (Palley, 2011: 225). The assumptions of this line of thinking are as follows. The first is that "firms are not demand constrained in goods markets" and second, "firms labour demand schedules are a negative function so that higher real wages will reduce labour demand, employment and output" (Palley, 2011: 225). These are the assumptions guiding the belief that an increase in real wages results in lower employment.

Globalization has allowed for firms to outsource work which fosters international competition resulting in heightened "job insecurity and downward wage pressure"; this affects unions as workers who are associated with unions in developed countries find themselves competing against the low-wage workers from economies that were not open (Palley, 2011: 223; Schmitt and Mitukiewicz, 2012: 262)**.** Technological change has increased the substitutability of labour for capital. Economies are becoming more capital-intensive, and this factor has also caused a drop in unionization, with a bias against less-skilled workers (Schmitt and Mitukiewicz, 2012: 262). More assertive

worker representation may allow countries to resist falling wage shares, but at the price of lower international competitiveness (Blecker, 1989: 407). Lower wage shares will result in higher profits through an increased inducement to investment; this higher investment would lead to more economic growth (Onaran and Galanis, 2014: 2490). And this growth eventually trickles down to workers and those at the lower end of the income distribution, mainly through increased employment (Stockhammer, 2011: 175). As stated by Burger (2015: 160), there has been a rise in more "aggressive returns-oriented investment institutions" whose priority is achieving the highest possible return at the lowest possible cost.

Financialization deals with the reliance on debt-led consumption and the rise of the "role of financial markets, financial motives and financial institutions in the operation of the domestic and international economies" (Stockhammer, 2013: 40). Essentially, considering all these three factors, it is about power moving into the hands of capital and out of the hands of labour (Stockhammer, 2013: 40).

There are two important problems with the profit-led growth narrative. Firstly, profit-led growth does seem to have negative implications for income distribution, at least in the short-run (Palley, 2017: 50; Onaran: 2016:4). This will be exacerbated by the likely undermining of trade union representation, which will also undermine attempts to establish workers' and citizens' rights (Lavoie and Stockhammer, 2013: 4). This suggests a very hard path to development, with a trade-off between growth and socio-economic outcomes (Lavoie and Stockhammer, 2013: 6). This is laid out in the Keynesian/Kaleckian account of wage led growth – there is an obvious problem with aggregate demand in the profit-led growth model. Secondly, there are possible logical problems with the profit-led model's economic reasoning.

The alternative to this 'profit-led' narrative, is the wage-led growth narrative, which finds its basis in Keynesian and Kaleckian economics. This narrative emphasizes the positive relationship between wage share and aggregate demand, and hence profits, investment, and growth (Palley, 2011: 225; Onaran, 2019: 448). Domestic demand is important for both "equality and development", and it is fuelled by an increase in wage

share (Onaran and Galanis, 2012: 44). It is important to note that neither wage-led nor profit-led growth is envisaged as a zero-sum process. They are alternative ideas about how economic growth, and the benefits of that growth, are generated. For example, in a profit-led economy, an increase in profit share eventually leads to an increase in the aggregate wage (though increasing employment) and even increasing wages (Lavoie and Stockhammer, 2013: 5). By contrast, as Kalecki pointed out, in a wage-led economy, an increase in profit share would not translate into higher aggregate profits share because a lower wage share is associated with lower levels of demand and utilization of productive capacities (Jesus and Lopez, 2019: 622-3). Similarly, an increased wage share does not necessarily lead to a fall in aggregate profits (Patriarca and Sardoni, 2011:2).

The perspective of Keynesian economics is quite different from the Orthodox line of thinking, while the latter state that increased real wages decrease employment. Both follow different logics, and this applies to the assumptions under each. The preposition of Keynesian economics is that there is a long-run positive relationship between real wages and employment (Palley, 2011: 225). This is based on the following assumptions, the first is that "firms are constrained by shortage of demand in the goods markets" and the second is that workers have a higher propensity to consume than 'capitalists' and thus "an increase in the wage share of aggregate income that goes to worker households increases aggregate demand" (Palley, 2011: 225). Because of this, the constraints cited in the first assumption are eased as higher wages give rise to employment (Palley, 2011: 225). Finally, supply constraints should not be ignored, even if an economy is wage-led. Onaran and Galanis (2012: 44) emphasize that increasing wage share should not come on its own, rather it should come in a package with policies that account for "industrial efficiency, technological change and sustainable growth."

The wage- and profit-led narratives are not necessarily mutually exclusive. While a country cannot be simultaneously wage- and profit-led, a country will be either wage-led or profit led, this may change over time. These narratives might describe countries with different domestic market conditions and modes of embeddedness in the global economy (Stockhammer, 2013: 4). For example, globalization has tended to reduce the

importance of domestic demand, and thus countries that were wage-led have become profit-led (Stockhammer, 2013: 8). However, this is not universal. Many individual countries, particularly those with large internal markets, remain wage-led (Onaran and Galanis, 2014: 2510). Post-Keynesians like Palley (2017) argue that whether a country is wage- or profit-led is not beyond that country's control. Countries that are profit-led can switch to a wage-led growth regime through appropriate policies that increase domestic aggregate demand. China's 'rebalancing' policies and Brazil's macroeconomic, labour market, and social policies in the 2000s can be seen in this light (Mano and Zhang, 2018: 3; Onaran and Galanis, 2012: 44; Carvalho and Rugitsky, 2016: 2). Onaran and Galanis (2012: 44) state that while these policies are well-grounded and have worked in these countries, they are only conducive in spaces that allow for both "developmentalist trade policies" and an economic environment that will prevent a race to the bottom.

Both types of economies, profit-led and wage-led, are subjected to the race to the bottom, with wage-led economies contracting more in relation to their profit-led counterparts (Onaran, 2019: 450). But this does not entail those countries that are profit-led should remain as such. Onaran (2019), observes that in these countries, their economies contract when they pursue policies that lead to a fall in the wage share, and this is the case when these policies are also embarked on by trading partners of these countries (Onaran, 2019: 450). While at micro-level, a lower wage share may present as advantageous with regards to competitiveness (Onaran, 2019: 450). This lies in the belief that low wages would have a positive effect on employment and this belief is established in orthodox arguments (Palley, 2011: 229). Findings by Onaran and Galanis (2014: 15), show that there is a positive relationship between wage share and Global GDP: wage share falling by 1-point results, on average, in a fall in global GDP by 0.36% points.

Onaran (2019: 449) claims that growth is wage-led at the global level. And follows to argue that declines in wage share have a negative impact on Global GDP and that a wage-led growth path at this level is achievable. But even if it is accepted that the global economy is wage-led and it would be collectively optimal if all countries enacted

policies to rebalance their economies to enable the switch to wage-led growth, there is a collective action problem to consider (Stockhammer, 2011: 173; McLaughlin, 2009: 331). For each individual country that is currently profit-led, an attempt to shift to a wage-led regime by increasing domestic demand, may well be futile. The demand side benefits of higher wages will be diluted by high import propensities, and the cost-side consequence of higher wages exacerbated by the exposure of domestic producers to international competition. Furthermore, such polices may be resisted by business interests, who view them as constraints on managerial autonomy (Sasaki *et al.,* 2013: 684).

These policies are viewed as costly, and expensive route to achieve profits, especially in the short-run (Wright and Rogers, 2015). And individual firms and their governments may shy away from embarking on them because it may make them less competitive in the global market, especially in the era of increased globalization and technological change (Onaran, 2019: 447). This results in a situation where various firms start to undercut their wages and the race to the bottom starts to play out because they can achieve profits through cost-cutting at the expense of labour (Onaran, 2019: 450). Onaran (2019: 449) also finds that the lack of wage coordination at a global level, considering that the world is wage-led, would have negative effects for the global economy.

Regional and multilateral organizations such as the International Labour Organization (ILO) could, in theory, address the collective action problem by enforcing international labour rights to prevent the race to the bottom; however, in practice, such organizations remain ineffectual (Chan and Ross, 2003: 1012; Isaac, 2018: 184). Being ineffectual is not the only hindrance that these organizations have; it is just part of the problem. Other than this, the powers of such multilateral organizations are restricted due to the limited scope of labour market policies. This means that labour market issues are being limited to labour market policies and not being integrated into other economic policies, as they should be (Palley, 2011: 224). Both the ineffectuality and limitation of labour market issues/ policy and as a consequence wage moderation policies stem from a "dominance of orthodoxy in policy-making" (Palley, 2011: 225). One way in which to overcome

this is for economic policy to be a whole package, it should be inclusive (Palley, 2011: 225).

Even though it might be in the best interests of business to implement wage-led policies, in that there is the benefit of achieving higher profits (Onaran, 2016: 18). This will be rejected by business/ capital interests because it presents a loss in power on their part and they hold the view that unemployment (this applies to inequality too) is just another regularity of the capitalist system (Onaran, 2016: 18; Berg, 2015: 4). This was a view postulated by Kalecki in response to why there would be a pushback by business/capitalists when it comes to policies pertaining to increasing wage share or full employment (Onaran, 2016: 18).

Globalization has, of course, brought about more trade in that markets have been increasingly open. It has also resulted in a weakening of labour market institutions because more countries are competing globally (Oyvat, Öztunah and Elgin, 2020: 464). In addition, it is cited as one of the reasons for the fall of wage share and when we talk about the collective action problem, globalization has played a major role in this, which implies that this a global problem and therefore there needs to be coordination at the global level (Palley, 2011: 237). This feeds into the what is called 'Beggar-thy-neighbour-macroeconomic policy'. What is observed with such a policy is that countries become more self-serving in that they decide to go for policies that would seemingly benefit them at the expense of other countries' economies – the positive impact for their economy leads to an overall negative impact for the world as a whole (Palley, 2011: 229). What is necessary for international coordination is having large, developed countries at the forefront of this. In that there is a shift towards pro-labour distributional policies and away from pro-capital distributional policies with these developed countries spearheading "wage and macroeconomic policy coordination" (Onaran, 2016: 16; Onaran and Galanis, 2012: 44). If countries with large economies pioneer this, smaller, less developed nations will be able to follow suit more easily.

3.2.3. Supply-Side arguments

Focusing on the Aggregate Supply (AS) side is a means to solve the apparent impasse faced by individual countries (Stockhammer, 2011: 173). The core variable for AS is productivity (Stockhammer, 2011: 173). McLaughlin (2009: 337) claims that countries can be competitive without a downward pressure on wage share and without undermining labour market institutions. A crucial component in the push for wage-led growth is the restoration of the link between wages and productivity, a potential channel through which this will take place is improved labour market institutions and minimum wage systems (Laliberté, 2011; Palley, 2011: 223).

There has been a decoupling of wage growth and productivity growth in recent years, in that the former has started to grow at slower rate than the latter (Schewllnus, Pak, Pionnier and Crivellaro, 2018: 6). It has been argued that the requirements to re-establish this link are higher union density, collective bargaining as well as the existence of a minimum wage, which would be maintained by the labour market institutions. What these measures will achieve is a meaningful impact on income distribution and not an increase in unemployment (Palley, 2011: 233; Onaran and Galanis, 2012: 44).

To avoid the 'race to the bottom' and ultimately the collective action problem, countries can benefit by unilaterally implementing policies that simultaneously improve working conditions and efficiency; this is taking the high road (Onaran and Galanis, 2012: 44). While advocacy of wage-led growth is associated with Heterodox Post-Keynesian Economics, the distinction between 'high road' and 'low road' is well established in all the major schools of thought dealing with labour systems (Lavoie and Stockhammer, 2013: 2). It is worth examining two bodies of literature that identify such productivity effects.

Firstly, Neoclassical Labour Economics (NLE), which has become increasingly institutionalist since the 1970s (Boyer and Smith, 2001: 199), identifies channels by which both higher wages (and wage share) and better coordinated collective bargaining institutions improve labour productivity (Dünhaupt, 2013: 20). For example, both efficiency wages and efficiency bargaining considerations are well established

theoretically and empirically (McLaughlin, 2009: 345). They are suggestive of the 'high road' system associated with the wage-led growth regime.

Secondly, the Varieties of Capitalism (VoC) literature provides a more historically rooted, country-level, institutional explanation of why countries with very different institutional configurations (such as the USA and Sweden) might experience a different comparative institutional advantage' (Baccaro and Howell, 2011: 538; Hall and Soskice, 2001: 9).

The literature under the VoC perspective focuses on five spheres in which economies can be compared and by which their respective firms aim to resolve coordination (Hall and Soskice, 2001: 8). Three of these five spheres are directly relevant to this study: industrial relations, vocational education and training, and the relationship between workers and employers within firms. The other two spheres (corporate governance and interfirm relations) are not discussed here.

These spheres are industrial relations which deals with worker relations, specifically factors such as wages and collective bargaining (Hall and Soskice, 2001:7). This sphere is important when it comes to wages and productivity, and essentially rebuilding that link which has been cited to be decoupling since the 1970s-1980s (Hall and Soskice, 2001: 7). The next sphere is that of vocational training and education, this has to do with the building and investment in human capital, overcoming this coordination problem is beneficial not only for the respective firms but also the economy as a whole (Hall and Soskice, 2001: 7). Lastly, is the sphere that speaks in the relationship between workers and employers within firms. There must be coordination between these two parties as workers otherwise a problem of asymmetric information may arise. Workers who have garnered substantial knowledge about the running of the firm will not relay these back to their employers. And this would be a loss in that this knowledge would have potentially contributed to the value of firm.

Taking these spheres into consideration, it is important to note that countries have different ways of tackling these spheres. Of particular interest are the so-called Coordinated Market Economies (CMEs), in which strong labour market institutions

cohere with institutions in other spheres (Arsenault, 2012: 5; 71; Baccaro and Howell, 2011: 524). Firms in CMEs thus, encompass coordinated collective bargaining, stable wage shares, more skill-intensive education and training systems and a more active welfare state (Hall and Soskice, 2001: 8). The other category of economies cited in VoC literature are Liberal Market Economies (LMEs). Firms in such economies prioritize profitability, interests of shareholders, have weaker labour market institutions, high income inequality and a relatively active welfare state (Hall and Soskice, 2001: 8).

VoC literature provides details of why it is possible to have systems like CMEs in place; it is about a high-road as opposed to a high cost. Mainstream literature argues that wages are sources of costs, but this must be thought of in a more sustainable manner, in that wage are not just a higher cost but a higher road. Authors like Korpi (2006: 203) and Schmitt and Mitukiewicz (2012) argue that CME have done just as well as LMEs, and that globalisation has not eroded the viability of CME systems. In particular Schmitt and Mitukiewicz (2012) argue that CME systems, because of their association with high productivity and high-quality manufacturing systems, are particularly well suited to countries with high levels of trade openness.

Wright and Rogers (2015:327) put forward that strong labour market institutions go hand in hand with high-road capitalism and with these institutions in place, wages (and wage shares) downward trend would be averted and better work conditions for workers would be established (Wright and Rogers, 2015: 237) The alternative low-road route encapsulates lower wages and lower skilled labour. The high road may be more desirable for the national economy in terms of solving socio-economic problems, but it is often the road less travelled due to the collective action problem. It is often described as more costly route and if firms in individual countries have the option of taking a route that would allow for them to enhance their profits, they will opt for it (Wright and Rogers, 2015: 234).

3.3. Empirical Literature

3.3.1. Introduction

This section discusses the empirical literature. The rest of the subsections under this section are set out as follows, first is the broad area of wage- and profit-led identification, followed by the saliency of the VoC considerations and how it ties in with the profit- and wage-led story. And ending with empirical studies on South Africa and economies that are similar to it.

3.3.2. Empirical Studies on broad area of Wage- and Profit-led regime identification

Demand and Supply can be wage-led or profit-led. In terms of (aggregate) demand wage-led regimes are economies in which we see a rise in wage share having a positive effect on aggregate demand this is by means of increased consumption (Stockhammer, 2011: 172). This is because there is a higher propensity to consume out of wages than there is to consume of profits (Stockhammer, 2011: 173; Palley, 2011: 225). The rise in wage share also increases Gross Domestic Product and accelerates capital accumulation. With regards to supply, the core variable is productivity and thus, under a wage-led economic structure a rise in wages has positive outcomes for "labour effort and productivity-enhancing investments" (Stockhammer, 2011: 173).

In economies classified as profit-led regimes, the opposite is true, in which a rise in wage share has a negative impact on aggregate demand (Stockhammer, 2011: 173). Demand will also be categorized as profit-led if investment is found to be elastic to a profit margin decrease (Stockhammer, 2011: 173). In this case, lower wage shares increase investment (Stockhammer, 2011: 173). And in terms of supply, downward pressure on wages has benefits for "productivity-enhancing investment" and it also follows that increased real wage growth negatively impacts productivity growth (Stockhammer, 2011: 173).

The factors that determine aggregate demand are not limited to income distribution. Other factors include fiscal and monetary policy, real exchange rates, oil price shocks and many more (Stockhammer, 2011: 173). Stockhammer (2011: 173), states that the

impact of income distribution will not have a major influence with respect to year-to-year changes, but they actually may should the changes (in income distribution) be here to stay. Oyvat *et al* (2020) explore the determinants of the relationship of the variables, aggregate demand, and income inequality. Their focus is on trade openness, wage inequality and the private credit-to-GDP ratio (Oyvat *et al*, 2020).

For inequality, Oyvat *et al* (2020) came to the finding that economies with instances of inequalities in wages are more likely to be profit-led; and the opposite would hold for an economy to be wage-led (lower wage inequality in these cases) (Oyvat *et al*, 2020: 459). Financialization in this paper is assessed through the private credit-to-GDP ratio. Higher credit-to-GDP ratios are associated with economies being more profit-led (Oyvat *et al*, 2020: 460). The policy implications of their findings are that a combination of lower wage inequality and international wage coordination amongst nations can foster an environment where higher economic growth will be associated with pro-labour policies (Oyvat *et al*, 2020: 460). As stated in the conceptual framework, there will be contraction of the economy if there is a reduction in wage shares, whether the economy in question is profit-led or wage-led. Onaran (2019: 450) states that there is space for pro-labour policies that will not contradict growth prospects and that these policies that have a positive impact on wage equality will result in increased growth.

Palley (2017) focuses on the role that income distribution plays in determining what kind of regime an economy takes on (Palley, 2017: 51). The focus here is not only on the "functional distribution of income" but also on "the distribution of wages". This author sheds light on how the distribution of wages, whether an economy is wage- or profit-led, can change an economy's character. A rise in wages share will have a positive impact on growth as well as capacity utilization whether an economy is profit-led or wage-led. What this implies for policy, is that those at the helm of policy-making should focus on raising wage share which will have a resultant positive effect on the economy without there being negative effects on investment spending (Palley, 2017: 59). Palley (2017: 59) also highlights that the way in which wages are distributed in an economy can alter its character.

The United States provides a good case study here, in which it is seen that business/capitalists have seen a larger increase in their share of the wage because of a surge in their incomes (Palley, 2017: 60). The implication of this is that policy going forward should focus on how to increase the labour's share of this bill, this will help improve the wage distribution and thus inequality that comes out due to its distortion (of the wage bill) (Palley, 2017: 60). What this allows for is growth that would classify a country's economy as wage-led. More suitable policies then can be implemented that will see wage share increasing. In their study about the race to the bottom, which focuses on OECD countries, Kiefer and Rada, (2015: 1347) acknowledge that unless institutional changes take place to achieve more equitable outcomes for income, the negative effects may be long-lasting. These institutional changes may be brought forth by considering VoC literature, which has been spoken of in the previous sub-section and will be gotten into empirically in the next.

3.3.3. Empirical Studies on salience of Varieties of Capitalism considerations and the Wage- and Profit-led story

An important highlight from the discussion so far is the argument about the need for global coordination to push for more sustainable outcomes, specifically where the labour market is concerned. This is no small feat, as we need to acknowledge the differences between countries and to what extent they can be involved in such a process. Three spheres of the VoC framework have been noted, and different countries have different ways in which they tackle these (Lauder, Ashton, and Brown, 2008: 20). What is possibly key here are institutions and how they operate in individual countries. The advocation for wage-led growth and away from profit-led regimes, does not just simply end at increasing the wage share. This is a starting point but there is a need to incorporate institutions into the mix of economic policy that will get countries to such a point (Onaran and Galanis, 2012: 44).

From the 1980s, there has been a neoliberal trajectory at play, where we see in most cases labour getting the short end of the stick; by means of increased wage flexibility, wage inequality, declines in union density and collective bargaining, deregulation of the labour market to name a few (Burger, 2015: 160; O'Hara, 2003: 22).

Decentralization in Britain and decollectivization in France are given as examples by Baccaro and Howell (2011: 538). Countries such as Germany, which is often presented as one of the shining examples of Coordinated Market Economies (CME), has been no stranger to detrimental effects of the neoliberal trajectory, with a degradation of its labour market institutions, for example, there has been a slight decline in union density and decreasing importance of employer associations (Baccaro and Howell, 2011: 540).

Isaac (2018: 177) argues that, in Australia, which is an LME (Hall and Soskice, 2001: 19), wages are on a downward trend due to globalization, technology, and the weakening of its labour market institutions. What is being observed is a power shift. However, there has been some resilience to this trajectory from certain countries, this resilience is owed in some part to labour market institutions and how they handle the three spheres. The difference that Germany and other CMEs have with LMEs with regards to the neoliberal trajectory is that while the former category has somewhat worked its institutions around this trajectory, the latter has not done the same so cleanly. For countries like Ireland, Sweden, Italy[2], what has been observed, as explained by Baccaro and Howell (2011: 551), an adjustment of neoliberal specifications "within formally coordinated or centralized bargaining systems."

An aspect that sets CMEs and LMEs apart, among other factors, is their route of competitiveness, the effects of these routes can be short-term as in the case for LMEs and more long-term in the case of CMEs (Lauder *et al*, 2008: 30). This is due to the element of productivity and the processes and systems that are in place which enhance it. In the advocation of wage-led growth path, higher wage shares and a minimum wage too, help provide a starting point in this direction, but this is only one way this path can be achieved. According to Osterman (2018), having an adequate wage is the bare minimum of a high road growth strategy. Storm and Nastepaad (2011) find that an increase in real wage growth has a positive impact on productivity. This being so, we are in essence advocating for the high road, one that encompasses the tenets of wage-

[2] Ireland is classified as an LME (Hall and Soskice, 2001: 19). While Sweden is classified as a CME (Hall and Soskice, 2001: 19). Italy has components of both categories and is classified as a Mixed Market Economy (Hall and Soskice, 2001: 21; Nattrass, 2014: 60).

led growth path embodying both high wages and high productivity. In addition to these findings, they also find that while an increase in the real wage growth may decrease profit rate this is offset by increases in domestic demand, utilization, and an acceleration of productivity growth (Storm and Nastepaad, 2011). Be that as it may, this is dependent on how wage-led a country is. They find that countries that are more wage-led will benefit more from the profitability (and investment) increases that comes as a result of real wage growth (Storm and Nastepaad, 2011: 208).

CMEs have systems in place that help ensure high productivity. A good example of this, and this falls under the vocational training and education sphere, is Denmark. The Danish government pours a considerable amount of funds into vocational training, it spends the highest proportion of its Gross National Product on this amongst all other OECD countries (McLaughlin, 2009: 335). Investing in the resources such as human capital is one keyway to increase productivity and is "a long-term approach to investment". According to McLaughlin (2009: 331), the institutional framework for LMEs is not as wide as those of CMEs, so much so that for LMEs they may find their economies being "driven down to a low-skills equilibrium" (McLaughlin, 2009:331). Another means in which CMEs take a longer-term view and thereby enhance productivity is their embrace of labour market institutions, unions, and collective bargaining. Unions and collective bargaining systems do not thrive in LMEs as well as they do in CMEs.

According to Schmitt and Mitukiewicz (2012: 263), countries such as Sweden, Denmark, Norway, and Finland (countries that have social democratic parties) have experienced an increase in their union coverage but there has been a drop in membership (Schmitt and Mitukiewicz, 2012: 263). For LMEs, such as the United States, United Kingdom, Canada and Japan, there have been drops in both variables (Schmitt and Mitukiewicz, 2012: 263). CMEs like Germany (Schmitt and Mitukiewicz have similar findings with respect to this country, this is noted above), Belgium and France have seen slight declines in their union coverage too, but not to the same extent as their LME counterparts. And the key point as addressed by Schmitt and Mitukiewicz (2012) is that politics matter and more so than globalization and technological change. If it was purely

globalization and technology having an effect on labour market institutions then a decline would be seen across the globe, but while some countries have seen a fall in these institutions, others have had a different experience. This is because the type of politics and institutional setting that an economy encompasses has an effect on the way in which institutions within a country "combine, reinforce and sometimes undermine each other" (Schmitt and Mitukiewicz, 2012: 277).

A very crucial finding by Schmitt and Mitukiewicz (2012) is that in the face of this neoliberal trajectory (heightened globalization and Skill-biased Technological Change (SBTC)), collective bargaining coverage has held its own, in comparison to union density. Schmitt and Mitukiewicz (2012), do not engage in their methodology on why there is a difference in the way collective bargaining and union density have fared with the regard to the neoliberal trajectory. However, they do acknowledge that the reason for this difference lies in categorization of the country and thus the institutional makeup of these countries (Schmitt and Mitukiewicz, 2012). This goes back to the point alluded to in the previous paragraph.

For countries classified as CMEs, labour market institutions may be more favourable than their LME counterparts, in these countries there is a greater incentive for employees to join the unions that represent them, and we find that their coverage rates could even exceed union density rates (Schmitt and Mitukiewicz, 2012: 264). Visser (2019, as cited in Schmitt and Mitukiewicz (2012: 264)) also makes an important note about the difference between union density and collective bargaining coverage, in which they state that while the former has to do with the “pressure” applied by these labour market institutions, coverage rates has to do with how effective these institutions are in ensuring that the minimum standards are adhered to by employers and the state (Schmitt and Mitukiewicz, 2012: 264).

3.3.4. Empirical studies on South Africa and other similar economies.

The main goal of this thesis is to establish whether the 'high road', wage-led growth path is viable and whether the VoC considerations are salient for middle-income countries like South Africa in the current conjuncture. Where VoC literature is concerned there

has not been much coverage on middle-income countries, however, this does not mean that such literature cannot be used as a foundation to ascertain whether a new kind of growth path is possible for these countries. Post-Keynesians like Palley (2017) do claim that regime-switching is possible and desirable in middle-income countries. Habiyaremye, at an HRSC (2021) initiative, recently framed the challenge faced by South Africa and other middle-income countries in terms of the need to transform such economies from profit-led to wage-led regimes. Furthermore, high road, VoC considerations seem to remain salient for high-income countries (McLaughlin, 2009: 331; Schmitt and Mitukiewicz, 2012). Arif (2021) suggests that a similar 'high road' consideration is evident not only in the rich (OECD) countries but also in non-OECD countries and that this does positively affect wage share. Nevertheless, claims like Habiyaremye's remain largely untested, and the possible link between wage-led regimes and VoC considerations remain unexplored for countries like South Africa.

Data from United Nations Conference on Trade and Development (UNCTAD) shows that developing countries have experienced higher trade deficits and lower growth rates since the 1970s (this is compared to the 1990s) (UNCTAD (1999: vi) as cited in Siddiqui, 2012: 16). There has also been a negative effect on social indicators for both "low- and middle-income countries (compared with the prior two decades)" (Weisbrot *et al* (2005: 1), as cited in Siddiqui (2012: 16)). It is explained by Stockhammer (2013: 3), that the fall in wage shares in these countries, more specifically developing countries, is a part and parcel of a much bigger problem – rising income inequality. There has also been an increase in inequality at a global level (Siddiqui, 2012: 18). This also goes back to ineffectuality of organizations and the lack thereof to reinforce policies and laws that would curb these kinds of issues.

The years following the 1980s, saw a rise in income inequality and a fall in wage share for developing countries (Berg, 2015: 3). In terms of wage share, the results have been a mixed bag. In Asia, there was a decline between the years of 1994 and 2007, and in China there was a decrease in wage share in the period of 2000 to 2007 (Berg, 2015: 4). Brazil also saw a fall in its wage share during the turbulent time of the 1990s crisis but saw an upturn in the 2000s (Berg, 2015: 4). In South Africa, there was a notable decline

in the wage share from 1993 to 2008 but with an improvement being experienced after this (Burger, 2015: 161). The reasoning for these decreases is that wages and productivity are growing at different paces, the latter growing much faster than the former (Berg, 2015: 4; Burger, 2015: 161). Another reason why this is occurring, as mentioned earlier is that there has been a weakening of labour market institutions in these countries, this applies to some developed countries as well.

It is important to note that this trajectory and the 'new' overall ideology (neoliberalism) was also pushed onto these developing countries by organizations such as the International Monetary Fund (IMF) and the World Bank and the West (Siddiqui, 2012: 22). Humphrys and Cahill (2017) argue that labour has also had a hand in enabling neoliberalism and allowing this ideology to thrive. One way this occurs is with the rise of sweetheart unions, where we see labour market institutions not doing working in the best interests of workers but pushing employers' interests (Manamela, 2015: 82). Lehulere (1997: 84) also gives another example in the South African case that is leading to the detriment of the unions and labour market institutions in general – union leadership has become increasingly tied to capital by means of setting up investment companies which consequently means that their core mandate is becoming distorted.

The neoliberal trajectory in South Africa did start its course in the 1970s with privatization and it continued to have an effect even in the post-apartheid period. Post-Apartheid South Africa seemed to embrace tripartite concertation similar to CMEs via the National Economic Development and Labour Council (NEDLAC). However, the Growth, Employment and Redistribution (GEAR) strategy signalled a change in direction, and social dialogue became less prioritized (Kim and Van Der Westhuizen, 2015: 92). There is contestation around such issues. Burger (2015) argues that wage share in South Africa has fallen, albeit more recent evidence is less clear (Visser, 2019). Nattrass (2014: 56) argues that the falling wage share in South Africa is not driven by falling real wages (which have been defended by unions and labour market institutions) but by falling employment driven in part by high labour costs. Nattrass' arguments are contested too, more specifically it is the claim that wage increases have undermined employment that is contested (Palley, 2011: 225). However, even if they are correct,

they do not detract from the point. CMEs are characterized by coordinated collective bargaining, very low strike rates, and rational wage-setting, amongst other factors (Hall and Gingerich, 2009: 6). This is quite different from the more fragmented and conflictual industrial relations in countries like South Africa.

South Africa does not fit neatly into the categories of either an LME or a CME. On one hand it does hold certain characteristics of an LME, for example with its vested interests in financial markets. This is evident through the following: a "rise in reliance of portfolio capital flows", privatization and the scrapping of agricultural marketing boards that were established during the apartheid period (Nattrass, 2014: 62). On the other hand, when one takes a look at the labour market system of the country, with its seemingly strong trade unions[3], as well as its welfare system it would look like a CME (Nattrass, 2014: 61). An example of the latter is with how South Africa's social grants system reached a number of 2.9 million South Africans in 1994 (Nattrass, 2014: 62).

In 2019, this number stands at 18 million South Africans receiving social grants (Statista, 2019). Though this may be the case there is "no significant or sustained support provided for the unemployed" and is another reason why it makes it hard to fit South Africa into the CME category (Nattrass, 2014: 62). Given this information, it makes sense to place South Africa between the two categories as it has aspects of both categorizations. This also applies to many countries across the African continent and Asia too (Benney, 2019: 4). China falls into the category of being a state-led economy and at the same time we see a mixed bag across the continent of Asia, with countries being classified as LMEs and others as CME/LME hybrids (Benney, 2019: 4).

The neoliberal policy (GEAR) that was enacted by South Africa failed to deliver on what it promised – which were promises of growth, employment, and redistribution (Padayachee, 2019: 4). It is argued that in the case of South Africa, neoliberal policies have done more harm than good. According to Lesufi, (as cited in Harris and

[3] The word “seemingly” is used to acknowledge that in light of the neoliberal trajectory and more specifically, the South African government embarking on policies such as GEAR, the unions in the country did weaken as a result (Nattrass, 2014: 62). This is discussed in the paragraphs to follow.

Lauderdale, 2002: 427) policies such as the GEAR programme have been very damaging in that instead of getting rid of poverty, it has helped to enhance, as well as create it (Harris and Lauderdale, 2002: 427). As opposed to "wealth trickling-down to the poor" which is what the supporters of this ideology said it will do, it actually makes "millions of people trickle-down into poverty" (Harris and Lauderdale, 2002: 427).

Over the last two decades, the country has found itself in what Forslund (2015) terms as a low-wage regime, wage shares are falling, and this being as a result of the weakened trade unions, an increase in precarious work and mass unemployment (Forslund, 2015: 96). What can be done to redirect middle-income South Africa to a more sustainable path? We gathered from the earlier discussion that the proposed key to solving the current impasse is to show that it is possible to be on a trajectory that encompasses a high road as opposed to a high cost, with CMEs providing evidence of this.

Onaran and Galanis (2012: 42) argue that while countries such as South Africa, India, Mexico, and Argentina are profit-led, this does not mean that these countries are fixed in this kind of regime. A country's regime is not set in stone, there is a possibility to move out of such a framework. As Palley (2017) notes, regime-switching (from profit- to wage-led growth) can be achieved by appropriate policy interventions and is not a matter of inevitable globalization and technological forces. In this narrative, the main problem that exists is the collective action problem explained above.

Oyvat *et al* (2020) also concur with this point about regime-switching, in that they suggest by international coordination with globalization and controlling financialization will make for a more conducive environment to achieving pro-labour policies. Although the experiences of CMEs such as Germany or Denmark may not be as easy to apply to the case of South African and its fellow middle-income countries, Forslund (2015), notes that a move towards a wage-led growth path is possible, citing Latin America as an example of where this has taken place, as countries in this region are adopting alternatives to neoliberal policies (Siddiqui, 2012: 32). Reassessments of this narrative are taking place and this needs to be applied in other developing countries as well.

3.4. Conclusion

It has been argued that it is possible for middle-income countries like South Africa, which are considered profit-led, to switch from this economic regime to one that is wage-led. Some problems come with implementing such policy frameworks, first and foremost from opponents of Keynesian economics, this being the Orthodox economists, who would argue that increase in the wage share would negatively impact profits, investment, and employment. Noting this, they would also be pushback from business/capitalists as it is first and foremost a detraction from the norm of orthodoxy policy making that they are used to and because it signifies a loss in power on their part. Even though in the long-term, there are prospects for this group to raise profits to a possibly higher level than what they are currently holding because of such factors, they will resist such a policy direction/change. Another obstacle to wage-led growth is the coordination problem at a global level. This has to do with the self-serving interests of individual countries and a reluctance to move towards such growth in fear of being uncompetitive. This problem is worsened by the fact that the international organizations meant to be enforcing rules and laws remain ineffectual, and there is a lack of inclusivity of labour market matters in economic policy.

The problems seem many, but there are solutions. This lies in a high road growth strategy, one that encompasses higher wage share and higher productivity. The latter is enhanced in Coordinated Market Economies, where modes such as vocational training, better welfare systems, higher degrees of collective bargaining and union density are helping solve the current impasse. There may be a neoliberal trajectory at play, but it is not inevitable; CMEs are proof that there can be some resiliency to such a trajectory. Although, it is not expected that countries such as South Africa and other middle-income countries can easily become CMEs like Germany and Sweden, it is an important consideration in the advocacy of a wage-led growth for these countries.

Chapter 4: Data

4.1. Introduction

In Chapter 2, we looked at two equations, the first was for the testing of institutional variety, and the second dealt with export competitiveness. Now, the task is to analyze the primary dependent variable and the key explanatory variables to draw inferences from our data using graphs. This chapter proceeds as follows: in section 4.2, the data sources are discussed, the next section is 4.3, which is concerned with descriptive statistics, data limitations and graphical analysis of the variables used in this study.

4.2. Sources of Data and the Sample

The study will use secondary data from various sources, including the following. Visser (2019) contains extensive Industrial Relations (IR) data on union density rates and collective bargaining arrangements for a large sample of OECD and non-OECD countries. The OECD database also has IR variables (OECD, 2021). The PENN World Table and ILO contain data on the wage share (Feenstra *et al*., 2015). Export competitiveness, which is proxied by export share, is sourced from the World Bank Databank; the World Bank describes this data as "the value of all goods and other market services provided to the rest of the world" (World Bank, 2022).

The World Bank (2019) also contains data on GDP per Capita and is the proxy used for the level of development. The KOF Globalization Index contains Trade and Financial Globalization variables (KOF, 2018). The Trade Globalization variable comprises the average "prevalence of non-tariff trade barriers and compliance costs of importing and exporting" (KOF, 2018). The latter component, the Financial Globalization variable, is measured as a % of GDP, comprising the "sum of stocks of assets and liabilities of foreign direct investment (KOF, 2018).

The intention was to obtain as comprehensive a panel of countries and years as possible. However, some of these datasets, particularly data on wage shares and labour market institutions, are unfortunately far from complete, with many missing country and year observations. Where possible, additional literature was consulted to fill these gaps. The additional sources are noted in the text where this is the case. Other sources used to fill in the gaps which are not included in the text are highlighted in detail in Appendix III

for specific countries that did not have labour market institution data.[4] And where appropriate, interpolation was used to fill in missing years. This is explained and justified below. This procedure resulted in a panel of 39 years (1980-2018) and 47 countries with 'useable' wage share data, but only 36 countries with useable union density data and 27 countries with useable collective bargaining data.

Through the regression analysis, we carry out model selection for the wage share and the export share equation. The samples used for this are the datasets with 36 and 27 countries. For the larger sample, with the 36 countries, the specifications associated are specifications I to VI. The smaller sample with 27 countries is associated with specification VII to XI. These specifications and the different variables related to them will be observed in section 5.3 'Model Selection'. The list of these countries can be found in table 4.1 below.

[4] Appendix III 'Additional Data Sources' includes information on Argentina, Benin, Bolivia, Brazil, Egypt, Indonesia, Kenya, Mexico, Tanzania, Tunisia, South Africa, Zambia and Zimbabwe.

Table 4.1 Cross-sectional units in the various samples

Sample for which wage share data is available	Sample for which union density data is available	Sample for which collective bargaining data is available
Angola		
Argentina	Argentina	Argentina
Australia	Australia	Australia
Belgium	Belgium	Belgium
Benin	Benin	Benin
Bolivia	Bolivia	
Botswana		
Brazil	Brazil	Brazil
Cameroon		
Canada	Canada	Canada
Cape Verde		
Chile	Chile	Chile
China	China	China
Denmark	Denmark	Denmark
Egypt	Egypt	
Eswatini		
Finland	Finland	Finland
France	France	France
Germany	Germany	Germany
India	India	
Indonesia	Indonesia	Indonesia
Italy	Italy	Italy
Japan	Japan	Japan
Kenya	Kenya	
Lesotho		
Mexico	Mexico	Mexico
Morocco	Morocco	
Namibia		
New Zealand	New Zealand	New Zealand
Nigeria		
Norway	Norway	Norway
Philippines	Philippines	Philippines
Russia	Russia	Russia
Senegal		
Singapore	Singapore	Singapore
South Africa	South Africa	South Africa
Spain	Spain	Spain
Sri Lanka		
Sweden	Sweden	Sweden
Switzerland	Switzerland	Switzerland
Tanzania	Tanzania	
Tunisia	Tunisia	
Ukraine		
United Kingdom	United Kingdom	United Kingdom
USA	USA	USA
Zambia	Zambia	
Zimbabwe	Zimbabwe	
47	36	27

4.3. Descriptive statistics (of main variables)

This section outlines the different variables used in this thesis; under each heading, i.e., variable name, there will be information pertaining to the respective variable, such as the years used, unit of proportion and other essential details such as the limitations faced by the researcher when collecting the variables.

The variables discussed in this section are the level of development, wage share, the labour market institution variables, export competitiveness and the globalization variables. Earlier it was stated that the model specifications are based on the methodologies similar to that of Arif (2021) and Stockhammer (2013). Both studies drew specific focus on the determinants of the wage share. This study carries out a similar method by including the labour market institution and the globalization variables. This study differs from Arif (2021) and Stockhammer (2013) in the timeframe used, which were 1970-2015 and 1970-2007, respectively.

While this study's timeframe starts from 1980-2019. Another difference with this study and these two studies also lies with the sample used, while this study's focus is on middle-income countries, Arif (2021), looks at 34 OECD and 64 non-OECD countries and Stockhammer (2013) observes a panel of 18 OECD countries. The sample of this study on middle income countries, includes a variety of high-income and low-income countries too. In order to appropriately investigate Subgoal IIa and IIb of the research, we have the two models, in which wage share is the dependent variable in the first equation and export share is the dependent variable in the second equation.

4.3.1. Level of Development and Country Categorization

The level of development is proxied by GDP per Capita; this variable is calculated as GDP over the midyear population. This is GDP per Capita data in constant 2010 US$ prices. For some countries in the sample, the GDP per Capita data was not available from specific time frames, and this varied amongst these countries. These countries are Russia and Tanzania.[5]

We categorize the data due to significant differences between the observations in the sample. These differences lie in the level of development of particular countries, this can be observed with the distinction between GDP per capita and Gross National Income (GNI) per capita. The latter of these is used by the World Bank to establish exclusive categories that countries fall in. These categorizations are particularly useful when drawing comparisons as we compare 'apples' with 'apples'. For instance, comparing Sweden, a developed country with a less developed country would be illogical. These categorizations are also convenient when it comes to grouping countries according to the Varieties of Capitalism approach, i.e., CMEs and LMEs.

Global North and Global South categories were used for the broad categorization of the countries in the sample (Odeh, 2010: 340). The Global North categorization is said to consists of more affluent and more developed countries, while the Global South is used

[5] Russia (there was no data available for the period 1980-1988), Tanzania (there was not data available for the 1980-1987 period).

as a substitute, usually in Western terminology/literature, for developing countries[6] (Kloß, 2017; Odeh, 2010). This level of development was used to categorize countries to graphically analyze the key explanatory variables and the dependent variable (i.e., the wage share).

Within these broad categories are subcategories; the Global North is split into Continental Europe[7] and a category called 'Other'[8] (countries not in Continental Europe). Furthermore, the Global South is split between Upper Middle-Income Countries[9] and Lower Middle-Income countries.[10] The World Bank's definition informed this subcategory of Middle-Income countries. Upper Middle-Income countries have a GNI between $ 4 096 and $ 12 695, while Lower Middle-Income countries have a GNI between $ 1 046 and $4 095 (World Bank, 2020).

Considering that the sample for this study is varied, the inclusion of dummy variables in the equations will potentially be key. Dummy variables are a means by which an attribute can be associated to elements of a sample (Gujarati and Porter, 2009: 277). More specifically if a particular attribute is present or not with regards to the elements; if present, the value associated would be 1 and if not, the value given would be 0 (Gujarati and Porter, 2009: 277). The Global North and Global South categories are important for splitting up our graphs according to socio-economic characteristics. These categorizations are potentially necessary for hypothesis testing and estimating the equations. In this case, the Global South is associated with a value of 1 and the Global North value has a value of 0.

4.3.2. Wage Share

This is the core variable in the study – wage share. Wage share is the share of GDP attributable to labour; it is at current national prices and is measured as a percentage of

[6] The categorization 'Global South' has come under much criticism in the literature for its derogatory/ problematic nature, while the Global North would be described as affluent/rich countries, the Global South is described as "poorer and economically backward". Kloß (2017), is one of many authors who discuss this.

[7] Continental Europe: Belgium, Denmark, Finland, Germany, France, Italy, Norway, Spain, Sweden, and Switzerland.

[8] 'Other': Australia, Canada, Japan, New Zealand, United Kingdom, and the United States.

[9] Upper Middle-Income Countries: Argentina, Brazil, China, Mexico, Russia, and South Africa.

[10] Lower Middle-Income Countries: Benin, Bolivia, Egypt, India, Indonesia, Kenya, Morocco, Philippines, Tanzania, Tunisia, Zambia, and Zimbabwe.

GDP (Stockhammer, 2013: 19). It is the dependent variable in equation one and an independent variable in the second equation. As mentioned in the earlier section, the data on this variable is sourced from the PENN World Table. To enhance the validity of the data, the researcher examined data from another source, which made it possible to gauge any significant differences. The secondary source came from the ILO and only ranged from 2004 to 2017 for all countries in the sample. While for the PENN World Table, the timeframe covered the period of 1980 to 2019.

When comparing the PENN World Table and the ILO data, we picked up on some slight differences. This was deduced by dividing the PENN's respective values by the ILO values. Arriving at a result equal to one would lead to the conclusion that the data of the two datasets are not different, and any results that led to a value that was not equivalent to one would mean that the two datasets are not the same. The calculations did not result in a value of one exactly but values that ranged from 0,5518 (from Zambia) and 1,8402 (from the Philippines). Therefore, the decision was made to go with the PENN World Table dataset as it spanned a more extended timeframe for all countries, with the few exceptions mentioned. This choice was also made for the purposes of graphical analysis, which is crucial for seeing how the wage share has changed over the four decades.

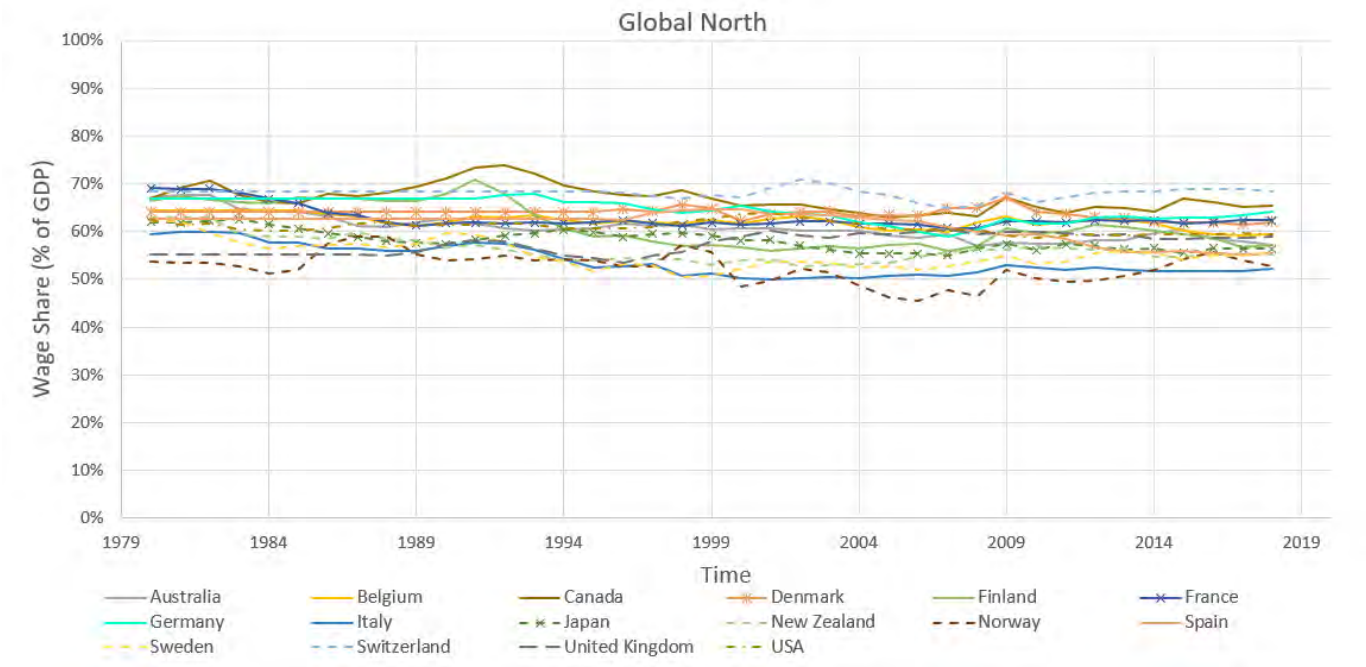
Although the PENN World Table did cover a more extensive timeframe, data from both sources is incomplete, and they both use imputation. This is made explicit in the ILO dataset but is also evident in the PENN data. The severity of this is more noticeable in the Global South when compared to the Global North. For instance, there is only one observation extrapolated into a series[11] for the majority of the Global South and a few in the Global North.[12] Even in the Global North, the ILO reports that imputation is used for many countries, which is likely to be the case for the PENN data too. Although these considerations reduce the confidence with which inferences are drawn, this does appear to be the best data available.

[11] This can be seen with, Argentina (1980- 1993), Benin (1980-1994), Brazil (1980-1992), Chile (1980-1996), China (1980-1992), Egypt (1980-1996), Indonesia (1980-2000), Mexico (1980-1993), Morocco (1980-1998), Russia (1980-2002), South Africa (1981-1989), Tunisia (1980-1992), Zambia (1980-2010), and Zimbabwe (1980-2019).

[12] Discernible with Belgium (1980-1985), Denmark (1980-1995), Germany (1980-1991), Spain (1980-1995), Switzerland (1980-1995) and the United Kingdom (1980-1987).

The wage share for the Global North and South are presented in the figure below. As the literature suggests, there has been a decline in the wage share across many countries; however, these are not drastic declines.

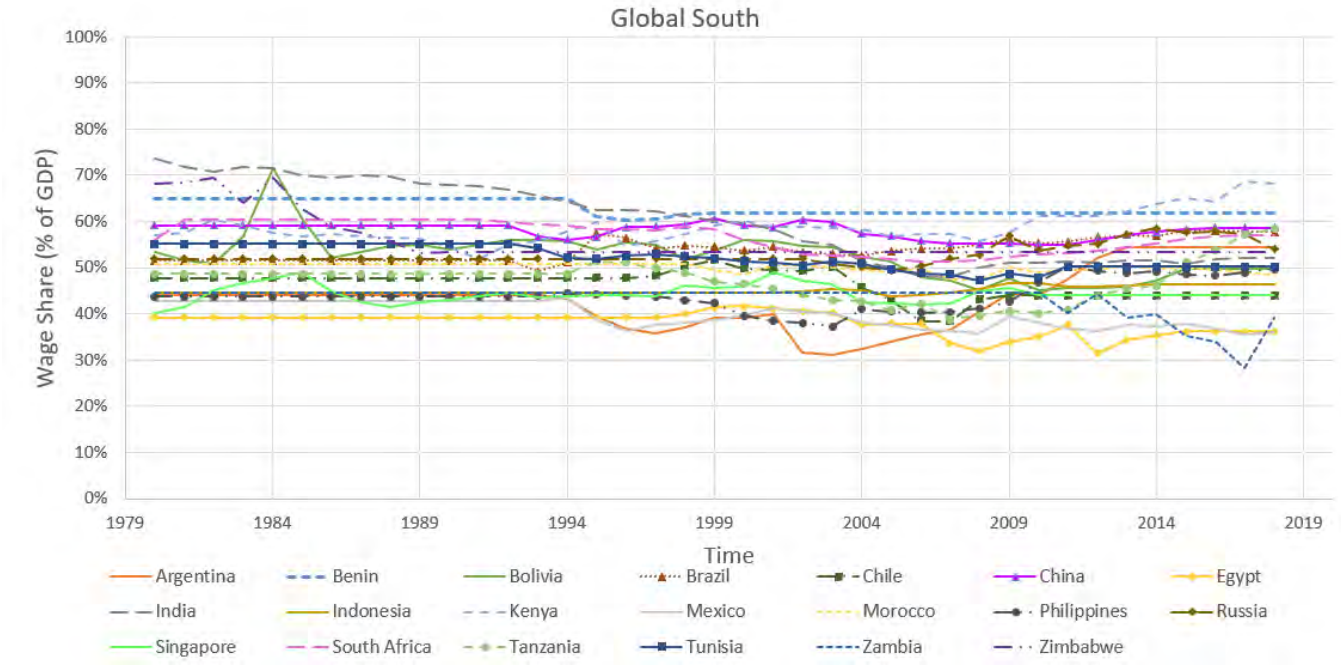
Figure 4.1: Wage Share for the Global North



Source: PENN World Table

Overall, there does seem to be a downward trend in wage shares across countries from the early 1990s to mid-2000s. This arguably corresponds with the neoliberal period. However, this trend is not evident after the mid-2000s, as we see the wage share trending upwards in both categories.

Figure 4.2: Wage Share for the Global South



Source: PENN World Table

Indeed, an increase in wage share is discernible in the late 2000s and early 2010s, especially in the Global South. In comparison to the Global North, the data for the Global South does generally see more volatile trends. On average, wage shares are about 10% higher in the Global North.[13]

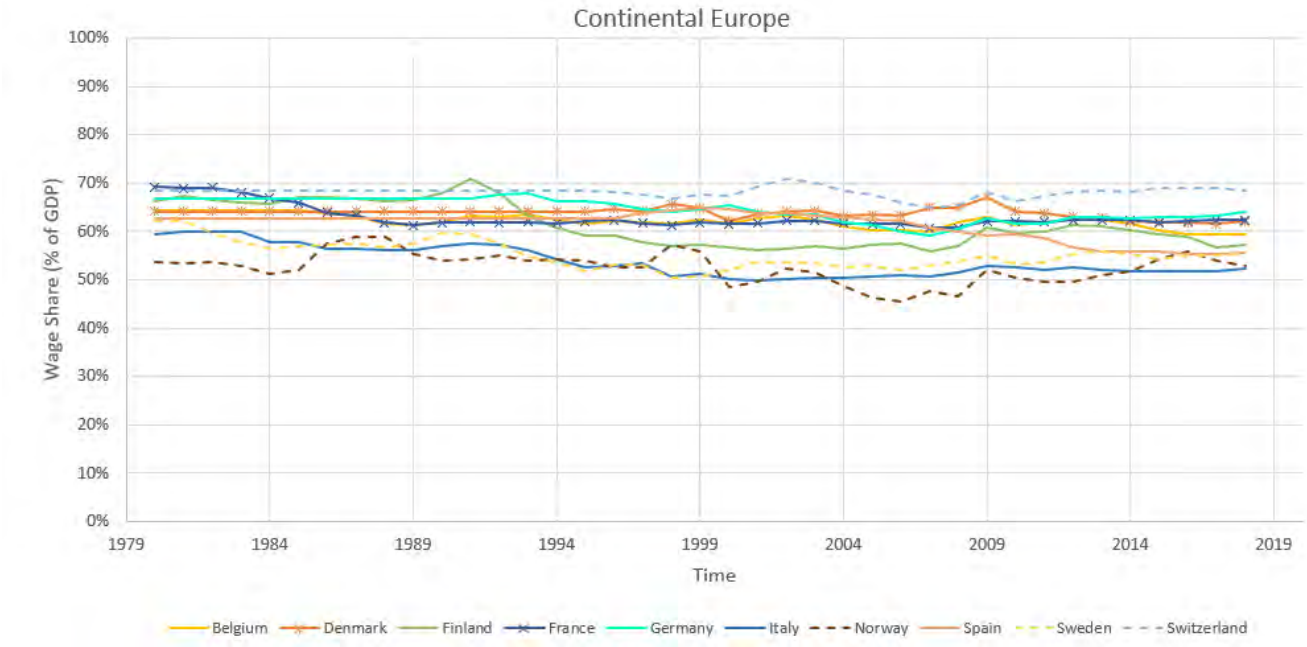
Another comparison that can be noted is the variation between the two categories. There is far more variation in the Global South than there is for the Global North. There are not as many significant spikes as there are in the Global South while the trends in the case of the former seem to be 'smoother'. The variation in the Global South takes place not only in comparison to the Global South but also across countries and in the variability of individual country series over time. The latter of these is evidenced by the few 'spikes' that are observed in the Global South category.[14] However, it is unclear if these spikes are meaningful, or an artifact of poor data. There are a few countries which do not follow the same sporadic trend.[15]

[13] The average for the Global North is 59.41% and the average for the Global South is 51.11%.
[14] For countries such as Nigeria, Bolivia, and Ukraine, in 2009, 1984 and 1993, respectively.
[15] Argentina, South Africa, Mexico, China, Brazil, Russia, Botswana, and Namibia.

From 2007, it appears that the wage share in certain countries in the Global South picked up and started to trend upwards. This is also the case for countries in the Global North. An important observation is the increases from 2007 towards 2009; the increases in 2007 are preceded and followed by declines in most cases for the Global North. This increase took place prior to the financial crisis and in both categories requires further investigation[16]. Why do we see wage share picking up from that period?

When the Global North category is split, it can be seen that in the period between 2007 and 2009 saw an increase in the wage share for countries in Continental Europe. A similar trend is noticed for the countries in the 'Other' category, but with a few declines over this period for a few observations.[17] One shocking finding is the wage share of certain LMEs in the "Other" category. What would be expected *a priori* is that the wage share of CMEs would be higher than those of their LME counterparts.

Figure 4.3: Wage Share for the Continental Europe

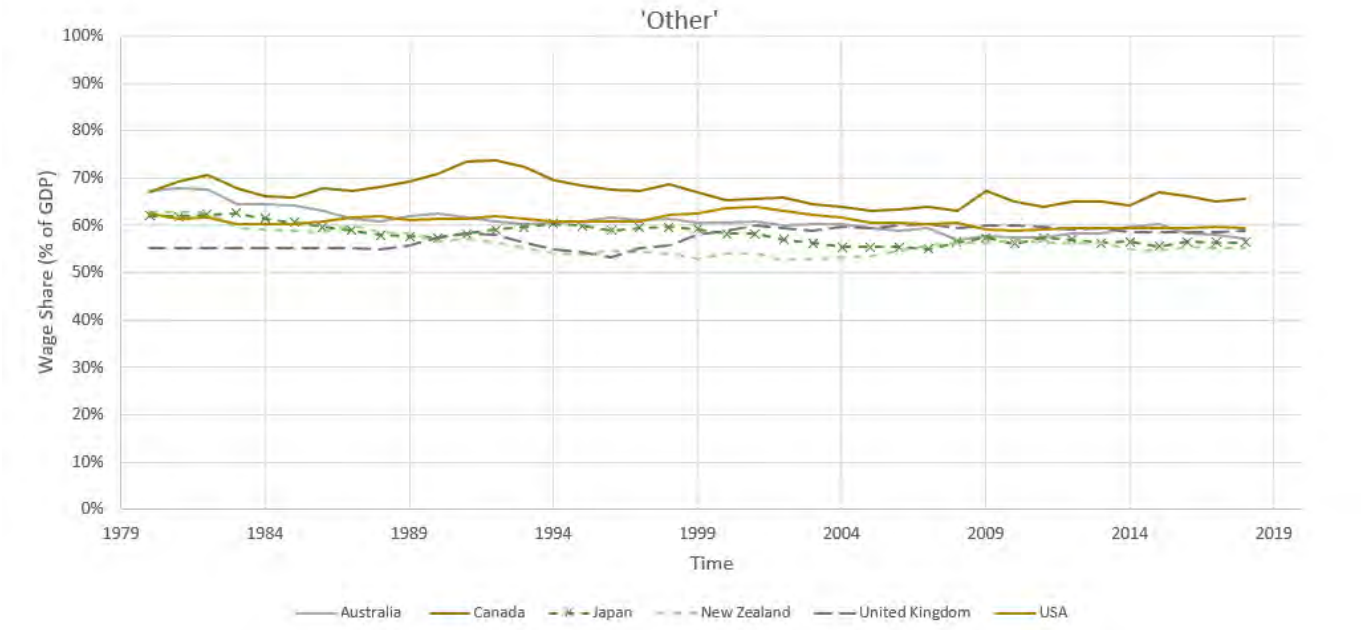


Source: PENN World Table

[16] Recommendation for future research since this is not the angle now.
[17] United States.

This does vary considerably when the graphs are viewed. However, this outlook changes when the averages of both categories are calculated. For the countries in Continental Europe, the average is 60,5%, and for Other, the average stands at 60,1%.

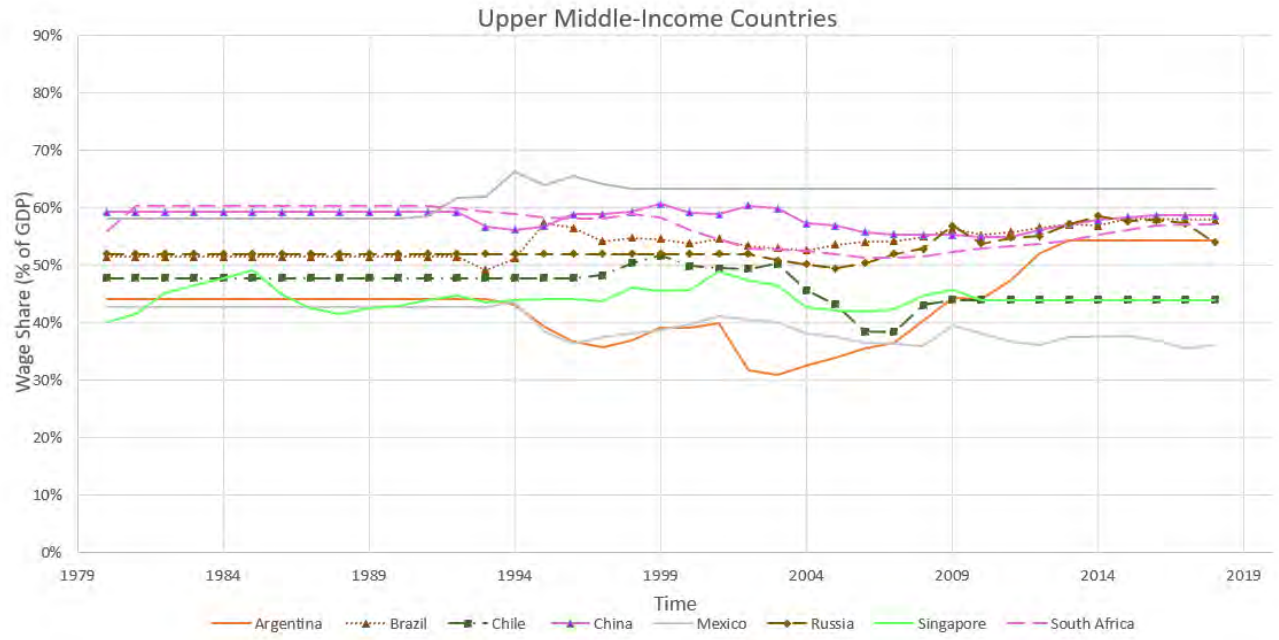
Figure 4.4: Wage Share for 'Other'



Source: PENN World Table

A clearer picture of the Global South countries can be viewed below, with the data split into Upper-Middle Income Countries and Lower Middle-income countries. The imputation of the data by the PENN World Table is evident when a closer look is taken, in both graphs, there are points for all countries the series maintains the same value for a period. There is more variability for both sub-categories (of the Global South) from the mid-1990s onwards with some exceptions.

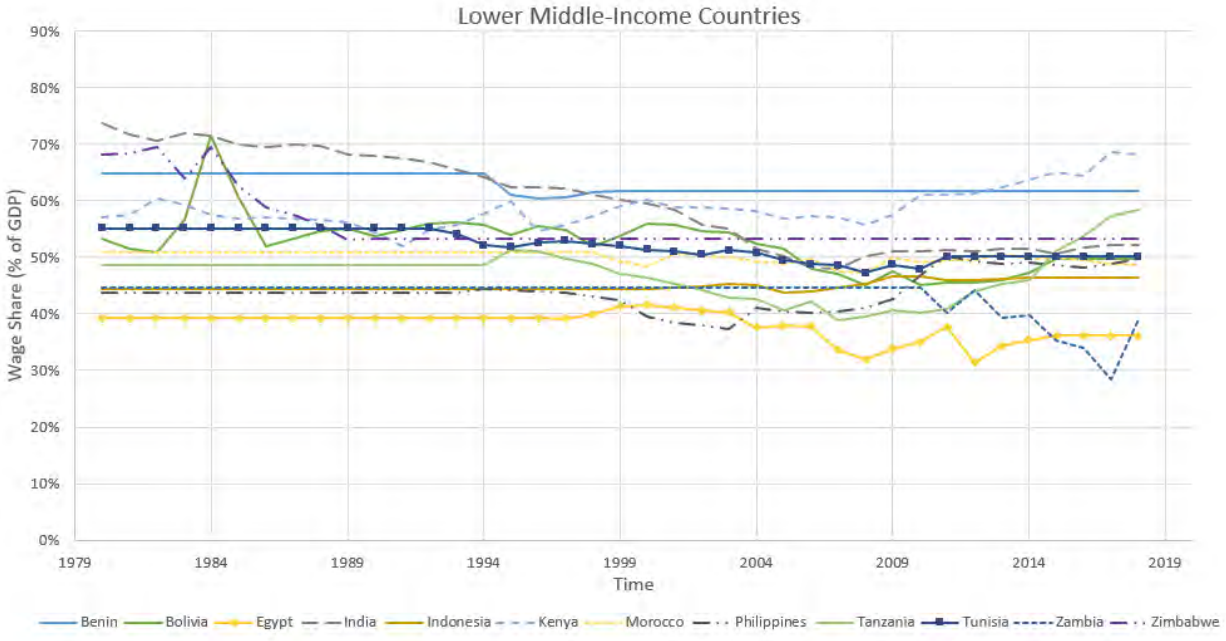
Figure 4.5: Wage Share for Upper-Middle Income Countries



Source: PENN World Table

The rise in the wage share from 2007 till 2009 observed for the Global North can be seen for the Global South divisions.

Figure 4.6: Wage Share for Lower Middle-Income Countries



Source: PENN World Table

The majority of the countries in the upper-middle-income category did see declines or appeared to stay constant for the remainder of the period.[18] In the lower-middle-income countries, what is noticed is a similar trend with this variable.

4.3.3. Labour Market Institutions

4.3.3.1. Trade Union Density

The Trade Union Density rate is one of the variables that make up labour market institutions variables from equations one and two. This is the percentage of employed workers who are unionized (ILOSTAT, 2022). There are two rates available: the ICTWSS dataset has two union density rates, one coded UD and the other UD_s. The difference is that the latter is from national household surveys, and the former is an estimate of "the presence or recognition of trade unions in workplaces" (Visser, 2019). UD was primarily used, but UD_s was used as a substitute where it was unavailable.[19] In this way, the research of this study carries out imputation for the union density data.[20] This was because in most of the cases when UD was unavailable, data on the UD_s was available.

The limitation faced here was similar to that of the wage share, but for union density, it was found to be even more severe for middle-income countries (i.e., countries in the Global South). This will be made evident in the graphs below. Although substituting UD for UD_s worked in some cases for these countries, in other instances, the data was unavailable for both forms of union density.[21] For some Global South countries[22] and one Global North country (Australia), there were cases in which data was unavailable for specific years. Lastly, on limitations, data was not available for the year 2019 for all

[18] Might be as a result of imputation as opposed to wage share falling and staying the same.

[19] This was the case for Australia (2001, 2002, 2004-2007, 2009-2012, 2014, 2016, 2018), Brazil (1986), Indonesia (2007), Mexico (2002, 2011-2018), New Zealand (2018), South Africa (1994, 2001-2015), Sweden (2018), and the United States (1981-2018).

[20] Imputation was carried out for both labour market institution variables (i.e., collective bargaining data too).

[21] There was no data available for countries such as Benin, Bolivia, Botswana, Cameroon, Egypt, Eswatini, Kenya, Lesotho, Morocco, Namibia, Senegal, Sri Lanka, Tanzania, Tunisia, Ukraine, Zambia, and Zimbabwe. This is the basis of which Botswana, Cameroon, Lesotho, Namibia, Senegal, Sri Lanka and Ukraine were dropped from the sample

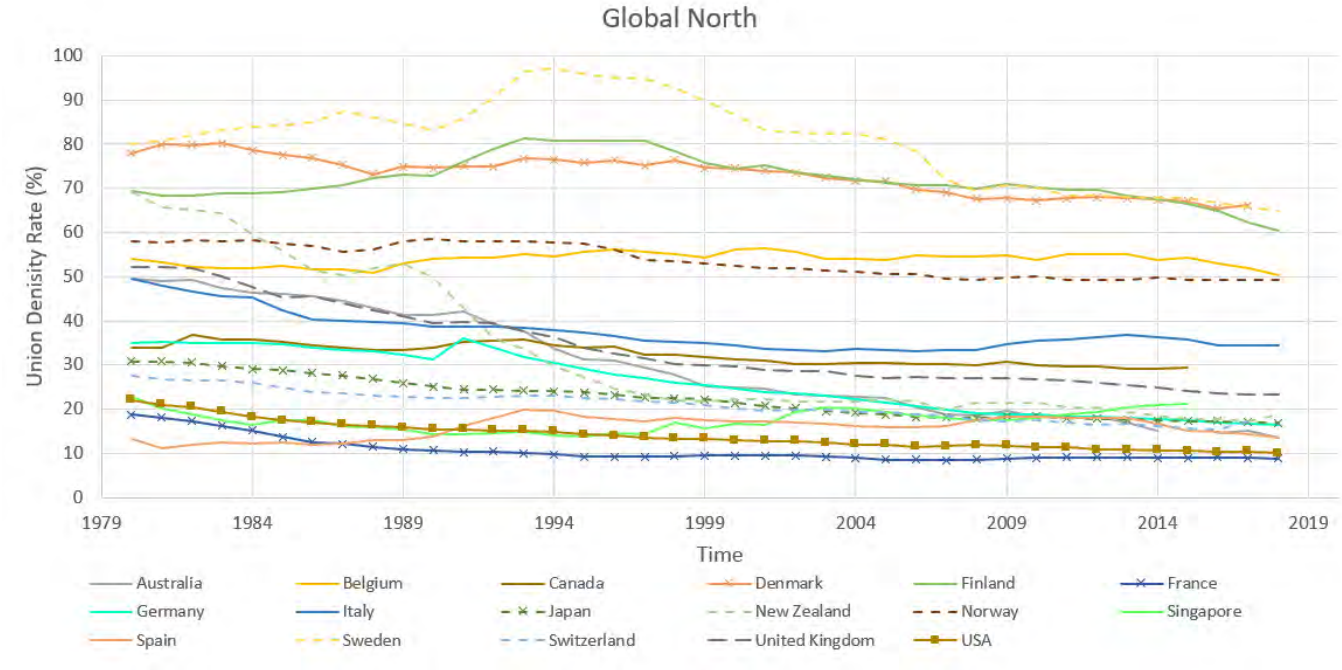
[22] Countries in the Global South that had instances of missing data are the following: Angola, Argentina, Brazil, Chile, Cape Verde, India, Indonesia, Mexico, Russia, and South Africa.

countries as 2018 was the most recent year available for the ICTWSS dataset. Therefore, the timeframe covered is 1980-2018.

The figures below show the data presented graphically for the Global North and Global South. For the Global South, all countries that did not have data were left out as it would take up space in the legend for data that is not even available.[23] The lack of data for this category is evident from the graphs below. We can observe from what is available that the union density rate has trended downwards. Compared to the last decade, and to what data is available now, China, for example, has seen a considerable drop in the union density rate.

[23] This was applied to the graphs for collective bargaining coverage rates.

Figure 4.7: Union Density for the Global North

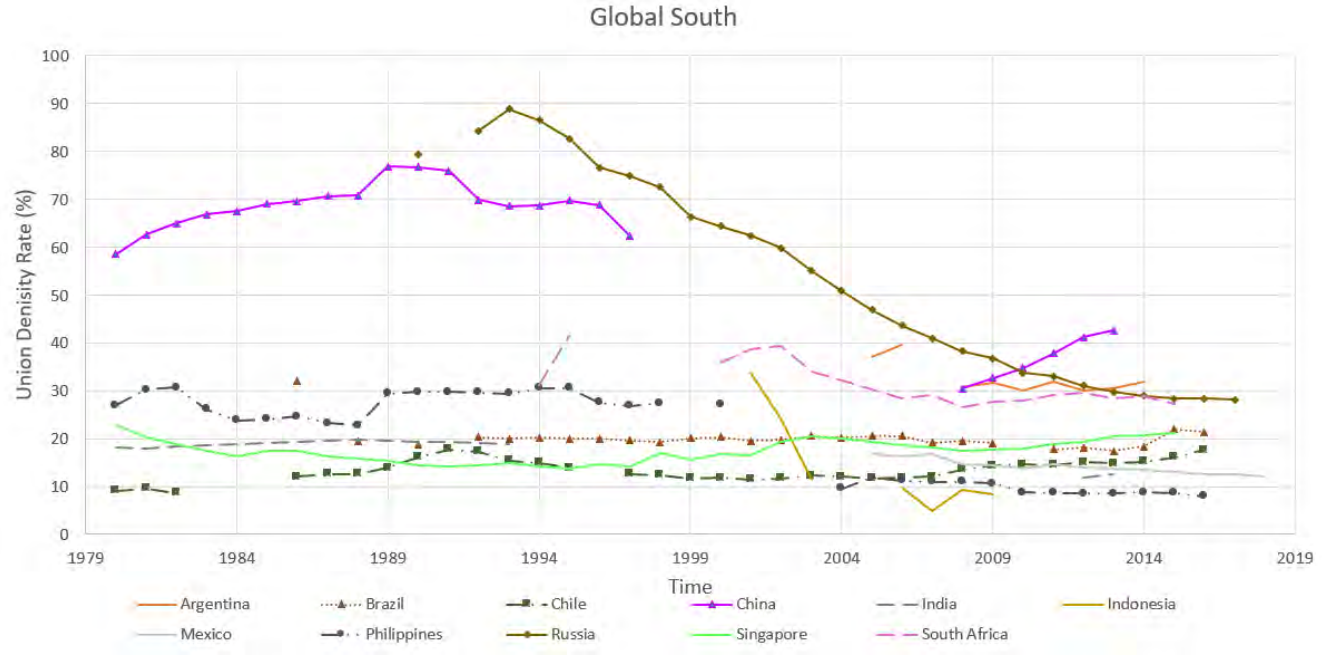


Source: ICTWSS

However, a gradual increase can be noted from 2008 going forward. South Africa increased between 2000 and 2001 before trending downward for the rest of the period (but increased in 2007). The Global North category does not share the problem of data unavailability with its counterpart. This is evidenced by the graphs above. There are a few countries in the Global North where there are cases of data unavailability.[24]

[24] Australia (2015), Canada (2016-2018), Denmark (2018) and Switzerland (2018).

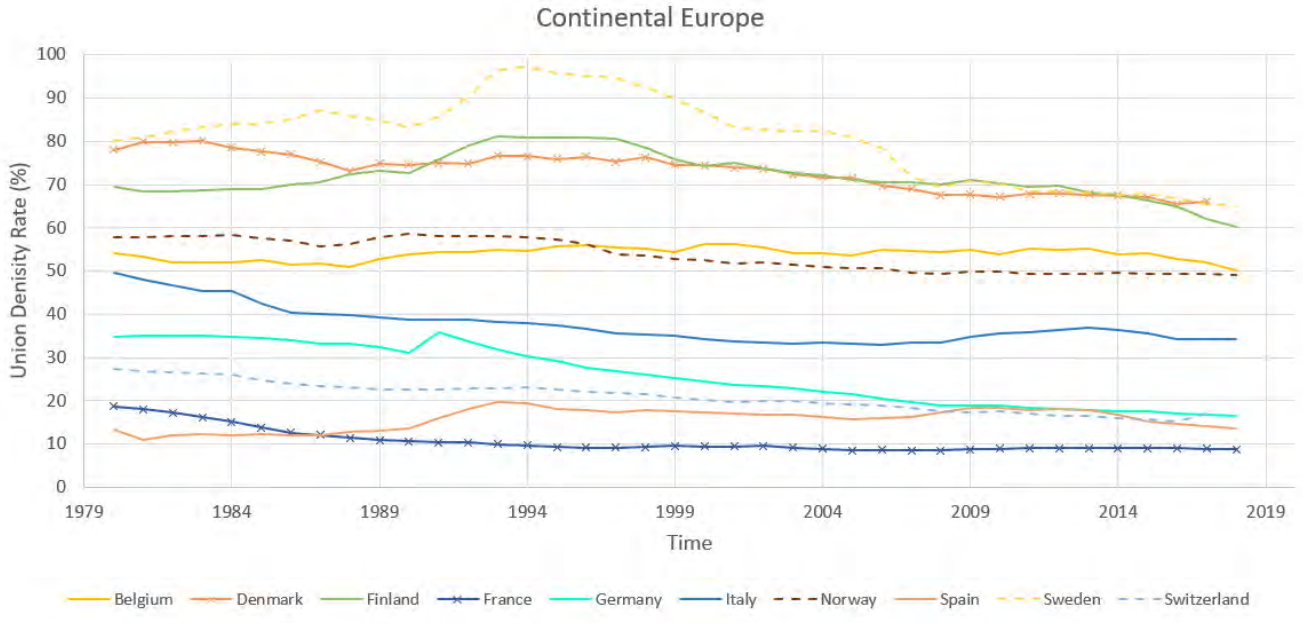
Figure 4.8: Union Density for the Global South



Source: ICTWSS

A similarity between the two categories is that there is a decline, from the 1980s, in union density for most countries in the former. It will be useful to see the Global North split into two categories to see how the union density differs in CMEs and LMEs. Countries classified as 'Continental Europe' are those that would fall under the category of CMEs while the countries that are in the 'Other' category are LMEs.

Figure 4.9: Union Density for Continental Europe

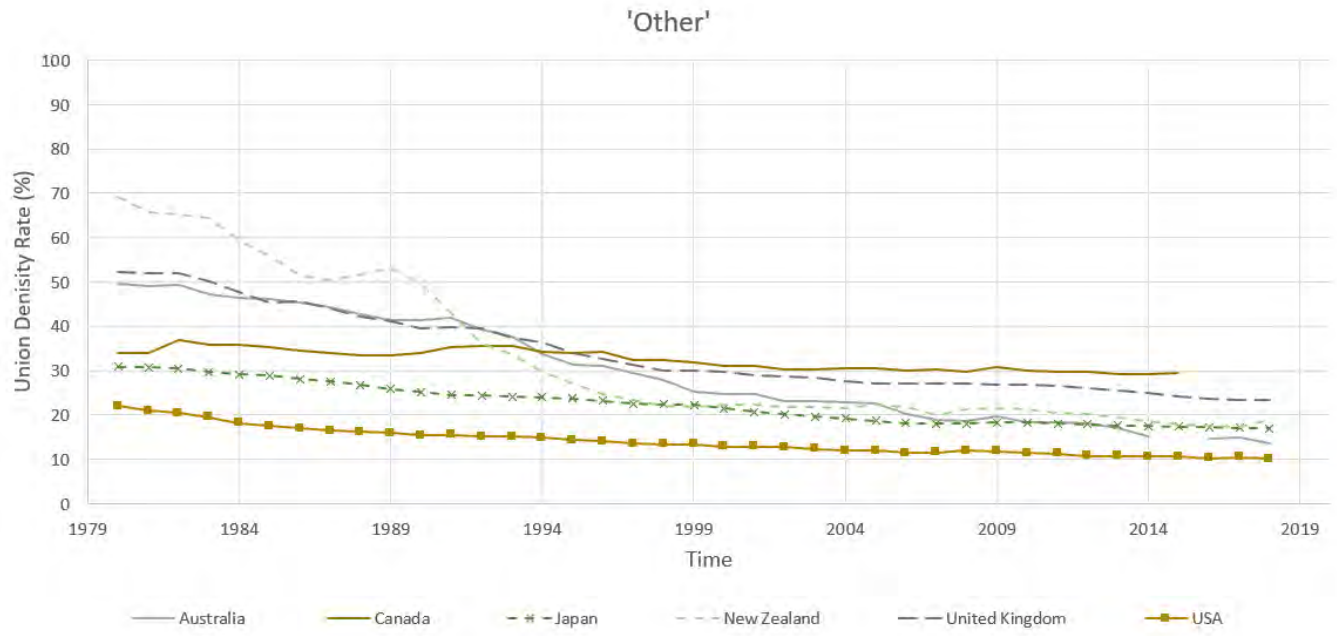


Source: ICTWSS

What can be observed from the graphs below is that there is more cross-sectional variation in Continental Europe sample compared to the data for countries in the 'Other' sample. The union density rates for both categories are trending downwards. Moreover, in the left panel, a few countries see periodic increases like Belgium, Germany, Finland, and Sweden in the early 1990s.

For the 'Other' category, the sample does vary at the start of the period, from the 1980s till about 1994. On average, from the late 1990s until 2018, the average of union density trends around a rate of 26,78%. The union density rates of this category are considerably lower than that of Continental Europe. Many of the countries in Continental Europe, holding the declines constant, maintain higher union density rates than the 'Other' category, except France, Germany, and Switzerland.

Figure 4.10: Union Density for 'Other'



Source: ICTWSS

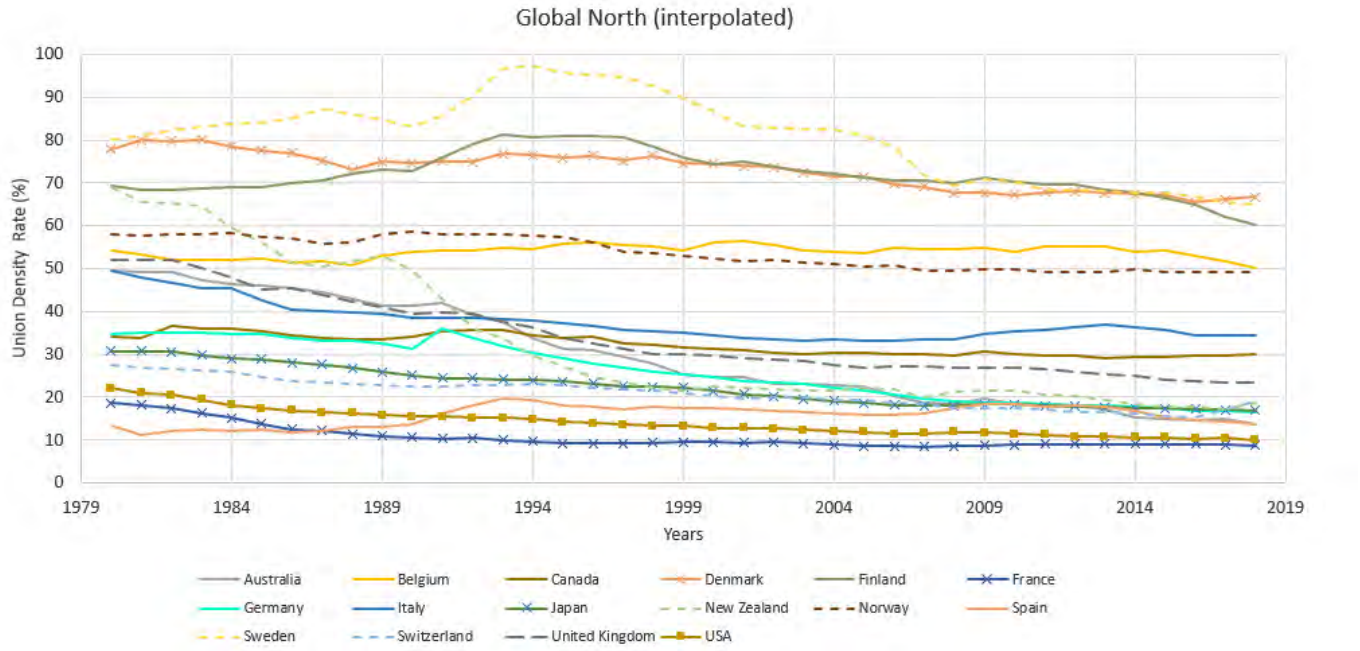
As mentioned earlier in this subsection, imputation was carried out due to lack of data availability. The imputation was carried out in Stata using the code:

ipolate country name 'Years' gen (New Variable Name) epolate[25]

As noted in the methodology, the data for the labour market institution variables was sparse, this being more prominent for the middle-income countries of the Global South. For these countries, additional sources[26] were used to fill in the gaps of the data. These additional sources, aided in the process of interpolation as attempting to interpolate where there is no data yields no results as there is nothing for the software to work with.[27] Some countries in the sample had no data available for the whole time period (these were middle-income countries, countries in the Global South).[28] Therefore, interpolation could only be carried out for fifteen countries[29], which were a mix of Global North and South countries. Below we show the results of the interpolation for these categories. There are more notable differences when compared to the data which was not interpolated for the Global South. In terms of data unavailability, the Global South case was much more severe than the Global North. With the former having about one to three missing values in country specific cases.

[25] We declared the dataset as panel data using the code "xtset Years", which gave the result of an unbalanced panel since data was missing in many countries cases.
[26] In Appendix III: Additional Data Sources.
[27] It was also found that interpolation of data for observations with one value led to results similar to the case of having no data at all. Angola and Cape Verde were the cases where there was only one value available.
[28] There was no data for Benin, Bolivia, Egypt, Kenya, Morocco, Tanzania, Tunisia, Zambia, and Zimbabwe.
[29] Argentina, Australia, Brazil, Canada, Chile, Denmark, India, Mexico, Philippines, Russia, Singapore, South Africa, and Switzerland.

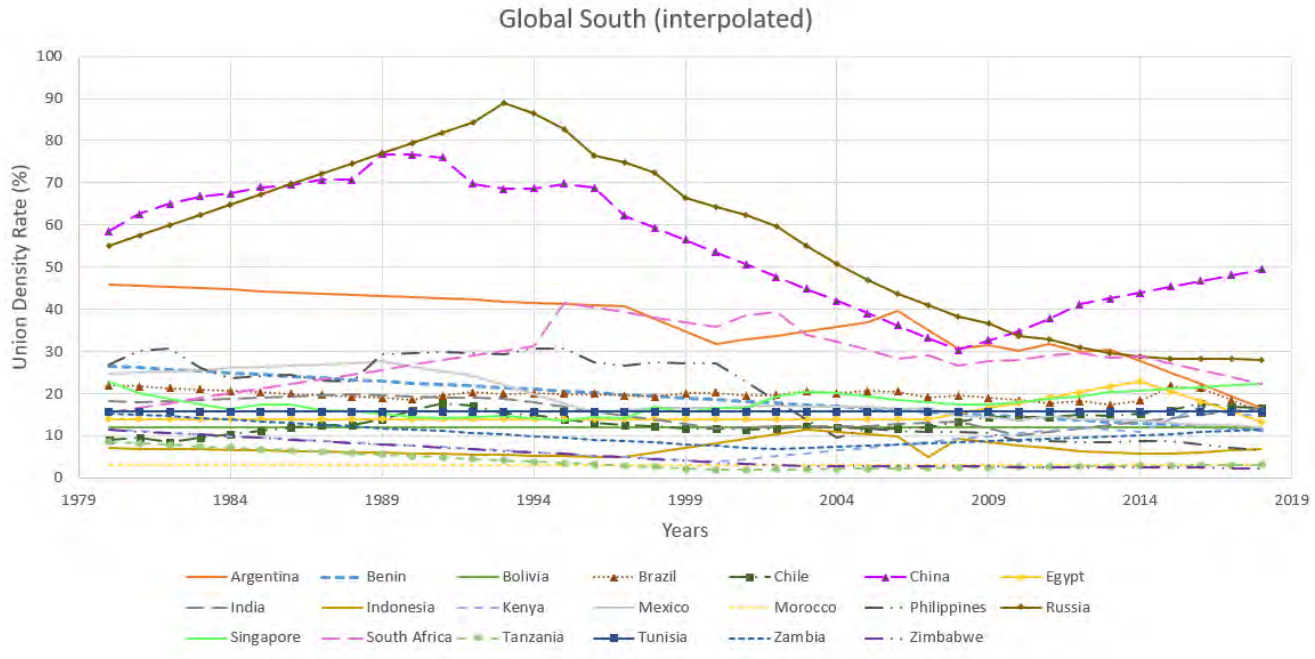
Figure 4.11: Interpolated union density for the Global North



Source: ICTWSS

In terms of data unavailability, the Global South case was much for severe than the Global North. With the former having about 1-3 missing values in country specific cases.

Figure 4.12: Interpolated union density for the Global South



Source: ICTWSS

The figure above presents interpolated data for the Global South. Compared to the graph with the raw data, this interpolated data graph presents a more complete picture of union density in the Global South. What is depicted is linear increases or decreases. For example, in China, from the mid-1990s to the late 2000s, the union density decreases at a steady rate. And we observe this happening in the opposite case for Russia, where there is a rise in the union density from the 1980s to 1993.

4.3.3.2. Collective Bargaining

This is the second variable that makes up labour market institutions from equations one and two. Collective bargaining is measured as the "number of employees covered by collective (wage) agreements" (Visser, 2019). The data on this variable comes from the OECD, OECD-AIAS and the ICTWSS. Primarily the OECD dataset was used. The OECD-AIAS dataset has similar data with the OECD dataset for most countries. Therefore, in the instances where OECD dataset was missing values data from the OECD-AIAS was used as a substitute. If data from both OECD datasets was missing, the ICTWSS data was used to fill in the gaps.

The data on this variable is sporadic as there are some instances in which data was missing, especially for countries that fall in the middle-income category. The data for the year 2019 for most countries, not only middle-income countries, was sparse.[30] One reason why there is not much data available when it comes to collective bargaining coverage for developing countries, as noted by ILO (2008: 37), is due to the lack of administration for these kinds of agreements. A peculiar observation is that the collective bargaining for Italy is reported as 100% throughout (OECD, 2020). To check for the validity of this data, another source, the ILOSTAT, was investigated to see if the data would be the same.[31] Another issue found with the collective bargaining data, is

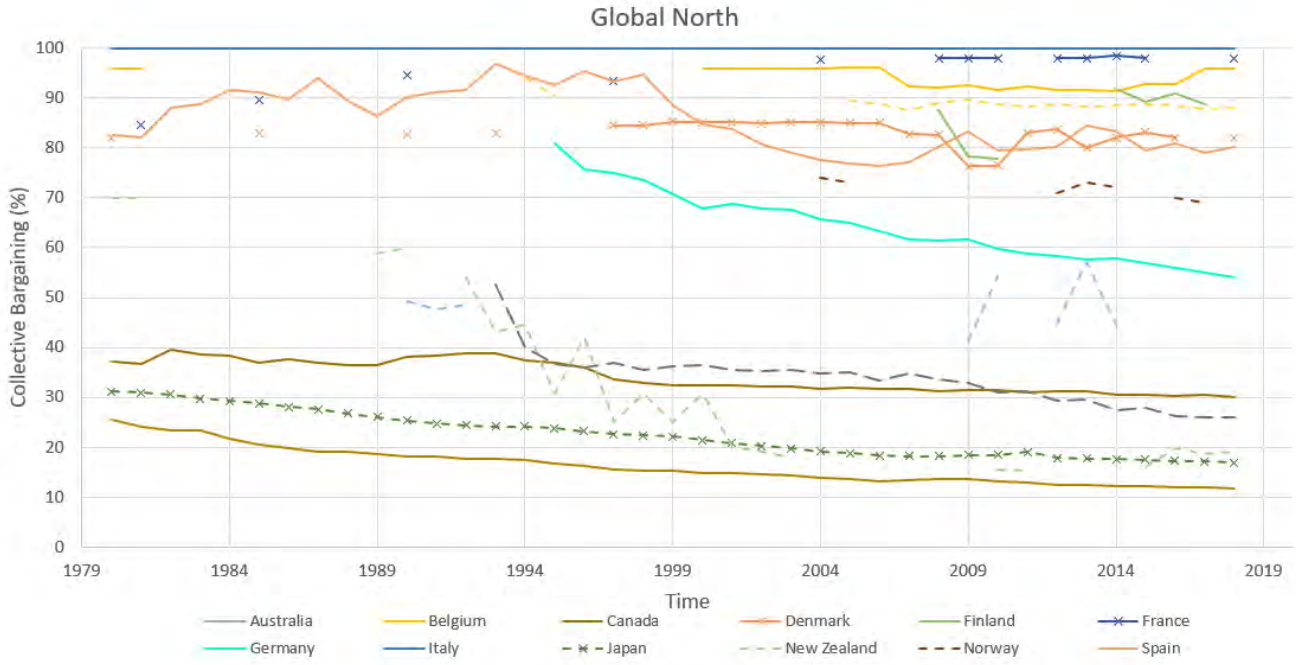
[30] Data for this year was only available for Belgium, Canada, Italy, Japan, Mexico, New Zealand, the United States, and the United Kingdom.

[31] What was found in the ILOSTAT dataset has a constant result of 80% (ILO, 2020). While Italy's labour market institution landscape does allow for the result to be high, a rate of 100% does not seem plausible as not all workers are covered by the collective bargaining agreements (Accounting Bolla, 201x). This was due to extrapolation, as was seen for many countries under the union density data discussion.

that it was not clear whether the denominator was the formal sector or the whole workforce.[32]

Below are the graphical displays of the collective bargaining data for the Global North and South, the data for both categories is scarce. From the data available on the left panel, it is observed that collective bargaining trends downwards. Collective bargaining coverage in the Global South is at considerably low levels, with the Philippines recording the lowest collective bargaining coverage. When it comes to this variable, there are similarities between middle-income countries (those in the category of the Global South) and the Global North countries (those that would be defined as Liberal Market Economies[33]), in that in both cases; there are low levels of collective bargaining coverage. Brazil, Chile, and Singapore trend upwards slightly.

Figure 4.13: Collective Bargaining for the Global North

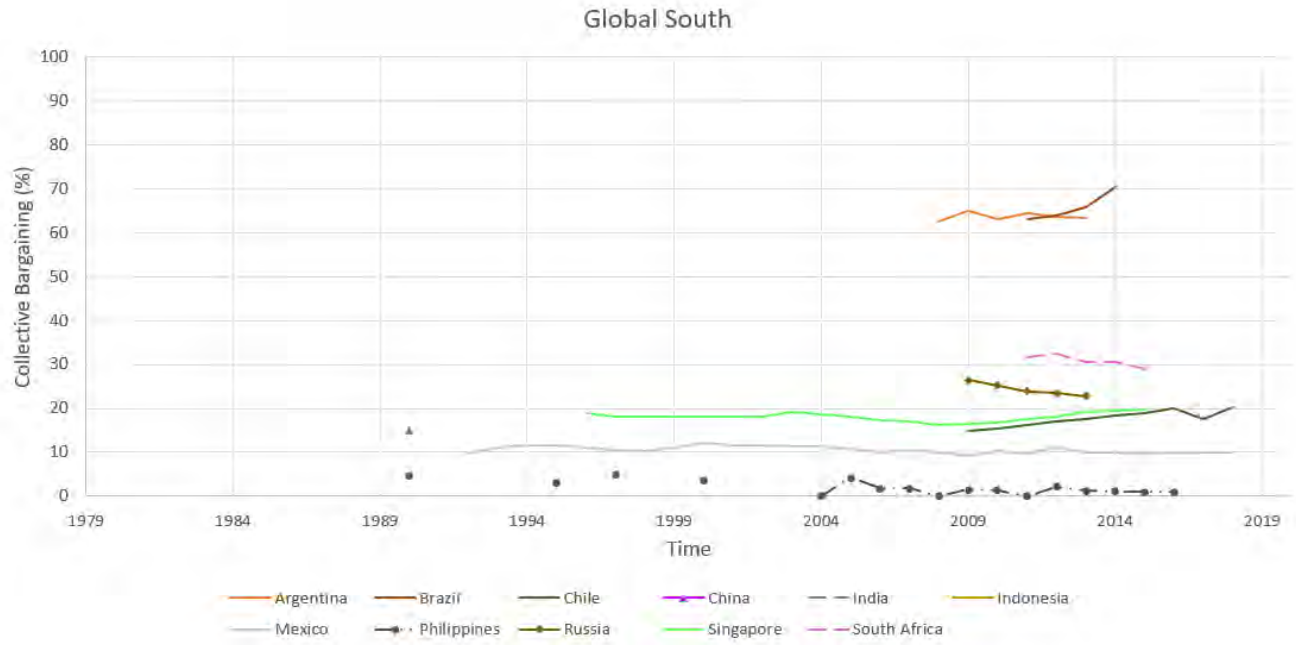


Source: OECD, OECD-AIAS and the ICTWSS

[32] According to Visser (2019), the formula is WCB/(WSEE - WStat)*100, where WCB is the "Employees covered by collective (wage) agreements in force (including agreements negotiated in earlier years but still valid)", WSEE is the "Total number of employees (according to the International Classification of Status in Employment, ICSE-93)" and WStat is the "Employees covered by statutory regulation and excluded from collective bargaining as stated by law or national regulations"

[33] Australia, Canada, Japan, New Zealand, United Kingdom, and the United States (these economies generally have low collective bargaining rates).

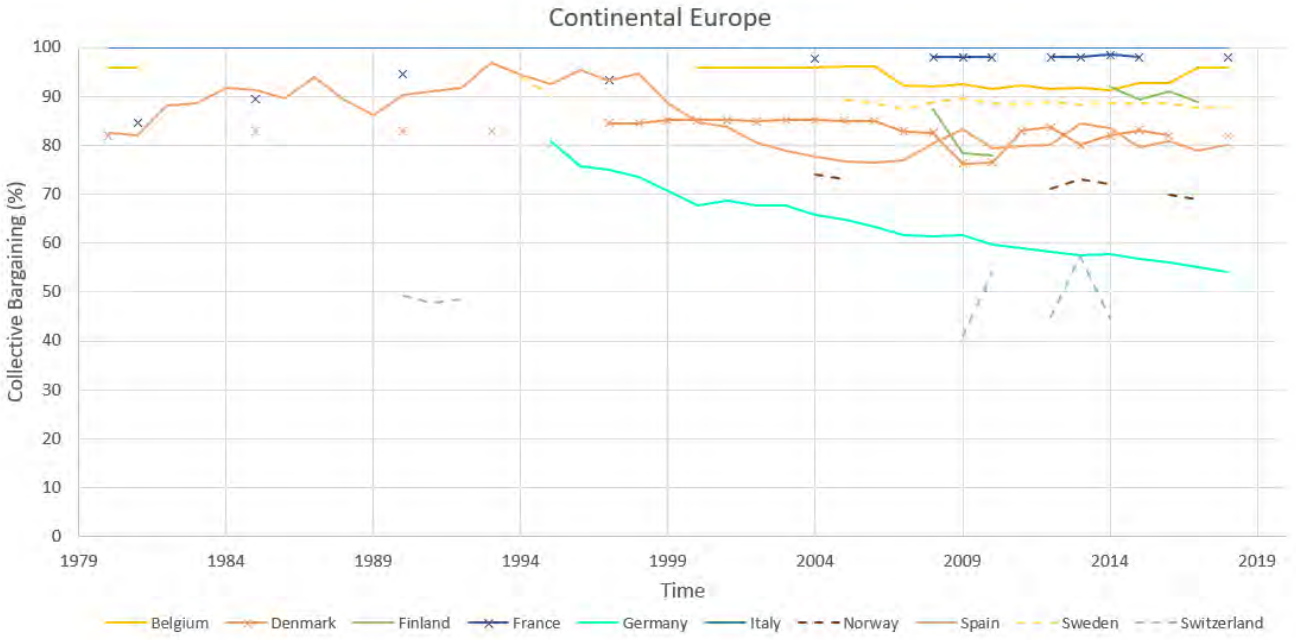
Figure 4.14: Collective Bargaining for the Global South



Source: OECD, OECD-AIAS and the ICTWSS

Similar conclusions to the union density discussion can be drawn when comparing Continental Europe and the 'Other' categories. Although there is a downward trend for both categories, the collective bargaining of countries in the 'Other' category is consistently lower than that of Continental Europe, excluding Spain in 1980 and 1981.

Figure 4.15: Collective Bargaining for Continental Europe



Source: OECD, OECD-AIAS and the ICTWSS

Other than Germany, which has a clear downward trend, other countries in Continental Europe have less of a pronounced decline. Their coverage rates do not fall drastically and remain in a particular range. Except for Switzerland, the collective bargaining coverage rates of Continental Europe stay between the range of 60-100%. And for the 'Other' category (excluding Italy and New Zealand in the early 1980s), the coverage rates stay and continue to fall below 60%, with the lowest coverage rate being from the USA, with a rate of 11,6% in 2019.

It is also worth noting that countries with low collective bargaining coverage rates are also found to have low union density rates; this can be observed from the low rates for union density and collective bargaining for the 'Other' category.

Because of the data unavailability on part of this labour market institution variable, interpolation was also carried out. The same code we used for union density was used with collective bargaining.[34]

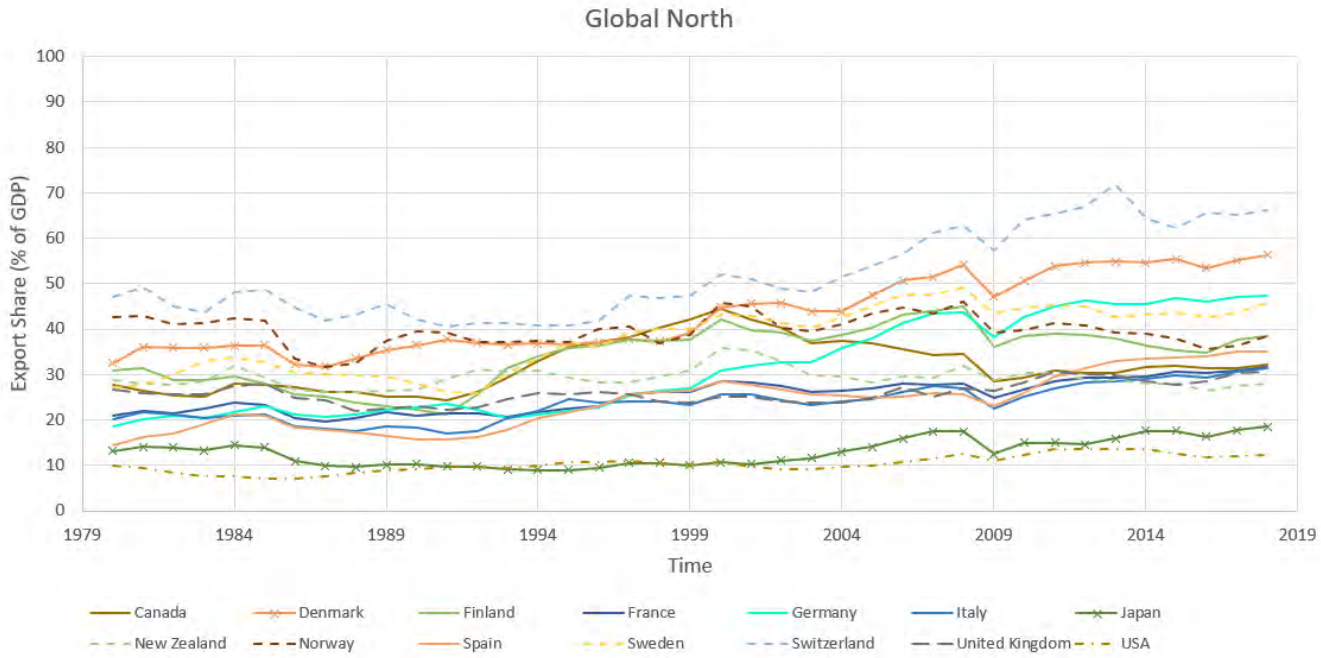
4.3.4. Export Competitiveness

This is the dependent variable of the second equation, it is proxied by the export share and is measured as a % of GDP (World Bank, 2019). Similar to the variables discussed, the export share data in the Global South sees more cross-sectional variation when compared to the Global North. This is the trend that has been observed for the previously discussed variables i.e., wage share and the labour market institution variables. The Global South reports higher export shares than the Global North, this is both from graphical analysis and a calculation of averages.[35]

[34] The graphs for the interpolation located in Appendix I

[35] On average, the Global South has an export share is that is about 3% higher than the Global North.

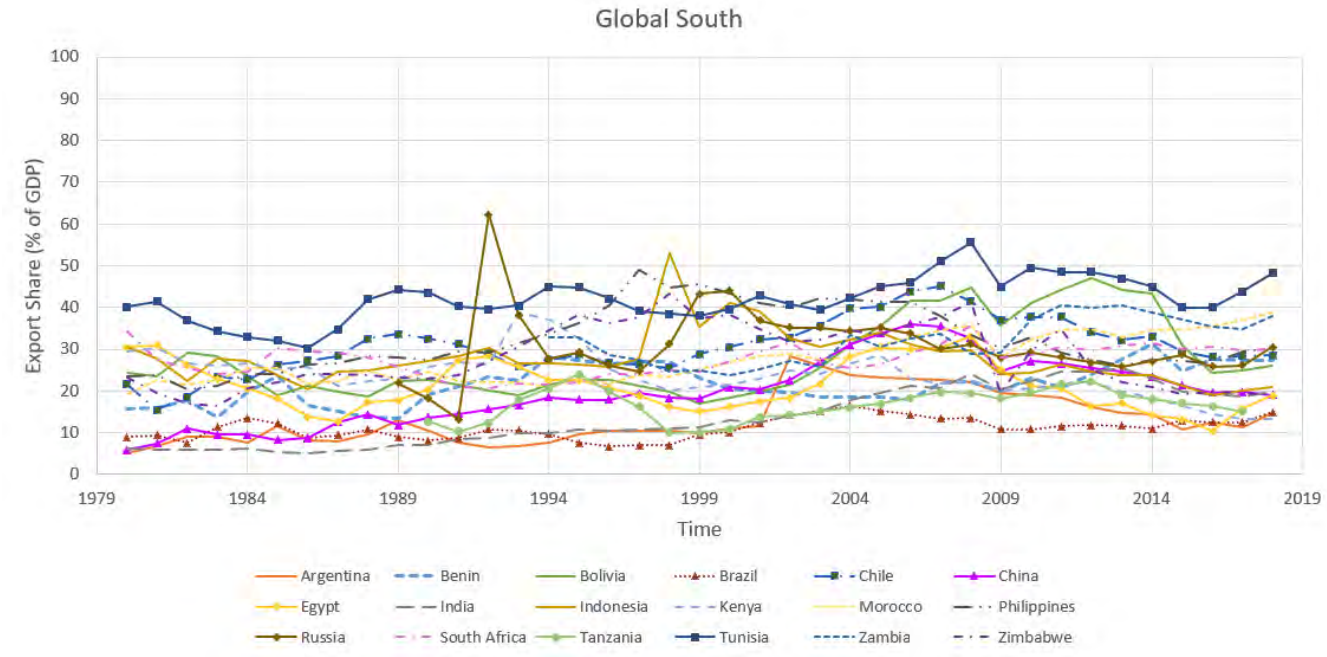
Figure 4.16: Export Share for the Global North



Source: World Bank

The Global South's average is brought up by the export share of Singapore which has an export share above 100% from 1980-2018. Another possible reason why the export share of the Global South is higher, overall than the Global North is the reliance on exports of developing/middle-income countries. In 2009, in the Global North, there is an increase in the export share; this also occurred in 2005, except for Canada.

Figure 4.17: Export Share for the Global South



Source: World Bank

There is unavailability of data in the World Bank export share dataset, this occurred for some countries in the Global South. Observations do not start from the 1980 period or are unavailable towards the end of the timeframe.[36]

4.3.5. Globalization

For Globalization, the KOF Trade and Financial Globalization indices are used to proxy 'trade and globalization'; these are the control variables in the equation. Trade Globalization is the KOF Globalization Index (*de jure*), and the financial Globalization is the KOF Financial Globalization (*de facto*). The Trade Globalization variable comprises the average "prevalence of non-tariff trade barriers and compliance costs of importing and exporting" (KOF, 2018). The latter component, the Financial Globalization variable, is measured as a % of GDP, comprising the "sum of stocks of assets and liabilities of foreign direct investment (KOF, 2018).

[36] There is also no data available for Russia for the period of 1980-1988. For Tanzania, there is no data in the 1980-1989. but there is no data for this country's 2018 period. Lastly, the data for Zambia is only available from 1994.

For both trade and financial globalization variables, a few countries in the sample are missing data. There was one instance of data unavailability for the globalization variables in that for Russia, the data did not start from 1980.[37] To solve for this unavailability, we carried out interpolation for this country employing the same method as for the labour market institution and export competitiveness variables.

[37] With Russia only starting from 1989.

Chapter 5: Results and Analysis

5.1. Introduction

The aim of this chapter is to employ the methodology in Chapter 2 using the data described in Chapter 4 to explore the second subgoal of and test the hypotheses of the study. Section 5.2 reports on unit root testing and correlation matrices. The next section, section 5.3, explains the process of model selection and finally section 5.4, presents an interpretation and a discussion of results we gather from carrying out the panel data analysis.

5.2. Correlation Matrices, Unit roots and Cointegration

5.2.1. Correlation Matrices

The table below displays a correlation matrix of all the variables for this study. The importance of a correlation is twofold in this case: (i) for assessing correlations between the different variables, how strong or weak linear correlations are between the variables and consequently (ii) for the purposes of detecting possible multicollinearity amongst the independent variables.

The values (R_{ij}) in the table will range from -1 to 1, with values closer to 0 indicating a low correlation and closer to one indicating that the two variables have a strong correlation, and this may either be a positive or negative correlation (Gujarati and Porter, 2009: 348). [38] The correlation between a variable and itself will always be one and that can be seen from the diagonal pattern of ones in the table (Gujarati and Porter, 2009: 348).

The rest of the values in the grid are referred to as pairwise correlations (Gujarati and Porter, 2009: 349). For instance, in the second row and the first column ($R_{w\_s,\, u\_d}$) shows that the correlation between the wage share (w_s) and union density (u_d) is 0.269401.[39]

[38] Where i and j are placeholders for the different pairwise correlations, i.e., i = w_s and j = u_d.
[39] *Correlation does not imply causation

Table 5.1: Correlation Matrix for the Union Density sample

	w_s	u_d	f_g	t_g	gdppc	ex_s	global_south	_2007_2018
w_s	1	0.269041	0.049958	-0.077161	0.441945	-0.149507	-0.597230	-0.088726
u_d	0.269041	1	0.180198	0.106151	0.425461	0.062576	-0.440379	-0.136033
f_g	0.049958	0.180198	1	0.592694	0.673856	0.515426	-0.508105	0.291510
t_g	-0.077161	0.106151	0.592694	1	0.273460	0.758208	-0.072851	0.203638
gdppc	0.441945	0.425461	0.673856	0.273460	1	0.253959	-0.848125	0.142981
ex_s	-0.149507	0.062576	0.515426	0.758208	0.253959	1	0.022223	0.084201
global_south	-0.597230	-0.440379	-0.508105	-0.072851	-0.848125	0.022223	1	5.83E-17
_2007_2018	-0.088726	-0.136033	0.291510	0.203638	0.142981	0.084201	5.83E-17	1

Table 5.2: Correlation Matrix for the Collective Bargaining sample

	w_s	u_d	c_b	f_g	t_g	gdppc	ex_s	global_south	_2007_2018
w_s	1	0.189684	0.396241	0.063085	-0.001228	0.426520	-0.196269	-0.640850	-0.050745
u_d	0.189684	1	0.458607	0.016990	0.106151	0.229416	0.062576	-0.440379	-0.136033
c_b	0.396241	0.458607	1	0.274204	0.131977	0.469489	-0.045158	-0.632447	-0.059179
f_g	0.063085	0.016990	0.274204	1	0.671399	0.652204	0.505887	-0.434000	0.357648
t_g	-0.012279	0.150959	0.131977	0.671399	1	0.365676	0.790865	-0.111520	0.210435
gdppc	0.426520	0.229416	0.469489	0.652204	0.365676	1	0.224073	-0.789960	0.191315
ex_s	-0.19627	0.003357	-0.045158	0.505887	0.790865	0.224073	1	0.104009	0.081578
global_south	-0.640850	-0.261687	-0.632447	-0.434000	-0.111521	-0.789960	0.104009	1	-4.46E-17
_2007_2018	-0.050745	-0.179388	-0.059179	0.357648	0.210435	0.191315	0.081578	-4.46E-17	1

All the variables in the table do have a correlation with one another as their values lie between -1 and 0 and 0 and 1. If a result of zero was obtained, then there would be no correlation between the variables in question. In table 5.1, the correlation between the wage share and the union density is 0.269041, which is a weak positive correlation, entailing that an increase in union density is associated with an increase in the wage share, this suggests weak support for the hypothesis that labour market institutions have a positive impact on the wage share or associated with wage-led growth paths. This is similar to what is found in the table 5.2, where the union density has the same association as with the wage share and in the same speed, collective bargaining, though it has a relatively higher association than union density, it is not a strong one. Table 5.1 and 5.2 are not significantly different, the associations found in the former can also be observed in the latter. In table 5.2, there is a positive association between the labour market institution variables though this association is weak. A stronger association would be expected between these two variables, as unions use collective bargaining as

a means of negotiating workers position with employers/management (and governments at a national level).

A weak positive correlation, which is close to zero, is also the case for the export share and union density which suggests that labour market institutions have neither a positive nor negative effect on competitiveness. However, this will be investigated further. The correlation between the wage share and the export share is a weak negative correlation, the value is -0.149507, this also entails that there is not a very significant effect on competitiveness from the wage share variable. But this, too, shall be subject to further discussion.

There is a strong positive correlation between export share and trade globalization for both samples. And there is a fairly strong positive correlation between GDP per capita and financial globalization and between trade globalization and financial globalization. The rest of the correlations are weak negative or weak positive correlations. There is a strong negative correlation is between the Global South and the level of development (-0.848125). And the implication of this is that there might be evidence of multicollinearity, this is discussed below.

While these associations are important to observe and interpret in this manner, what is of more interest with the correlation matrix is how the independent variables are correlated to one another to see if there is any preliminary evidence of multicollinearity. The rule of thumb is that if there are values that are greater than 0.8, we suspect that there is a multicollinearity. This is just a rule of thumb and presence of this econometric issue can also be a problem with lower correlation coefficients. In particular, GDP per Capita is moderately correlated with the other independent variables, including the variables representing labour market institutions.

Based on this rule of thumb, it can be noted that there is a pairwise correlation that hints at the evidence of multicollinearity is between global south and GDP per Capita. Why this correlation might be higher is the fact that these two variables are essentially a proxy for the same aspect. Earlier, the study spoke about how we are using the GDP per Capita, i.e., level of development, as a form of categorizing the observations and the Global South dummy does that too, except its categorizations are 0 and 1. Because of

this potential collinearity and that the Global South dummy does not work in the Fixed Effects Model, it was dropped from further regressions.[40]

A formal way in which we can ascertain whether there is multicollinearity is by calculating the Variance Inflation Factor (VIF). This is done by focusing on the auxiliary R^2 and by using the following formula:

$$VIF = \frac{1}{1 - Auxiliary\ R2}$$

Equation 5.1

The rule here is that if we get an adjusted R^2 that is equal or greater than 0.9, the VIF will be 10 or greater and we have a case of multicollinearity. If multicollinearity is detected amongst the variables, this might have an effect on the accuracy of the results (Gujarati and Porter, 2009: 323). In table 5.3 below are the Auxiliary R^2 results of the regressions of the different independent variables on one another.

Table 5.3: Variance Inflation Factor (VIF) Calculations

Dependent variable	W_S	U_D	F_G	T_G	GDPPC	EX_S	GLOBAL_SOUTH	_2007_2018
Auxiliary R^2	0.453688	0.255642	0.707338	0.653906	0.828754	0.658941	0.835443	0.196719
VIF	1.830456	1.34344	3.416911	2.889388	5.839552	2.932044	6.076922	1.244894

Even before performing the calculations for the VIF to see if there is evidence of multicollinearity, it can be noticed that none of the auxiliary R^2s are of the value 0.9 or above meaning that the VIF will be lower than 10 in all cases. When the calculations are performed what has just been stated is proved, the VIFs obtained range from 1-7.

[40] The fixed effect model effectively adds country dummies. Adding the Global South dummy gives us a singular matrix. For example, SA is always global South. Therefore, there is 100% correlation between the SA dummy (created by the model) and the Global South dummy. The Global South dummy is a means of classifying whether a country falls under the Global South or Global North, however this does not fully grasp the social phenomenon of the Global South countries. The GDP per Capita variable could also be argued to have the same problem. These two variables capture the quantitative nature of the study but though this issue with the quantitative side is cited, the qualitative methods (with the extended literature review) does not come without its limitations. The extended literature review lays the groundwork and is essential in clarifying the key debate. But operationalizing the theories and hypotheses is also critical, and this is why the panel data analysis is also important.

5.2.2. Unit root tests and Cointegration

In this section, the tests for stationarity and cointegration are executed. Tests of stationarity are the Levin, Lin & Chu test, Im, Pesaran and Shin W-stat test, ADF-Fisher Chi-square test and, the PP- Fisher Chi-square tests. These tests ultimately have the similar null hypotheses[41]:

H_0: The series in question has a unit root; there is stationarity

H_1: The series in question does not have a unit root; there is no stationarity

Table 5.4: Panel Unit Root Tests

Variables	**Unit root tests**							
	Levin, Lin & Chu		Im, Pesaran and Shin W-stat		ADF - Fisher Chi-square		PP - Fisher Chi-square	
w_s	-0.97397	-14.4643***	-0.66045	-16.12***	95.6798**		65.5189	989.990***
u_d	-1.98570**		1.60860	-9.18897***	55.9980	218.615***	52.0391	328.638***
t_g	-1.33132*		-1.41049*		88.3156*		94.9510**	
f_g	1.15870	-14.5781***	1.92114	-16.0103***	54.6551	371.689***	64.8241	1338.30***
Gdppc	-0.12764	-12.0843***	1.44993	-12.5583***	78.0998	294.717***	37.6396	738.002***
ex_s	-2.12939**		-3.65734***		96.7659**		78.1737	1365.85***

* Significant at the 10% probability level; ** Significant at the 5% probability level; *** Significant at the 1% probability level

The basis of rejection or failure to reject is according to the p-values of the associated t-statistics in each case. What has been done for each variable is if the test yielded that the series in question was non-stationarity in level terms, the next step was to carry out the tests in first differences. From the table, it can be noticed that for some variables under different tests there are two columns, where this is the case, it means the test was carried out at both level terms and first differences.

The trade globalization series is the only one of the variables that was found to be stationary in level terms across the different tests, the rest of the series (wage share, union density, financial globalization, and GDP per Capita) had to be differenced in order to be made stationary. Export share in the PP- Fisher Chi-Square test has to be differenced once in order to be made stationary.

The series are of the classification I (1) in most cases and thus it becomes important to test for cointegration, this is a means of testing the validity of the results and to ensure

[41] The null of the Levin, Lin & Chu t* is that there is a unit root (assumes common unit process). For the three other tests the null is similar with the fact that the unit root assumes an individual unit process.

that the research is not working with spurious regressions (Gujarati and Porter, 2009: 762). Cointegration is defined as a "long run stable relationship between the variables" (Gujarati and Porter, 2009: 762) Therefore, if the linear combination is stationary but the series are individually non-stationary, there is a cointegration and the results are not spurious. The cointegration test includes all variables.

Table 5.5: Kao Cointegration Test

	t-statistic	Prob.
ADF	-2.967080***	0.0015

* Significant at the 10% probability level; ** Significant at the 5% probability level; *** Significant at the 1% probability level

Above are the results of the Kao Cointegration Test. The hypotheses of this test are as follows:

H_0: There is no cointegration

H_1: There is cointegration

The t-statistic has probability value of 0.0015 which is less than a significance level of 1%, and thus the t-statistic is significant at this level. Therefore, we reject the null hypothesis and conclude that there is cointegration and as a consequently the results are not spurious.

5.3. Model Selection

The next step is model selection. The aim of this section is to operationalize equations one and two as set out in Section 2.3.2. This is essential in order to decide on which variables to include in the panel data regressions, which econometric model(s) to use (Panel Least Squares, Fixed Effects or Random Effects) and to highlight, and where appropriate, correct potential econometric problems. The interpretation of results econometrically, and discussion of their economic meaning, is deferred to Section 5.4.

5.3.1. Wage Share Equations

The tables below are the specifications with different combinations of variables for the wage share regression, starting with labour market institution variables and gradually adding more independent/control variables. Table 5.6 lays out the regression specifications for the sample containing observations with union density data, in which there are 36 countries. And table 5.7, is made up of similar specifications with the inclusion of the collective bargaining, this sample contains 27 observations.

Table 5.6: Wage Share regression, Panel Least Squares, 36 Countries

Specification I	Wage share$_{it}$ = c + Union Density$_{it}$ + u$_{it}$
Specification II	Wage share$_{it}$ = c + Union Density$_{it}$ + Trade Globalization$_{it}$ + Financial Globalization$_{it}$ + u$_{it}$
Specification III	Wage share$_{it}$ = c + Union Density$_{it}$ + GDP per Capita$_{it}$ + u$_{it}$
Specification IV	Wage Share$_{it}$ = c + GDP per Capita$_{it}$ + Trade Globalization$_{it}$ + Financial Globalization$_{it}$ + u$_{it}$
Specification V	Wage Share$_{it}$ = c + Union Density$_{it}$ + GDP per Capita$_{it}$ + Trade Globalization$_{it}$ + Financial Globalization$_{it}$ + u$_{it}$
Specification VI	Wage Share$_{it}$ = c + Union Density$_{it}$ + GDP per Capita$_{it}$ + Trade Globalization$_{it}$ + Financial Globalization$_{it}$ + _2007_2018$_{it}$ + u$_{it}$

Table 5.7: Wage Share regression specifications for sample with 27 observations

Specification VII	Wage share$_{it}$ = c + Union Density$_{it}$ + Collective Bargaining$_{it}$ + u$_{it}$
Specification VIII	Wage share$_{it}$ = c + Union Density$_{it}$ + Collective Bargaining$_{it}$ + Trade Globalization$_{it}$ + Financial Globalization$_{it}$ + u$_{it}$
Specification IX	Wage share$_{it}$ = c + Union Density$_{it}$ + Collective Bargaining$_{it}$ + GDP per Capita$_{it}$ + u$_{it}$
Specification X	Wage Share$_{it}$ = c + Union Density$_{it}$ + Collective Bargaining$_{it}$ + GDP per Capita$_{it}$ + Trade Globalization$_{it}$ + Financial Globalization$_{it}$ + u$_{it}$
Specification XI	Wage Share$_{it}$ = c + Union Density$_{it}$ + GDP per Capita$_{it}$ + Trade Globalization$_{it}$ + Financial Globalization$_{it}$ + _2007_2018$_{it}$ + u$_{it}$

Consider Table 5.8, which shows results for Panel Least Squares (PLS) regression with Wage Share as the dependent variable, for the larger sample.

Table 5.8: Wage Share regression, Panel Least Squares, 36 Countries

Specifications	I	II	III	IV	V	VI
INTERCEPT (C)	0.518031 [145.5920***] (0.003558)	0.527557 [75.56626***] (0.0006981)	0.502501 [145.4968***] (0.003454)	0.593561 [95.27376***] (0.006230)	0.589080 [87.32495***] (0.006746)	0.589004 [87.50882***] (0.006731)
U_D	0.001066 [10.45943***] (0.000102)	0.001065 [10.36446***] (0.000103)	0.000392 [3.753923***] (0.010654)	-	0.000171 [1.725049*] (9.90E-05)	0.000119 [1.185382] (0.000101)
GDPPC	-	-	1.58E-06 [15.17486***] (1.04E-07)	2.93E-06 [24.14109***] (1.21E-07)	2.83E-06 [21.09723***] (1.34E-07)	2.84E-06 [21.19255***] (1.34E-07)
T_G	-	-0.000765 [-5.190788***] (0.000147)	-	-9.46E-05 [-0.719430] (0.000131)	-0.000117 [-0.886843] (0.000132)	-0.000101 [-0.769026***] (0.000132)
F_G	-	0.000405 [3.091733***] (0.000131)	-	-0.001796 [-11.93522] (0.000151)	-0.001747 [-11.41271***] (0.000153)	-0.001674 [-10.79458***] (0.000155)
2007_2018	-	-	-	-	-	-0.011725 [-2.698746***] (0.004345)
R-squared	0.072383	0.089901	0.203329	0.308095	0.309564	0.313142
Adjusted R-squared	0.071721	0.087951	0.202191	0.306613	0.307590	0.310686
Log-likelihood	1526.589	1539.973	1633.417	1732.395	1733.886	1737.534

F-statistic	109.3997***	46.09806***	178.7834***	207.7999***	156.8139***	127.4712***
Durbin-Watson stat	0.030188	0.030942	0.0360993	0.046217	0.045917	0.046286
Sample:	1980 2018	1980 2018	1980 2018	1980 2018	1980 2018	1980 2018
Periods included	39	39	39	39	39	39
Cross-sections included	36	36	36	36	36	36
Total panel (balanced) observation	1404	1404	1404	1404	1404	1404

* Significant at the 10% probability level; ** Significant at the 5% probability level; *** Significant at the 1% probability level

t- statistics – [], standard errors – ()

What we can notice as we move along the specifications, by adding more variables is that the adjusted R^2 increases. This means that the explanatory power of the independent variables of the wages share increases as we include more variables to the equation. There is a significant increase in the Adjusted R^2 from specification III to IV, with the addition of the GDP per Capita variables. The F-statistic also changes in the value as we add the more variables and it remains significant across the specifications, which implies that the independent variables collectively explain the wage share. This statistic decreases from specification II to III and also sees a drop after specification IV to the VI. The inclusion of the time dummy does not necessarily specify the model better, this can be seen from the drop in the F-statistic in specification VI. This leads the dropping of this variable.

The dw-stat increases as we move from specification I to IV but remains considerably low, and though it is low and not near the ideal value of 2. An increase in this value as we progress through specifications, indicates that the model is better specified. These low dw-statistics show evidence of the possible autocorrelation and this needs to be tested for. This is carried out in the section 5.3.4.4.

Another statistic of interest is the log-likelihood ratio, which is a goodness of fit statistic, similar in a way to the adjusted R^2. These statistics when observed on its own, does not provide much information but seeing as we are trying to gauge which model would be most suitable and thus trying to draw comparisons it is very useful. The higher the log-likelihood ratio the more suitable the model is, based on the best models would be between the last two models.

Table 5.9: Wage Share regression, Panel Least Squares, 27 countries

	VII	VIII	IX	X	XI
INTERCEPT (C)	0.511820 [108.1928***] (0.004731)	0.522529 [64.07432***] (0.008155)	0.495420 [103.1020***] (0.004805)	0.565597 [71.08998***] (0.007956)	0.565400 [71.01715****] (0.007961)
U_D	3.84E-05 [0.316329] (0.000121)	6.63E-06 [0.525134] (0.000126)	1.74E-05 [0.150220] (0.000116)	-0.000205 [-1.768196*] (0.000116)	-0.000217 [-1.852860*] (0.000117)
C_B	0.000980 [12.28256***] (7.98E-05)	0.000995 [11.70194***] (8.50E-05)	0.000624 [7.423711***] (8.41E-05)	0.000653 [8.093799***] (8.06E-05)	0.000646 [7.972905***] (8.10E-05)
GDPPC	-	-	1.213-06 [10.05685***] (1.20E-07)	2.20E-06 [14.89094***] (1.48E-07)	2.20E-06 [14.90344***] (1.48E-07)
T_G	-	-0.000276 [-1.672790*] (0.000165)	-	5.31E-05 [0.350307] (0.000152)	5.07E-05 [0.334527] (0.000152)
F_G	-	-6.94E-06 [-0.043185] (0.000161)	-	-0.001501 [-8.468813***] (0.000177)	-0.001467 [-8.044722***] (0.000182)
2007_2018	-	-	-	-	-0.003940 [-0.786772] (0.005008)
R-squared	0.157087	0.161500	0.231211	0.308046	0.308455
Adjusted R-squared	0.155482	0.158299	0.229012	0.304742	0.304489
Log-likelihood	1231.186	1233.949	1279.648	1335.087	1335.399
F-statistic	97.84039***	50.46264***	105.1612***	93.22131***	77.75933***
Durbin-Watson stat	0.025907	0.025421	0.028761	0.034853	0.034856
Sample:	1980 2018	1980 2018	1980 2018	1980 2018	1980 2018
Periods included	39	39	39	39	39
Cross-sections included	27	27	27	27	27
Total panel (balanced) observation	1053	1053	1053	1053	1053

* Significant at the 10% probability level; ** Significant at the 5% probability level; *** Significant at the 1% probability level

t- statistics – [], standard errors – ()

Table 5.9 shows the results for the PLS regression on Wage Share for the smaller sample (of countries with usable collective bargaining data). The implication of using the collective bargaining variable, and this sample, goes back to the paucity of the data. The labour market institution data is, as has been noted, scarce, with their being more data with countries that have union density data than collective bargaining. The list of the countries can be seen on page on page 37. This sample contains a mix of Global North and Global South countries.

Similar to the previous sample, the adjusted R^2 does increase as more variables are added. The first specification only includes labour market institution variables. As the globalization variables are added this statistic increase albeit not significantly. When the GDP per Capita variable is added in specification to the labour market specifications in Specification III, a higher adjusted R^2 is obtained. It rises when both GDP per Capita and the globalization variables are added and increases slightly with the addition of the time dummy in the last specification. Although the last specification has the highest

adjusted R^2, it is also the specification with the lowest overall F-statistic. The F-statistic in all cases is statistically significant across all specifications, we note that the highest F-statistic comes from the specification II, which includes union density and GDP per Capita. The log-likelihood also increases as more variables are added to the equation, but with a marginal increase when moving from specification X to XI.

The dw-statistics, although much lower than the ideal value of 2, increase from specification I to VI and suggests that the model is better specified. The log-likelihood increases from specification I to V, from 1231.186 in the first to 1335.399. The highest value comes from the last two specifications. Entailing that these models have a better fit. But as noted, with the PLS, the specification with the time dummy has a low adjusted R^2 and the lowest F-stat. When we zone in on this specification, the t-statistic of this variable is statistically insignificant. Therefore, for the wage share regression, the specifications II and IV for the larger sample and specifications VIII and X for the smaller sample were chosen to base the rest of the analysis on

5.3.2. Export Share Equation

The tables below are the specifications with different combinations of variables for the export share regressions, the specification start with wage share variable and then labour market institution variables are added. Gradually more variables are added as we advance through the specifications. Table 5.9 lays out the regression specifications for the sample containing observations with union density data, in which there are 36 countries. And table 5.10, is made up of similar specifications with the inclusion of the collective bargaining, this sample contains 27 observations.

Table 5.10: Export Share regression specifications for sample with 36 observations

Specification I	Export share$_{it}$ = c + Wage Share$_{it}$ + u$_{it}$
Specification II	Export share$_{it}$ = c + Union Density$_{it}$ + u$_{it}$
Specification III	Export share$_{it}$ = c + Union Density$_{it}$ + Wage Share$_{it}$ + u$_{it}$
Specification IV	Export sharee$_{it}$ = c + GDP per Capita$_{it}$ + Trade Globalization$_{it}$ + Financial Globalization$_{it}$ + u$_{it}$
Specification V	Export share$_{it}$ = c + Wage Share$_{it}$ + Union Density$_{it}$ + Trade Globalization$_{it}$ + Financial Globalization$_{it}$ + u$_{it}$

Specification VI	Export Share$_{it}$ = c + Wage Share$_{it}$ + Union Density$_{it}$ + GDP per Capita$_{it}$ + Trade Globalization$_{it}$ + Financial Globalization$_{it}$ + u_{it}

Table 5.11: Export Share regression specifications for sample with 27 observations

Specification VII	Export share$_{it}$ = c + Union Density$_{it}$ + Collective Bargaining$_{it}$ +u_{it}
Specification VIII	Export share$_{it}$ = c + Union Density$_{it}$ + Collective Bargaining$_{it}$ + Wage Share$_{it}$ + u_{it}
Specification IX	Export share$_{it}$ = c + Union Density$_{it}$ + Collective Bargaining$_{it}$ + Trade Globalization$_{it}$ + Financial Globalization$_{it}$ + u_{it}
Specification X	Export share$_{it}$ = c + Union Density$_{it}$ + Collective Bargaining$_{it}$ +Wage Share$_{it}$ + GDP per Capita$_{it}$ +Trade Globalization$_{it}$ + Financial Globalization$_{it}$ + u_{it}

Consider Table 5.12, which show results for Panel Least Square (PLS) regression with Export Share as the dependent variable, for the larger sample.

Table 5.12: Export Share regression, Panel Least Squares, 36 countries

	I	II	III	IV	V	VI
INTERCEPT (C)	60.36967*** [12.10169] (4.988531)	30.12450 [23.95891***] (1.257340)	61.80278*** [12.42600] (0.036851)	-24.28189 [-14.69867***] (1.651979)	-5.024017 [-1.397989] (3.593745)	4.706035 [1.052293] (4.472172)
W_S	-50.98384*** [-5.661670] (9.005089)	-	-61.15130*** [-6.576463] (9.298510)	--	-34.74427*** [-5.691407] (6.104689)	-47.17951 [-6.670610] (6.978587)
U_D	-	0.084570 [2.347662**] (0.0036023)	0.149773*** [4.064255] (0.036851)	-	-0.004700 [-0.193040] (0.024348)	-0.037514 [-1.449756] (0.025876)
GDPPC	-	-	-	-1.41E-05 [-0.439058] (3.22E-05)	-	0.000146 [3.627042***] (4.02E-05)
T_G	-	-	-	1.104314 [31.68697***] (0.034851)	1.080933 [31.81701] (0.033973)	1.104793 [32.05969***] (0.034461)
F_G	-	-	-	0.153689 [3.851062***] (0.039908)	0.163972*** [5.461269] (0.030025)	0.058130 [1.391459] (0.041776)
R-squared	0.022352	0.003916	0.033745	0.581660	0.591970	0.595774
Adjusted R-squared	0.021655	0.003205	0.032365	0.580763	0.590804	0.594328
Log-likelihood	-6698.304	-6711.419	-6690.075	-6102.408	-6084.889	-6078.314
F-statistic	32.05450***	5.511515**	24.46373***	648.8526***	507.4181***	412.0926***
Durbin-Watson stat	0.015325	0.015945	0.015609	0.057821	0.058071	0.059021
Sample:	1980 2018	1980 2018	1980 2018	1980 2018	1980 2018	1980 2018
Periods included	39	39	39	39	39	39
Cross-sections included	36	36	36	36	36	36
Total panel (balanced) observation	1404	1404	1404	1404	1404	1404

* Significant at the 10% probability level; ** Significant at the 5% probability level; *** Significant at the 1% probability level

t- statistics – [], standard errors – ()

The adjusted R^2 is extremely low for specifications I-III but as we move to specification IV, this statistic increases, with the addition of the financial and trade globalization variables. The addition of the trade and financial globalization variables increases this statistic significantly, the adjusted R^2 increases to 59.2%. This means that 59.2% of the variation in the export share is explained by the independent variables in specification III. The implication of this is that the wage share and union density do not necessarily add much in terms of explaining the variation in the export share.

The dw-statistic also increases as these variables are added, meaning that the models with the relatively higher dw-stats are better specified models. And these lower dw-statistics are cause for a concern and it is necessary to test for autocorrelation, this will be done in section 5.4.3.3. The F-statistic is significant at the 1% level across the different specifications, and this means that the regressors in the different specifications collectively explain the dependent variable.

In these models, there is a negative log-likelihood. This is interpreted in the same manner as the positive log-likelihood, in the sense that a higher value entails a better fit. The highest log-likelihood by this reasoning is the specification VI which includes all variables. It is also the model with the highest dw-statistic. And although it is the specification with highest adjusted R^2, the change in this value is very marginal, which could be interpreted as the GDP per Capita variable not adding significantly to the explanation of the export share.

Table 5.13: Export Share regression, Panel Least Squares, 27 countries

	VII	VIII	IX	X
INTERCEPT (C)	35.85522 [17.51040***] (2.047654)	79.01620 [11.28231***] (7.003449)	16.98073 [3.760065***] (4.516074)	27.42661 [5.231608***] (5.242483)
W_S	-	-84.32846 [-6.433193***] (13.10834)	-59.39421 [-7.699473***] (7.724062)	-72.97871 [-8.650693***] (8.436169)
U_D	0.046148 [0.878793] (0.052513)	0.049385 [0.958290] (0.051534)	-0.096559 [-3.062657***] (0.031528)	-0.116777 [-3.677045***] (0.031758)
C_B_D	-0.058906 [-1.705164*] (0.034546)	0.023759 [0.655343] (0.036254)	-0.060077 [-2.661021***] (0.022577)	-0.073175 [-3.225643***] (0.022685)
GDPPC	-	-	-	0.000171 [3.851789***] (4.44E-05)
T_G	-	-	1.356576 [32.87181***]	1.378412 [33.30403***]

			(0.041269)	()0.041389
F G	-	-	-0.024603 [-0.612911] (0.040142)	-0.140815 [-2.815958] (0.050006)
R-squared	0.002773	0.040623	0.670123	0.674736
Adjusted R-squared	0.000873	0.037879	0.668547	0.672871
Log-likelihood	-5160.937	-5140.565	-4578.492	-4571.077
F-statistic	1.459725	14.80590***	425.3817***	361.6420***
Durbin-Watson stat	0.013526	0.012763	0.066827	0.069045
Sample:	1980 2018	1980 2018	1980 2018	1980 2018
Periods included	39	39	39	39
Cross-sections included	27	27	27	27
Total panel (balanced) observation	1053	1053	1053	1053

* Significant at the 10% probability level; ** Significant at the 5% probability level; *** Significant at the 1% probability level

t- statistics – [], standard errors – ()

Consider Table 5.13, which show results for Panel Least Square (PLS) regression with Export Share as the dependent variable, for the smaller sample. The adjusted R^2 of these models are quite low in the first two specification, this is identical to the export share regression with 36 observations. This shows that the labour market institution variables on their own (and even with the wage share in specification II) do not add explain the export share. This can be noted from the insignificance of both these variables in the first specification, low adjusted R^2, dw-statistics and log-likelihoods. A significant increase in this statistic is seen when the GDP per Capita variable is added and a slight increase with the inclusion of the globalization variables. As more variables are added the model is better specified and this can be seen with a rise from the dw-statistics, adjusted R^2 and the log-likelihood. Thus, in terms of specification selection, the decision was made to go with specification V and VI for the larger sample and specification IX and X for the smaller sample to base the rest of the analysis on.

5.3.3. The Hausman test

The Hausman test is critical for deciding which model would be preferred between a fixed effects model or a random effects model. The results of this test are presented in this section for the wage share and export share equations. The hypotheses of the Hausman test are as follows:

H_0: The FEM and REM estimators (coefficients) do not differ significantly / either model is suitable

H_1: The FEM and REM estimators (coefficients) differ significantly / REM is unsuitable

The results of the Hausman test presented below in tables 5.14 and 5.15 are for the Specification V for the wage share regression and Specification VI for the export share regression. These two specifications are part of the larger sample for both of these regressions. And based on the adjusted R^2, log-likelihood and a range of other factors, as discussed in the previous subsections, these two specifications were chosen to carry out the Hausman test below.

Table 5.14: Hausman test for Wage Share Regression

Test Summary	Chi-Sq. (χ^2) Statistic	Chi-Sq. d.f	Prob.
Cross-section random	23.245490	4	0.0001

Table 5.15: Hausman test for Export Share Regression

Test Summary	Chi-Sq. (χ^2) Statistic	Chi-Sq. d.f	Prob.
Cross-section random	29.837106	5	0.0000

The results for both regressions lead us to reject the null and conclude that the FEM and REM (coefficients) differ significantly (REM is suitable) and therefore the preferred model is the Fixed Effects Model in both cases. Tables 5.16 and 5.17 below are the FEM for both regressions for all specifications.

Table 5.16: Wage Share regression, Fixed Effects Model, 36 countries

	I	II	III	IV	V	VI
INTERCEPT (C)	0.529497*** [144.8844] (0.003655)	0.657037 [91.19970***] (0.007204)	0.573331*** [90.45492] (0.006338)	0.628063 [146.4561***] (0.004288)	0.653862*** [89.14630] (0.007335)	0.652754 [88.20220***] (0.007401)
U_D	0.000651*** [5.059526] (0.000129)	-0.000615 [-4.691936***] (0.000131)	0.000152 [1.093428] (0.000139)	-	-0.0000572*** [-4.321317] (0.000132)	-0.000603 [-4.458922***] (0.000135)
GDPPC	-	-	-1.39E-06 *** [-8.364945] (1.66E-07)	5.25E-07 [2.868248***] (1.83E-07)	4.08E-07** [2.220249] (1.84E-07)	4.74E-07 [2.454893**] (1.93E-07)
T_G	-	-0.000608 [-5.978105***] (0.000102)	-	-0.000598 [-5.852564***] (0.000102)	-0.000613*** [-6.036608] (0.000102)	-0.000594 [-5.758466***] (0.000103)
F_G	-	-0.001127 [-13.39380***] (8.42E-05)	-	-0.001124 [-11.81753***] (9.51E-05)	-0.001240*** [-12.62263] (9.83E-05)	-0.001233 [-12.52728***] (9.84E-05)
_2007_2018	-	-	-	-	-	-0.002348 [-1.118509] (0.002100)
R-squared	0.855531	0.887770	0.862570	0.886643	0.888174	0.888276
Adjusted R-squared	0.851726	0.884645	0.858848	0.883487	0.884976	0.884998
Log-likelihood	2831.994	3009.259	2876.063	3002.246	3011.792	3012.436
F-statistic	224.8670***	284.1445***	231.7197***	280.9630***	277.7822***	270.9188***
Durbin-Watson stat	0.192883	0.253478	0.198619	0.252411	0.258933	0.259010
Sample:	1980 2018	1980 2018	1980 2018	1980 2018	1980 2018	1980 2018
Periods included	39	39	39	39	39	39
Cross-sections included	36	36	36	36	36	36

Total panel (balanced) observation	1404	1404	1404	1404	1404	1404

* Significant at the 10% probability level; ** Significant at the 5% probability level; *** Significant at the 1% probability level

t- statistics – [], standard errors – ()

In terms of the adjusted R^2, dw-statistics, log-likelihood ratios and the F-statistics a similar trend to the Panel Least Squares is observed, there is an increase in these variables from specification I to VI. In table 5.16, the F-statistics reduces to 270.9188 in specification VI from 277.7822 in specification V. Another important observation with the Fixed Effects Model adjusted R^2 is quite high in all specifications even with one explanatory variable included in the specification I. The adjusted R^2 remains in the range of 85% to 89%.

Table 5.17: Export Share regression, Fixed Effects Model, 36 countries

	I	II	III	IV	V	VI
INTERCEPT (C)	85.36150*** [29.85022] (2.859661)	-38.82346 [59.96400***] (0.754767)	87.43498 [30.91207***] (2.828506)	7.380921 [9.587602***] (0.769840)	34.89708 [10.29538***] (3.389586)	34.47159 [10.33031***] (3.336937)
W_S	-96.63477*** [-18.53237] (5.214377)	-	-91.80699 [-17.73706***] (5.175997)	-	-44.51863 [-9.310702***] (4.781447)	-46.41427 [-9.844329***] (4.714823)
U_D	-	-0.230655 [-8.451414***] (0.027292)	0-0.170911 [-6.879499***] (0.024844)	-	0.024099 [1.032497] (0.023340)	0.045664 [1.968461**] (0.023198)
GDPPC	-	-	-	0.000181 [5.514264***] (3.29E-05)	-	0.000215 [6.700069***] (3.21E-05)
T_G	-	-	-	0.426801 [23.26243***] (0.018347)	0.404164 [22.20270***] (0.033973)	0.400256 [22.32715***] (0.017927)
F_G	-	-	-	0.044130 [2.584610***] (0.017074)	0.062893 [3.977020***] (0.015814)	0.0001254 [0.069379] (3.21E-05)
R-squared	0.952960	0.944064	0.954535	0.968583	0.969905	0.970864
Adjusted R-squared	0.951721	0.942591	0.953304	0.967708	0.969044	0.970009
Log-likelihood	-4568.326	-4689.917	-4544.416	-4284.977	-4254.29	-4232.052
F-statistic	769.2644***	640.8850**	775.1183***	1107.428***	1127.139***	1135.445***
Durbin-Watson stat	0.324916	0.282578	0.333900	0.403814	0.408074	0.424050
Sample:	1980 2018	1980 2018	1980 2018	1980 2018	1980 2018	1980 2018
Periods included	39	39	39	39	39	39
Cross-sections included	36	36	36	36	36	36
Total panel (balanced) observation	1404	1404	1404	1404	1404	1404

* Significant at the 10% probability level; ** Significant at the 5% probability level; *** Significant at the 1% probability level

t- statistics – [], standard errors – ()

The export share fixed effects model shares analogous results to the wage share regression, in that there is a very high adjusted R^2 for every specification. Higher dw-statistics, log-likelihood ratios, F-statistics are prominent with the latter specifications.

5.3.4. Econometric issues

5.3.4.1. Model Specifications

This statistic across the specification is lower than the adjusted R^2 which is an indication of a spurious regression (Gujarati and Porter, 2009: 748). The low dw-statistics that we observe from the various regression outputs across both samples (PLS and FEM) possibly come about as a result of the interpolation that we carried out in attempt to gain a more substantial dataset [42] (Franses, 2021). These low dw-statistics possibly are the result of potential multicollinearity. Multicollinearity comes as a result of the imputation and interpolation carried out in the research.

5.3.4.2. Violations of the Classical Linear Regression Model (CLRM)

Autocorrelation

As noted above, the low dw-statistic for all regression is suggestive of possible autocorrelation. Autocorrelation is the correlation of the error term with itself. And it is a violation of the Classical Linear Regression Model (CLRM) (Gujarati and Porter, 2009: 413). To test for this, we use the Durbin-Watson d test. The process involves obtaining the residuals from our estimated regression and lagging them (Gujarati and Porter, 2009). After this, the next step is to run a regression of residuals against the lagged residuals. The statistic of interest is the rho (ρ), which determines whether the hypothesis will be testing for positive or negative autocorrelation.

The ρ for the wage share regression was 0.950667 and the export share regressions' ρ is 0.937972. this means that the test if for positive autocorrelation and the hypotheses are as follows:

H_0: There is no evidence of positive autocorrelation

H_1: There is evidence of positive autocorrelation

The ρ is needed to calculate the d- statistic and the result of which will be used to inform the decision about whether there is evidence of positive autocorrelation. The calculation of the d-statistic is:

$$d = 2\,x\,(1 - \rho)$$

[42] In order for the panel data analysis to be carried out effectively.

(Equation 5.2)

And the decision criteria for positive autocorrelation is:

- Reject the null if d statistic lies between 0 and dL ($0 < d < d_L$) and thus there is evidence of positive autocorrelation
- No decision is made if the d statistic lies between d_L and d_U – this is the "zone of indecision"
- And fail to reject the null if the d statistic lies between d_U and 4-d_U.

Source: Gujarati and Porter (2009: 436)

To establish what the upper bound d_U and lower d_L are, we use the d-statistic tables. We arrive at values using the number of explanatory variables, a level of significance and the number of observations.

For the wage share regression, the n is 36, K is four, and we use the 5% level of significance with which we arrive at a dl of 1.236 and a du of 1.724.

For the export share regression, the n is 36, our LOS is 5%, but the K is five. The dl value is 1.175, and the du is 1.799.

The calculations for the d statistic result in a value of 0.098667 for the wage share equation and 0.124056 for the export share equation. Both these values are between the 0 and the lower d bound, and thus we reject the null and conclude that there is evidence of positive autocorrelation.

Although there is evidence of positive autocorrelation, remedial measures were not taken. It was noted earlier in that autocorrelation comes about as a result of the data manipulation through interpolation and imputation as this has an effect of changing the autocorrelation structure of the data (Franses, 2021: 5).

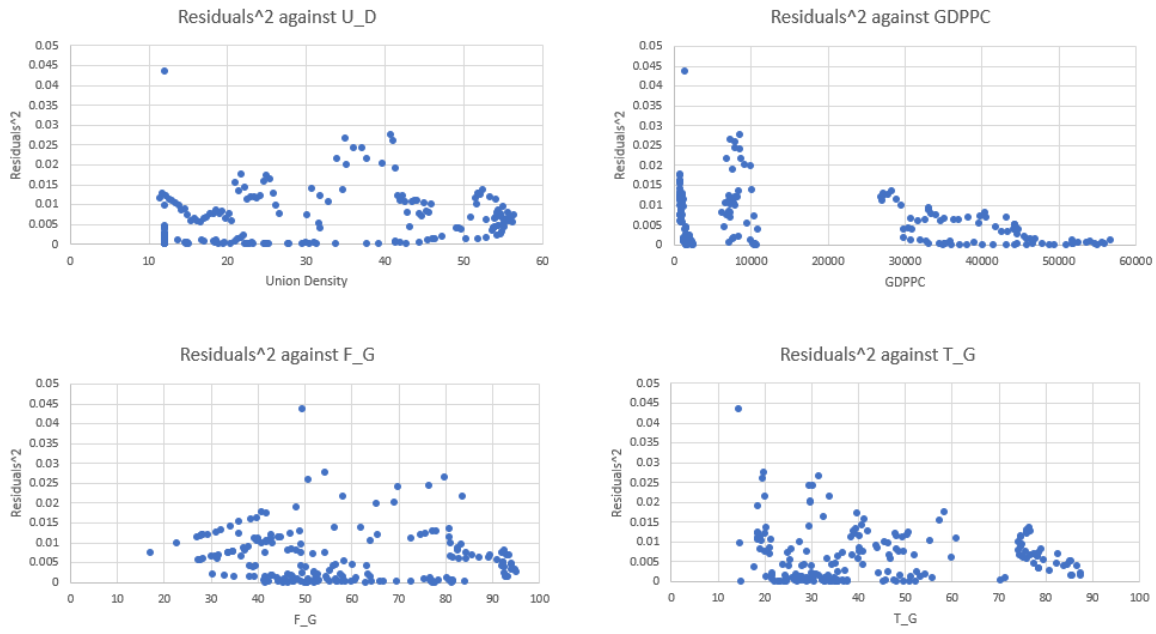
Heteroscedasticity

To test for Heteroskedasticity, and eyeball test and the Breusch-Pagan-Godfrey Test (BPG) were used. The eyeball test[43] is preliminary to the BPG, from this test we can ascertain whether there is possibility of a concern of heteroskedasticity. This test

[43] This was done for the first 200 observations due to limits in Excel.

involves developing the residuals from the wage share and export share regressions, squaring them, and then plotting a scatterplot of the squared residuals against the explanatory variables.

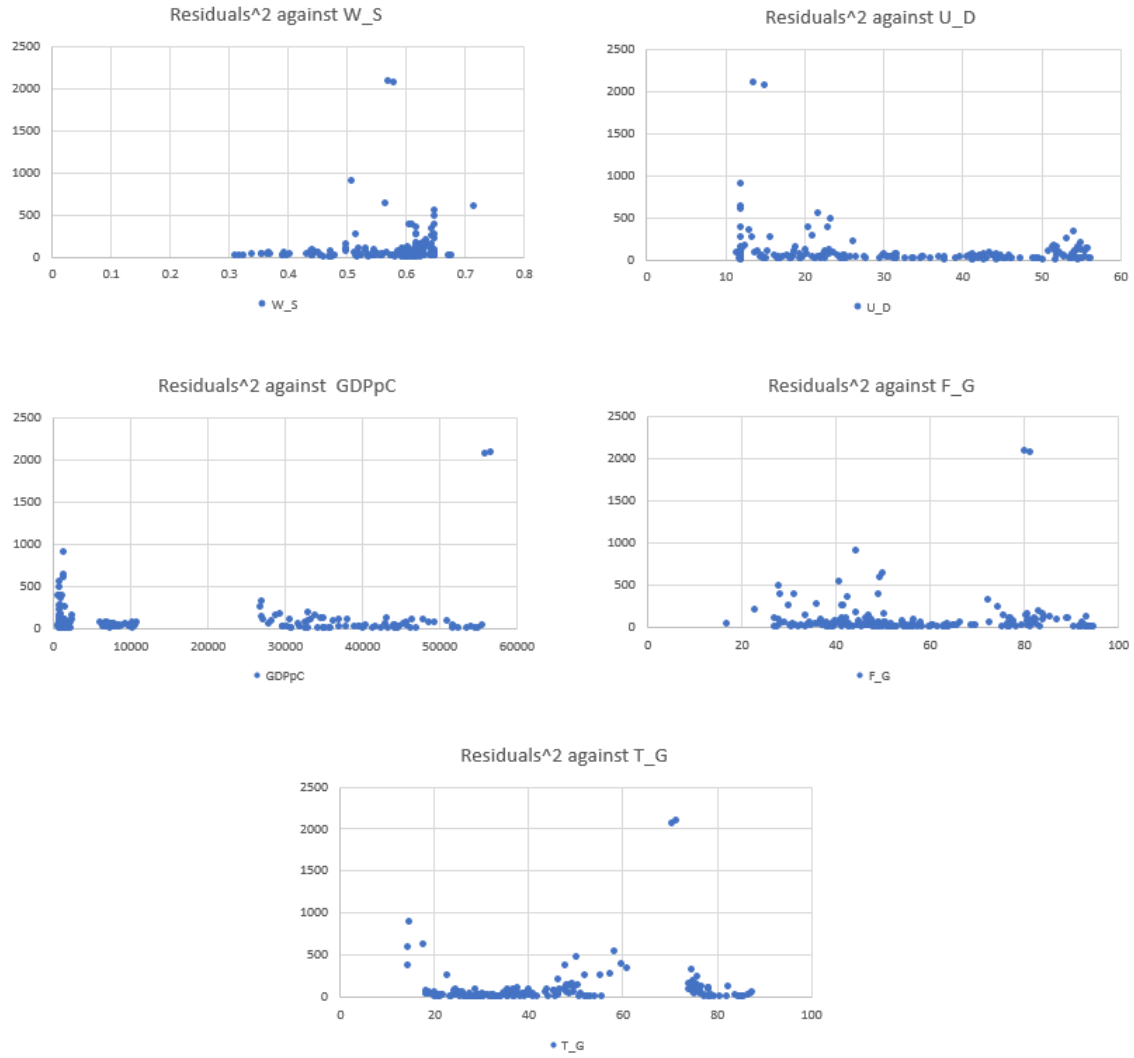
Figure 5.1: Eyeball Test for Wage Share Regression (Specification V)



What we want to pick up on is if there are any systematic patterns in the scatterplots. If there is, there is possible evidence of this violation of the CLRM assumption of homoscedasticity. Systematic patterns can be noted with the financial globalization variables but not with the other variables. More variability can be seen with more financial globalization. A similar trend can be noted with trade globalization, in that there is more variability with less trade globalization.

The eyeball test for the export share regression is indicated in figure 5.2 below. The systematic patterns can be observed with the wage share's relationship with the squared residuals, there is more variation in the export share as the wage share increases. This is the opposite case with the union density, as less variation in the export share with lower levels of union density. The outliers in the other graphs are also a cause of concern and in the wage share and union density graphs. And this necessitates a more formal test for the variables in this regression.

Figure 5.2: Eyeball Test for Wage Share Regression (Specification VI)



While the eyeball test does provide an indication of heteroskedasticity, we still have to carry out formal testing and this is done using the BPG which follows the Chi Squared (χ^2) distribution. The hypotheses of this test are:

H_0: The error variance is homoscedastic

H_1: The error variance is heteroscedastic

The steps of carrying out the test involve, obtaining the residuals from the main regression and squaring them as we did with the Eyeball test. Then regressing these squared residuals on the explanatory variables. From this regression, we multiply the auxiliary R^2 by the number of observations. This gives the Chi-squared (χ^2) observed value. To obtain the critical value which will be compared to the observed value, we go

to the χ^2 table and use the 1% level of significance and degrees of freedom according to the regression.

The wage share regression gives us an χ^2 observed of 52.47415 and the critical value is 13.2767.[44] Therefore we reject the null as the observed value is greater than the critical and conclude that there is evidence of heteroskedasticity. The export share regression gives a 52.47415 392.6327 (=1404*0.279653) and the critical value is 15.0863.[45] 13.2767 and using the same decision criteria, we reject the null and conclude that there is evidence of heteroskedasticity.

An attempt was made to remedy heteroskedasticity through the carrying out a double-log formation of the selected samples but to no avail. The test was a Panel Cross-Section Heteroskedasticity Test with the following null: the error term is homoskedastic. The test was run with the original regressions and with the double log transformations and both times the statistic of interest – likelihood ratio – was significant at the 1% level which meant rejecting the null and concluding that the error term was heteroskedastic. Gujarati and Porter (2009: 375), state that a complication that may arise from continuing with estimation in the presence of heteroskedasticity is that the results might be misleading. Therefore, this must be acknowledged as the study proceeds.

5.4. Interpretation and Discussion of Results

The aim of this section is to interpret and discuss the output of the results from the Panel Least Squares and Fixed Effects Models of specification II and V, for the union density sample and specification VIII and X for the collective bargaining sample for the wage share regression. The same will be executed for the export share regression for specification V and VI (union density sample) for the Panel Least Squares and III and IV (collective bargaining sample) for the Fixed Effects Model.

5.4.1. Exploring the extent to which institutional variety remains significant and a determinant of wage share.

The second subgoal of this research is to investigate the extent to which Varieties of Capitalism considerations are still empirically relevant by exploring the extent to which

[44] LOS is 1% and 4 degrees of freedom
[45] LOS is 1% and 5 degrees of freedom

institutional variety remains a significant determinant of the wage share. And thus, is the hypothesis we want to test.

As stated in the extended literature review, and more specifically according to the Varieties of Capitalism/wage-led literatures there is a race to bottom at play, and labour market institutions can help to prevent this, and possibly unlock wage-led growth (Onaran and Galanis, 2012: 2). Studies such as the Barth *et al* (2000) and Balsvik and Sæthre (2014), as cited in Barth Bryson and Dale-Olsen (2020: 1903), find that stronger labour market institutions, unions in particular, would be associated with a higher wage share. The other side of the story comes from the 'trade and globalization'/mainstream explanation of falling wage share, that growth is profit-led. Wage shares are falling despite the existence of labour market institutions, which are either becoming irrelevant and/or are part of the common neoliberal trajectory and thus there is the possibility that there is a negative relationship between the wage share and union density.

Table 5.18: Wage Share regression, Panel Least Squares, Selected Specifications

	Union Density sample		Collective Bargaining sample	
	Specification II	Specification V	Specification VIII	Specification X
c	0.527557 [75.56626***] (0.0006981)	0.589080 [87.32495***] (0.006746)	0.522529 [64.07432***] (0.008155)	0.565597 [71.08998***] (0.007956)
U_D	0.001065 [10.36446***] (0.000103)	0.000171 [1.725049*] (9.90E-05)	6.63E-06 [0.525134] (0.000126)	-0.000205 [-1.768196*] (0.000116)
C_B	-	N/A	0.000995 [11.70194***] (8.50E-05)	0.000653 [8.093799***] (8.06E-05)
GDPPC	-	2.83E-06 [21.09723***] (1.34E-07)	-	2.20E-06 [14.89094***] (1.48E-07)
T_G	-0.000765 [-5.190788***] (0.000147)	-0.000117 [-0.886843] (0.000132)	-0.000276 [-1.672790*] (0.000165)	5.31E-05 [0.350307] (0.000152)
F_G	0.000405 [3.091733***] (0.000131)	-0.001747 [-11.41271***] (0.000153)	-6.94E-06 [-0.043185] (0.000161)	-0.001501 [-8.468813***] (0.000177)
Periods included	39	39	39	39
Cross-Sections Included	36	36	27	27
Total panel (balanced) observation	1404	1404	1053	1053

* Significant at the 10% probability level; ** Significant at the 5% probability level; *** Significant at the 1% probability level

t- statistics – [], standard errors – ()

Table 5.18 repeats, for convenience, the most relevant specifications reported in Section 5.3.1. The interest here is on the coefficients. Information relevant to model section is not repeated here. In the table above, the evidence presented regarding labour market

institutions is mixed. In specification IV, the coefficient for the union density is positive and significant at the 1% level. However, in specification X, the positive effect attaches to collective bargaining and the union density variable becomes insignificant; these two variables are essentially picking up on similar aspects in our models in that they are both labour market institution variables. In specifications that include GDP per Capita, the effect is weaker. While collective bargaining, is positive and significant at the 1% level in specification X, union density is significantly negative, albeit at the 10% level only.

The globalization variables generally have a fairly strong negative effect – albeit the individual indicators, where we see variation across specifications with financial and trade globalization. The negative effect is consistent with the idea that globalization undermines the wage share. Wage shares are unable to shed light on whether lower wage shares are dictated by efficiency grounds in the era of the globalization (i.e., countries are profit-led) or it is the case that lower wage shares are a reflection of a race to the bottom that is facilitated by globalization.

Table 5.19: Wage Share regression, Fixed Effects, Selected Specifications

	Union Density sample		Collective Bargaining sample	
	Specification II	Specification IV	Specification IX	Specification X
c	0.657037 [91.19970***] (0.007204)	0.653862 [89.14630***] (0.007335)	0.661373 [86.12231***] (0.007679)	0.661149 [82.84179***] (0.007981)
U_D	-0.000615 [-4.691936***] (0.000131)	-0.0000572 [-4.321317***] (0.000132)	-0.000626 [-5.290259***] (0.000118)	-0.000625 [5.267443***] (0.000119)
C_B	N/A	N/A	-2.46E-05 [-0.267311***] (9.19E-05)	-2.32E-05 [-0.249556***] (9.29E-05)
GDPPC	-	4.08E-07 [2.220249**] (1.84E-07)	-	1.67E-08 [0.103820***] (1.61E-07)
T_G	-0.000608 [-5.978105***] (0.000102)	-0.000613 [-6.036608***] (0.000102)	-0.000130 [-1.217919] (0.000107)	-0.000130 [-1.220975] (0.000107)
F_G	-0.001127 [-13.39380***] (8.42E-05)	-0.001240 [-12.62263***] (9.83E-05)	-0.001162 [-15.24764***] (7.62E-05)	-0.001167 [-12.86289***] (9.07E-05)
Periods included	39	39	39	39
Cross-Sections Included	36	36	27	27
Total panel (balanced) observation	1404	1404	1053	1053

* Significant at the 10% probability level; ** Significant at the 5% probability level; *** Significant at the 1% probability level

t- statistics – [], standard errors – ()

The regression results in the table 5.19 above detail the regression output for the selected specification for the fixed effects model. The labour market institution variables are all significant and negative across both samples. These results are not analogous with the PLS results in 5.18, where we saw a mixed result, especially for union density. The unvarying negative relationship between the wage share and the labour market institutions variables are possibly as a consequence of the common neoliberal trajectory. What is observed is that these institutions are not good proxy for what unions do, they do not in fact represent 'strength' of unions. In the methodology, it was noted that quantitative research is objective by nature however there exists a contradiction in acknowledging that union density is not a good proxy. A union density figure for China of 58.63%[46] in 2018 may seem like concrete statistic but what does it entail really?[47] Unions are either weak or are colluding with employers (Humphrey and Cahill, 2017: 679). So, it is not only about unions being weakened by this common neoliberal trajectory but also by their acceptance of this mode of regulation.

An example that fits with the neoliberal trajectory argument is with unions in China, along with others in the Global South (Brehm, 2017: 2). These unions are not for one, not legally permitted, and are not actually representing 'workers' as they are authoritarian. Unions in South Africa have been accused of this with the lack of push-back when the government was embarking on neoliberal policies (Lehulere, 1997: 84). Humphrey and Cahill (2017) touches on the idea that unions and more particularly union leaders have played an active role in the advancement of the neoliberal trajectory and this they have done by being complicit to conditions of work that would be in contravention to what organized labour wanted.

The globalization variables do produce varied results in table 5.19. In the union density sample, the globalization variables are all significantly negative at the 1% level. This does fall in line with much of the literature around the causes of the downward trend that the wage share has faced. With globalization being cited as one of the main determinants for this trend, that suggests that globalization has had a detrimental effect

[46] From the collated dataset of the study.

[47] Acknowledging this brings to light yet again, why a balance of quantitative and qualitative research is required for this study.

on the wage share since the 1980s. Although when collective bargaining sample is observed, the financial globalization variable remains consistent, but the trade globalization variables become insignificant in these regressions.

5.4.2. Probing whether such institutional variety represents protection against competition or high-road capitalism

The second part of the second subgoal of this research is investigating the extent to which VoC considerations are still empirically relevant by probing whether such institutional variety represents protection against competition or high-road capitalism. This is done by testing the hypothesis that there is a positive relationship between institutional variety and export competitiveness, the alternative of this is that there is a negative or no relationship between the two. This builds on the equation 1 and the hypothesis in section 5.4.1. Wage shares and labour market institutions being positively correlated which could simply suggest that these institutions, and more specifically unions are merely protecting the wage share. In the regression results in section 5.4.1, it was observed that the labour market institution variables effect on the wage share was not a strong effect, and this is deduced from the mixed results from both models and samples.

For high-road capitalism what would be expected is positive relationship between the export share and the wage share and labour market institutions variables. This is because strong labour market institutions go hand in hand with high-road capitalism and with these institutions in place, wages (and wage shares) downward trend would be averted and better work conditions for workers would be established (Wright and Rogers, 2015: 237) The alternative low-road route encapsulates lower wages and lower skilled labour and thus we would expect that there would be a negative relationship between these variables and the export share.

With the increase in globalization and technological progress, countries are becoming more and more open in terms of trade, and this varies across different countries. The race to the bottom and the collective action problem can be brought to light in this. There are hurdles to pursuing wage-led growth, as individual countries fear that this might lead to a loss in competitiveness, if they are raising their costs by pursuing high-

road strategies. This follows the mainstream narrative that posits that growth is profit-led and for this argument, wages are treated as a cost.

Table 5.20: Export Share regression, Panel Least Squares, Selected Specifications

	Union Density sample		Collective Bargaining sample	
	Specification V	Specification VI	Specification IX	Specification X
c	-5.024017 [-1.397989] (3.593745)	4.706035 [1.052293] (4.472172)	16.98073 [3.760065***] (4.516074)	27.42661 [5.231608***] (5.242483)
W_S	-34.74427 [-5.691407***] (6.104689)	-47.17951 [-6.670610***] (6.978587)	-59.39421 [-7.699473***] (7.724062)	-72.97871 [-8.650693***] (8.436169)
U_D	-0.004700 [-0.193040] (0.024348)	-0.037514 [-1.449756] (0.025876)	-0.096559 [-3.062657***] (0.031528)	-0.116777 [-3.677045***] (0.031758)
C_B	N/A	N/A	-0.060077 [-2.661021***] (0.022577)	-0.073175 [-3.225643***] (0.022685)
GDPPC	-	0.000146 [3.627042***] (4.02E-05)	-	0.000171 [3.851789***] (4.44E-05)
T_G	1.080933 [31.81701***] (0.033973)	1.104793 [32.05969***] (0.034461)	1.356576 [32.87181***] (0.041269)	1.378412 [33.30403***] (0.041389)
F_G	0.163972 [5.461269***] (0.030025)	0.058130 [1.391459] (0.041776)	-0.024603 [-0.612911] (0.040142)	-0.140815 [-2.815958] (0.050006)
Periods included	39	39	39	39
Cross-Sections Included	36	36	27	27
Total panel (balanced) observation	1404	1404	1053	1053

* Significant at the 10% probability level; ** Significant at the 5% probability level; *** Significant at the 1% probability level

t- statistics – [], standard errors – ()

Table 5.20 contains the regression output for the selected specifications. These regressions are ultimately testing whether institutional variety represents a protection against competition or high-road capitalism. Wage share has a consistently negative and significant impact on the export share, and this is in line with the argument that puts forward that increased wage shares may lead to a detriment in competitiveness between countries due to a rise in unit costs. The labour market institution variable is insignificant in explaining the export share, this may agree with the findings in section 5.4.1, that mention that unions may be weak or colluding with 'capital'/employers. In the collective bargaining sample, both labour market institution variables are significantly negative when it comes to explaining the export share. These results may

allude to the mainstream/profit-led argument that these unions and collective bargaining do come at the cost of lower competitiveness, and this is in contradiction with the finding that by Schmitt and Mitukiewicz. And consequently, why countries and the individual firms within them would want to stick to a low-cost route – the low road.

The globalization variables are positive and significant in explaining the export share-trade globalization is consistently significant at the 1% level across both samples and specifications, while the financial globalization variable is only significant in specification V. Observing the positive relationship between the export share with the globalization variables in tandem with negative effect of wage share and labour market institutions variables tells two stories. The first is that globalization does have a hand in facilitating countries pursuing the low–road route, this comes as a result of the outsourcing ability that opening up the markets come with (Wright and Rogers, 2011: 251). Firms are able to cut costs this way to enhance their profits and the entrance into the labour market of lower-skilled and low-wage workers deteriorates wages and also weakens labour market institutions (Wright and Rogers, 2011: 251).

Table 5.21: Export Share regression, Fixed Effects, Selected Specifications

	Union Density sample		Collective Bargaining sample	
	Specification V	Specification VI	Specification IX	Specification X
c	34.89708 [10.29538***] (3.389586)	34.47159 [10.33031***] (3.336937)	45.59754 [9.486207***] (4.806720)	42.75841 [9.024919***] (4.737816)
U_D	0.024099 [1.032497] (0.023340)	0.045664 [1.968461**] (0.023198)	0.011687 [0.447230] (0.026133)	0.022884 [0.890283] (0.025704)
C_B	N/A	N/A	-0.004091 [-0.204387] (0.020018)	0.013963 [0.703507] (0.019847)
W_S	-44.51863 [-9.310702***] (4.781447)	-46.41427 [-9.844329***] (4.714823)	-58.89705 [-8.644154***] (6.813512)	-59.03504 [-8.829747***] (6.685927)
GDPPC	-	0.000215 [6.700069***] (3.21E-05)	-	0.000218 [6.352157***] (3.43E-05)
T_G	0.404164 [22.20270***] (0.033973)	0.400256 [22.32715***] (0.017927)	0.477448 [20.56464***] (0.023217)	0.470270 [20.61674***] (0.022810)
F_G	0.062893 [3.977020***] (0.015814)	0.0001254 [0.069379] (3.21E-05)	0.018538 [1.008308] (0.018538)	-0.048351 [-2.314633**] (0.020889)
Periods included	39	39	39	39
Cross-Sections Included	36	36	27	27

Total panel (balanced) observation	1404	1404	1053	1053

* Significant at the 10% probability level; ** Significant at the 5% probability level; *** Significant at the 1% probability level

t- statistics – [], standard errors – ()

Table 5.21 displays the regression output for the fixed effects model for the selected regressions. Wage share in this model is constant with the PLS, we notice that in this model, it stays negatively significant. The results of the labour market institutions in these models are much more inconsistent. In this case, the union density in the specification IV is of positive significance (at the 5% level) in explaining the export share. This may suggest that these results are not robust due to the variation. The relationship between the trade globalization and the export share is consistently positive and significant for both the Panel Least Squares and Fixed Effects Models for both samples. The financial globalization variable however is insignificant in specification IV and specification IX for both models.

Chapter 6: Conclusion and Recommendations

Thus far we have been investigating whether developing countries can switch from profit-led regimes to wage-led regimes by embracing high-road strategies. The main goal was to establish whether this wage-led high road route is feasible for developing countries. We started the thesis with the Methodology in Chapter two in which laid out the hypotheses that were going to be tested. The first hypothesis was whether labour market institutions are a significant determinant of the wage share. and the second built on the first hypothesis by investigating whether labour market institutions and increases of the wage share could prove detrimental to competitiveness.

This thesis faced many data limitations. The goal for the sample was to get as many countries as possible with the wage share data. Of which we obtained 47 countries; however, it was observed that many of these countries, especially developing countries did not have labour market institution data and although it was possible to fill some of the gaps by consulting the literature, many countries had to be dropped as a result. The number of observations with union density stood at 36 and the 27 for collective bargaining. And for the collective bargaining dataset it was not clear whether the denominator was the formal sector or the whole workforce. These labour market institutions datasets were still sparse and to solve for this the researcher undertook interpolation and imputation of the data. The original sources, for the wage share data, did also involve different forms of data interpolation and imputation. This data manipulation did not come without its problems. When testing for validity of the data, there was evidence of multicollinearity, as well as heteroskedasticity and positive autocorrelation. Therefore, the results of the study must be read with this in mind. While the existing wage share and labour market institution data is a great start, a lot more work can be done in compiling and cleaning the data.

In Chapter two, the methodology that this research used was discussed, detailing processes such as hypothesis formation and testing, model selection and econometric issues. Chapter three then laid the groundwork with an extended literature review with theories and various literature surrounding profit- and wage-led regimes as well as Varieties of Capitalism. In Chapter four the sources of the data, the different variables

used in the study as well the data limitations faced by the researcher. This chapter also included graphical analysis of the core variables. In Chapter five, we began to operationalize the equations set out in Chapter two by running regressions and drawing inferences from the regression outputs. Tests for validity were also carried out in this Chapter.

There were two broad narratives set out in the extended literature review: the mainstream narrative and the alternative wage-led growth narrative. In the former, wages are treated as a cost. The downward trend of labour market institutions and wage shares, according to this narrative, is due to enhanced efficient technological change, financialization and globalization. The problems with the profit-led regimes are two-fold: there are trade-offs between growth and socio-economic outcomes which is made worse by weakened union density and second low wages share consequently lead to lower aggregate demand. Though in profit-led countries, this is offset by export demand.

The alternative wage-led growth path posits that wages are not only a cost but also a source of demand. And this in the narrative, the positive relationship between the wages and aggregate demand, profits and investment is emphasized. Pursuing a wage-led growth regime via high road strategies faces hurdles such as the collective action problem. For profit-led countries, increased wage share and decrease managerial autonomy would behave a negative effect on their competitiveness.

The regression outputs from Chapter five did provide a mixture of results. While there was some evidence of a positive relationship between labour market institutions and wage share, this was by no means robust, and in some specifications, the relationship was negative. This does not support the wage-led argument. The plausible reason for this is that unions are not “strong”, and it might be the case that these institutions are either becoming less effective since the advent of neoliberalism or they might be colluding with management/capital. The collusion goes in line with the argument that labour market institutions are not mere victims to this model of regulation (i.e., neoliberalism) but have possibly assisted in its escalation. This provides implications for the VoC story as well. Although in the extended literature review it was noted that

the reason why countries categorized as CMEs have been able to hold out against the neoliberal trajectory relative to their LME counterparts is because of the institutional makeup of these countries – strong labour market institutions, labour market friendly policies, the regression analysis results of Chapter 5 have not been conclusive enough to ascertain whether the VoC considerations are empirically relevant. While this study has not been able to provide strong support for the hypothesis that VoC considerations are still important, it also did not find strong evidence to the contrary.

The competitiveness hypothesis builds on the wage share hypothesis. What was expected, according to the high-road argument, is that labour market institutions and wage shares would have a positive relationship with the export share. Which proposes that these two factors do not come at the cost of the latter. This is because, it is argued that the high-road is associated with strong labour market institutions and higher wages. what was observed was that there was a consistently negative relationship between the wage share and export share. Which seems to suggest that increased wage shares could come at the expense of competitiveness. Labour market institutions were negatively related with the export share. The negative relationship between the export share and the labour market institution indicate that unions and collective bargaining are, like wage share, are detrimental to competitiveness. And this feeds into the collective action problem and the lack of coordination for wage policy at a global, or at least a regional level. The globalization story is evidence of how the embrace of globalization, which is often cited as a core determinant of the fall in the wage share, has led to more openness across countries, both developed and developing.

Middle-Income (and developing) countries often are categorized as profit-led regimes in the literature (Onaran and Galanis, 2012). However, they are not successful examples of profit-led regimes. In these countries, we find weak to moderate labour market institutions. It is not fundamentally clear whether middle-income countries should liberalize their labour markets and embrace profit-led regimes or try to embrace the high road of wage-led growth (attempt to strengthen and coordinate labour market policies and enact other complementary polices on both the aggregate demand and supply sides. The question of whether these countries can and should switch from profit-led to wage-

led regimes remains unanswered. What has been established is that wage shares and labour market institutions are declining in this era of neoliberalism, and something needs to be done about this. It is often argued that for there to be wage coordination at a global or at least even a regional level, developed countries must take the first step in enacting such policies (Onaran and Galanis, 2012: 44).

Recommendations for further study include the following. Firstly, further studies could split the sample into countries identified as wage-led or profit-led or possibly categorize them according to whether they are Coordinated Market Economies or Liberal Market Economies. Secondly, future research needs to go beyond using a simple indicator, like union density, and proxies for labour market institutions. As discussed, strong unionization does not necessarily translate to effective and coherent worker representation. Finally, there is, as mentioned above, great need for more and better data. This thesis was able to add to the existing databases by simply looking at published work available on the internet. Detailed country-level research is likely to yield better historical data. Furthermore, governments and organisations like the ILO should be lobbied to pay more attention to data collection, curation, and dissemination.

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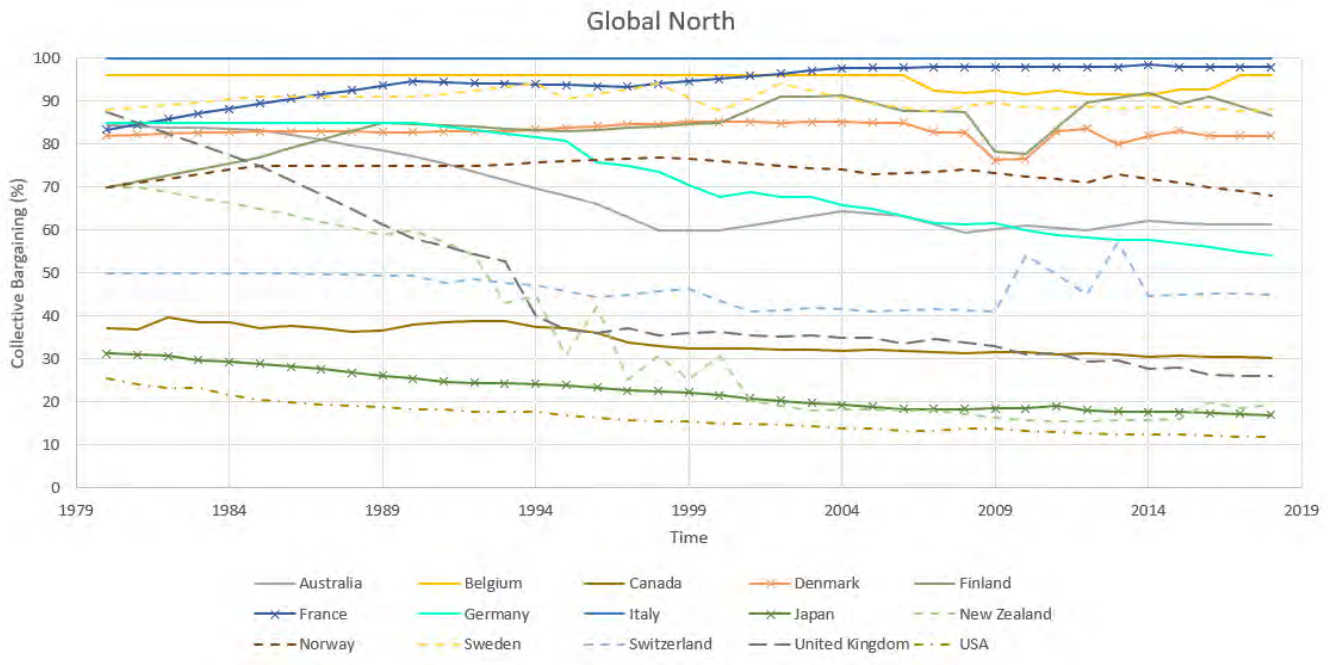
Appendix I: Interpolated Collective Bargaining Graphs

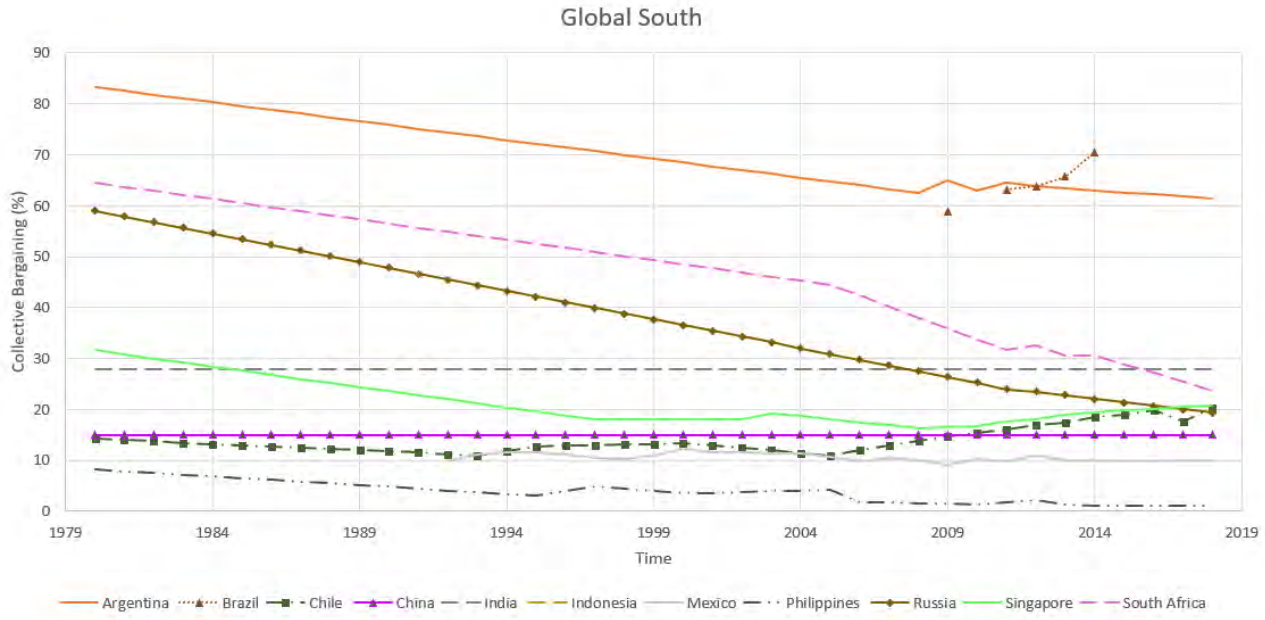
Collective Bargaining Interpolated Graphs

Collective Bargaining (interpolated) for the Global North



Source: OECD, OECD-AIAS and the ICTWSS

Collective Bargaining (interpolated) for the Global North



Source: OECD, OECD-AIAS and the ICTWSS

Appendix II: Panel Least Squares and Fixed Effects Models

Panel Least Squares, Wage Share Regression, 36 countries

NB: A full set of regression results is available from the supervisor on request.

Specification I

Dependent Variable: W_S
Method: Panel Least Squares
Date: 01/27/22 Time: 16:27
Sample: 1980 2018
Periods included: 39
Cross-sections included: 36
Total panel (balanced) observations: 1404

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.518031	0.003558	145.5920	0.0000
U_D	0.001066	0.000102	10.45943	0.0000

R-squared	0.072383	Mean dependent var	0.547455
Adjusted R-squared	0.071721	S.D. dependent var	0.084726
S.E. of regression	0.081632	Akaike info criterion	-2.171779
Sum squared resid	9.342513	Schwarz criterion	-2.164305
Log likelihood	1526.589	Hannan-Quinn criter.	-2.168986
F-statistic	109.3997	Durbin-Watson stat	0.030188
Prob(F-statistic)	0.000000		

Specification II

Dependent Variable: W_S
Method: Panel Least Squares
Date: 02/08/22 Time: 14:40
Sample: 1980 2018
Periods included: 39
Cross-sections included: 36
Total panel (balanced) observations: 1404

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.527557	0.006981	75.56626	0.0000
U_D	0.001065	0.000103	10.36446	0.0000
T_G	-0.000765	0.000147	-5.190788	0.0000
F_G	0.000405	0.000131	3.091733	0.0020

R-squared	0.089901	Mean dependent var	0.547455
Adjusted R-squared	0.087951	S.D. dependent var	0.084726
S.E. of regression	0.080915	Akaike info criterion	-2.187996
Sum squared resid	9.166081	Schwarz criterion	-2.173047
Log likelihood	1539.973	Hannan-Quinn criter.	-2.182408
F-statistic	46.09806	Durbin-Watson stat	0.030942
Prob(F-statistic)	0.000000		

Specification III

Dependent Variable: W_S
Method: Panel Least Squares
Date: 01/27/22 Time: 16:26
Sample: 1980 2018
Periods included: 39
Cross-sections included: 36
Total panel (balanced) observations: 1404

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.502501	0.003454	145.4968	0.0000
U_D	0.000392	0.000104	3.753923	0.0002
GDPPC	1.58E-06	1.04E-07	15.17486	0.0000

R-squared	0.203329	Mean dependent var	0.547455
Adjusted R-squared	0.202191	S.D. dependent var	0.084726
S.E. of regression	0.075678	Akaike info criterion	-2.322531
Sum squared resid	8.023693	Schwarz criterion	-2.311320
Log likelihood	1633.417	Hannan-Quinn criter.	-2.318341
F-statistic	178.7834	Durbin-Watson stat	0.036093
Prob(F-statistic)	0.000000		

Specification IV

Dependent Variable: W_S
Method: Panel Least Squares
Date: 02/09/22 Time: 19:47
Sample: 1980 2018
Periods included: 39
Cross-sections included: 36
Total panel (balanced) observations: 1404

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.593561	0.006230	95.27376	0.0000
T_G	-9.46E-05	0.000131	-0.719430	0.4720
F_G	-0.001796	0.000151	-11.93522	0.0000
GDPPC	2.93E-06	1.21E-07	24.14109	0.0000

R-squared	0.308095	Mean dependent var	0.547455
Adjusted R-squared	0.306613	S.D. dependent var	0.084726
S.E. of regression	0.070552	Akaike info criterion	-2.462101
Sum squared resid	6.968533	Schwarz criterion	-2.447152
Log likelihood	1732.395	Hannan-Quinn criter.	-2.456513
F-statistic	207.7999	Durbin-Watson stat	0.046217
Prob(F-statistic)	0.000000		

Specification V

Dependent Variable: W_S
Method: Panel Least Squares
Date: 01/27/22 Time: 16:18
Sample: 1980 2018
Periods included: 39
Cross-sections included: 36
Total panel (balanced) observations: 1404

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.589080	0.006746	87.32495	0.0000
U_D	0.000171	9.90E-05	1.725049	0.0847
GDPPC	2.83E-06	1.34E-07	21.09723	0.0000
T_G	-0.000117	0.000132	-0.886843	0.3753
F_G	-0.001747	0.000153	-11.41271	0.0000

R-squared	0.309564	Mean dependent var	0.547455
Adjusted R-squared	0.307590	S.D. dependent var	0.084726
S.E. of regression	0.070502	Akaike info criterion	-2.462801
Sum squared resid	6.953742	Schwarz criterion	-2.444115
Log likelihood	1733.886	Hannan-Quinn criter.	-2.455817
F-statistic	156.8139	Durbin-Watson stat	0.045917
Prob(F-statistic)	0.000000		

Specification VI

Dependent Variable: W_S
Method: Panel Least Squares
Date: 02/09/22 Time: 19:52
Sample: 1980 2018
Periods included: 39
Cross-sections included: 36
Total panel (balanced) observations: 1404

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.589004	0.006731	87.50882	0.0000
U_D	0.000119	0.000101	1.185382	0.2361
T_G	-0.000101	0.000132	-0.769026	0.4420
F_G	-0.001674	0.000155	-10.79458	0.0000
GDPPC	2.84E-06	1.34E-07	21.19255	0.0000
2007_2018	-0.011725	0.004345	-2.698746	0.0070

R-squared	0.313142	Mean dependent var	0.547455
Adjusted R-squared	0.310686	S.D. dependent var	0.084726
S.E. of regression	0.070344	Akaike info criterion	-2.466573
Sum squared resid	6.917702	Schwarz criterion	-2.444149
Log likelihood	1737.534	Hannan-Quinn criter.	-2.458192
F-statistic	127.4712	Durbin-Watson stat	0.046286
Prob(F-statistic)	0.000000		

Panel Least Squares, Wage Share Regression, 27 countries

NB: A full set of regression results is available from the supervisor on request.

Specification VII

Dependent Variable: W_S
Method: Panel Least Squares
Date: 02/08/22 Time: 02:06
Sample: 1980 2018
Periods included: 39
Cross-sections included: 27
Total panel (balanced) observations: 1053

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.511820	0.004731	108.1928	0.0000
U_D	3.84E-05	0.000121	0.316329	0.7518
C_B_D	0.000980	7.98E-05	12.28256	0.0000

R-squared	0.157087	Mean dependent var	0.560510
Adjusted R-squared	0.155482	S.D. dependent var	0.081902
S.E. of regression	0.075266	Akaike info criterion	-2.332736
Sum squared resid	5.948192	Schwarz criterion	-2.318607
Log likelihood	1231.186	Hannan-Quinn criter.	-2.327379
F-statistic	97.84039	Durbin-Watson stat	0.025907
Prob(F-statistic)	0.000000		

Specification VIII

Dependent Variable: W_S
Method: Panel Least Squares
Date: 02/08/22 Time: 02:19
Sample: 1980 2018
Periods included: 39
Cross-sections included: 27
Total panel (balanced) observations: 1053

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.522529	0.008155	64.07432	0.0000
U_D	6.63E-05	0.000126	0.525134	0.5996
C_B_D	0.000995	8.50E-05	11.70194	0.0000
F_G	-6.94E-06	0.000161	-0.043185	0.9656
T_G	-0.000276	0.000165	-1.672790	0.0947

R-squared	0.161500	Mean dependent var	0.560510
Adjusted R-squared	0.158299	S.D. dependent var	0.081902
S.E. of regression	0.075140	Akaike info criterion	-2.334186
Sum squared resid	5.917056	Schwarz criterion	-2.310637
Log likelihood	1233.949	Hannan-Quinn criter.	-2.325258
F-statistic	50.46264	Durbin-Watson stat	0.025421
Prob(F-statistic)	0.000000		

Specification IX

Dependent Variable: W_S
Method: Panel Least Squares
Date: 02/09/22 Time: 19:11
Sample: 1980 2018
Periods included: 39
Cross-sections included: 27
Total panel (balanced) observations: 1053

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.495420	0.004805	103.1020	0.0000
U_D	1.74E-05	0.000116	0.150220	0.8806
C_B_D	0.000624	8.41E-05	7.423711	0.0000
GDPPC	1.21E-06	1.20E-07	10.05685	0.0000

R-squared	0.231211	Mean dependent var	0.560510
Adjusted R-squared	0.229012	S.D. dependent var	0.081902
S.E. of regression	0.071915	Akaike info criterion	-2.422883
Sum squared resid	5.425124	Schwarz criterion	-2.404044
Log likelihood	1279.648	Hannan-Quinn criter.	-2.415741
F-statistic	105.1612	Durbin-Watson stat	0.028761
Prob(F-statistic)	0.000000		

Specification X

Dependent Variable: W_S
Method: Panel Least Squares
Date: 02/08/22 Time: 02:19
Sample: 1980 2018
Periods included: 39
Cross-sections included: 27
Total panel (balanced) observations: 1053

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.522529	0.008155	64.07432	0.0000
U_D	6.63E-05	0.000126	0.525134	0.5996
C_B_D	0.000995	8.50E-05	11.70194	0.0000
F_G	-6.94E-06	0.000161	-0.043185	0.9656
T_G	-0.000276	0.000165	-1.672790	0.0947

R-squared	0.161500	Mean dependent var	0.560510
Adjusted R-squared	0.158299	S.D. dependent var	0.081902
S.E. of regression	0.075140	Akaike info criterion	-2.334186
Sum squared resid	5.917056	Schwarz criterion	-2.310637
Log likelihood	1233.949	Hannan-Quinn criter.	-2.325258
F-statistic	50.46264	Durbin-Watson stat	0.025421
Prob(F-statistic)	0.000000		

Specification XI

Dependent Variable: W_S
Method: Panel Least Squares
Date: 02/09/22 Time: 18:50
Sample: 1980 2018
Periods included: 39
Cross-sections included: 27
Total panel (balanced) observations: 1053

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.565597	0.007956	71.08998	0.0000
U_D	-0.000205	0.000116	-1.768196	0.0773
C_B_D	0.000653	8.06E-05	8.093799	0.0000
F_G	-0.001501	0.000177	-8.468813	0.0000
T_G	5.31E-05	0.000152	0.350307	0.7262
GDPPC	2.20E-06	1.48E-07	14.89094	0.0000

R-squared	0.308046	Mean dependent var	0.560510
Adjusted R-squared	0.304742	S.D. dependent var	0.081902
S.E. of regression	0.068291	Akaike info criterion	-2.524382
Sum squared resid	4.882920	Schwarz criterion	-2.496123
Log likelihood	1335.087	Hannan-Quinn criter.	-2.513669
F-statistic	93.22131	Durbin-Watson stat	0.034853
Prob(F-statistic)	0.000000		

Panel Least Squares, Export Share Regression, 36 countries

NB: A full set of regression results is available from the supervisor on request.

Specification I

Dependent Variable: EX_S
Method: Panel Least Squares
Date: 02/08/22 Time: 14:30
Sample: 1980 2018
Periods included: 39
Cross-sections included: 36
Total panel (balanced) observations: 1404

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	60.36967	4.988531	12.10169	0.0000
W_S	-50.98384	9.005089	-5.661670	0.0000

R-squared	0.022352	Mean dependent var	32.45830
Adjusted R-squared	0.021655	S.D. dependent var	28.89279
S.E. of regression	28.57824	Akaike info criterion	9.544592
Sum squared resid	1145036.	Schwarz criterion	9.552066
Log likelihood	-6698.304	Hannan-Quinn criter.	9.547386
F-statistic	32.05450	Durbin-Watson stat	0.015325
Prob(F-statistic)	0.000000		

Specification II

Dependent Variable: EX_S
Method: Panel Least Squares
Date: 02/08/22 Time: 14:27
Sample: 1980 2018
Periods included: 39
Cross-sections included: 36
Total panel (balanced) observations: 1404

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	30.12450	1.257340	23.95891	0.0000
U_D	0.084570	0.036023	2.347662	0.0190

R-squared	0.003916	Mean dependent var	32.45830
Adjusted R-squared	0.003205	S.D. dependent var	28.89279
S.E. of regression	28.84645	Akaike info criterion	9.563274
Sum squared resid	1166629.	Schwarz criterion	9.570749
Log likelihood	-6711.419	Hannan-Quinn criter.	9.566068
F-statistic	5.511515	Durbin-Watson stat	0.015945
Prob(F-statistic)	0.019030		

Specification III

Dependent Variable: EX_S
Method: Panel Least Squares
Date: 02/08/22 Time: 14:35
Sample: 1980 2018
Periods included: 39
Cross-sections included: 36
Total panel (balanced) observations: 1404

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	61.80278	4.973665	12.42600	0.0000
U_D	0.149773	0.036851	4.064255	0.0001
W_S	-61.15130	9.298510	-6.576463	0.0000

R-squared	0.033745	Mean dependent var	32.45830
Adjusted R-squared	0.032365	S.D. dependent var	28.89279
S.E. of regression	28.42138	Akaike info criterion	9.534295
Sum squared resid	1131693.	Schwarz criterion	9.545507
Log likelihood	-6690.075	Hannan-Quinn criter.	9.538486
F-statistic	24.46373	Durbin-Watson stat	0.015609
Prob(F-statistic)	0.000000		

Specification IV

Dependent Variable: EX_S
Method: Panel Least Squares
Date: 02/09/22 Time: 19:58
Sample: 1980 2018
Periods included: 39
Cross-sections included: 36
Total panel (balanced) observations: 1404

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-24.28189	1.651979	-14.69867	0.0000
T_G	1.104314	0.034851	31.68697	0.0000
F_G	0.153689	0.039908	3.851062	0.0001
GDPPC	-1.41E-05	3.22E-05	-0.439058	0.6607

R-squared	0.581660	Mean dependent var	32.45830
Adjusted R-squared	0.580763	S.D. dependent var	28.89279
S.E. of regression	18.70765	Akaike info criterion	8.698587
Sum squared resid	489966.5	Schwarz criterion	8.713536
Log likelihood	-6102.408	Hannan-Quinn criter.	8.704174
F-statistic	648.8526	Durbin-Watson stat	0.057821
Prob(F-statistic)	0.000000		

Specification V

Dependent Variable: EX_S
Method: Panel Least Squares
Date: 02/08/22 Time: 14:36
Sample: 1980 2018
Periods included: 39
Cross-sections included: 36
Total panel (balanced) observations: 1404

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-5.024017	3.593745	-1.397989	0.1623
U_D	-0.004700	0.024348	-0.193040	0.8470
W_S	-34.74427	6.104689	-5.691407	0.0000
T_G	1.080933	0.033973	31.81701	0.0000
F_G	0.163972	0.030025	5.461269	0.0000

R-squared	0.591970	Mean dependent var	32.45830
Adjusted R-squared	0.590804	S.D. dependent var	28.89279
S.E. of regression	18.48227	Akaike info criterion	8.675056
Sum squared resid	477890.5	Schwarz criterion	8.693742
Log likelihood	-6084.889	Hannan-Quinn criter.	8.682040
F-statistic	507.4181	Durbin-Watson stat	0.058071
Prob(F-statistic)	0.000000		

Specification VI

Dependent Variable: EX_S
Method: Panel Least Squares
Date: 02/09/22 Time: 20:01
Sample: 1980 2018
Periods included: 39
Cross-sections included: 36
Total panel (balanced) observations: 1404

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.706035	4.472172	1.052293	0.2928
U_D	-0.037514	0.025876	-1.449756	0.1474
W_S	-47.17951	6.978587	-6.760610	0.0000
T_G	1.104793	0.034461	32.05969	0.0000
F_G	0.058130	0.041776	1.391459	0.1643
GDPPC	0.000146	4.02E-05	3.627042	0.0003

R-squared	0.595774	Mean dependent var	32.45830
Adjusted R-squared	0.594328	S.D. dependent var	28.89279
S.E. of regression	18.40250	Akaike info criterion	8.667114
Sum squared resid	473435.4	Schwarz criterion	8.689538
Log likelihood	-6078.314	Hannan-Quinn criter.	8.675495
F-statistic	412.0926	Durbin-Watson stat	0.059021
Prob(F-statistic)	0.000000		

Panel Least Squares, Export Share Regression, 27 countries

NB: A full set of regression results is available from the supervisor on request.

Specification VII

Dependent Variable: EX_S
Method: Panel Least Squares
Date: 02/08/22 Time: 15:22
Sample: 1980 2018
Periods included: 39
Cross-sections included: 27
Total panel (balanced) observations: 1053

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	35.85522	2.047654	17.51040	0.0000
U_D	0.046148	0.052513	0.878793	0.3797
C_B_D	-0.058906	0.034546	-1.705164	0.0885

R-squared	0.002773	Mean dependent var	34.55017
Adjusted R-squared	0.000873	S.D. dependent var	32.59307
S.E. of regression	32.57883	Akaike info criterion	9.808048
Sum squared resid	1114450.	Schwarz criterion	9.822177
Log likelihood	-5160.937	Hannan-Quinn criter.	9.813404
F-statistic	1.459725	Durbin-Watson stat	0.013526
Prob(F-statistic)	0.232771		

Specification VIII

Dependent Variable: EX_S
Method: Panel Least Squares
Date: 02/08/22 Time: 15:07
Sample: 1980 2018
Periods included: 39
Cross-sections included: 27
Total panel (balanced) observations: 1053

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	79.01620	7.003549	11.28231	0.0000
U_D	0.049385	0.051534	0.958290	0.3381
C_B_D	0.023759	0.036254	0.655343	0.5124
W_S	-84.32846	13.10834	-6.433193	0.0000

R-squared	0.040623	Mean dependent var	34.55017
Adjusted R-squared	0.037879	S.D. dependent var	32.59307
S.E. of regression	31.96981	Akaike info criterion	9.771253
Sum squared resid	1072150.	Schwarz criterion	9.790092
Log likelihood	-5140.565	Hannan-Quinn criter.	9.778395
F-statistic	14.80590	Durbin-Watson stat	0.012763
Prob(F-statistic)	0.000000		

Specification IX

Dependent Variable: EX_S
Method: Panel Least Squares
Date: 02/08/22 Time: 15:06
Sample: 1980 2018
Periods included: 39
Cross-sections included: 27
Total panel (balanced) observations: 1053

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	16.98073	4.516074	3.760065	0.0002
U_D	-0.096559	0.031528	-3.062657	0.0022
C_B_D	-0.060077	0.022577	-2.661021	0.0079
W_S	-59.39421	7.714062	-7.699473	0.0000
T_G	1.356576	0.041269	32.87181	0.0000
F_G	-0.024603	0.040142	-0.612911	0.5401

R-squared	0.670123	Mean dependent var	34.55017
Adjusted R-squared	0.668547	S.D. dependent var	32.59307
S.E. of regression	18.76445	Akaike info criterion	8.707487
Sum squared resid	368653.7	Schwarz criterion	8.735746
Log likelihood	-4578.492	Hannan-Quinn criter.	8.718201
F-statistic	425.3817	Durbin-Watson stat	0.066827
Prob(F-statistic)	0.000000		

Specification X

Dependent Variable: EX_S
Method: Panel Least Squares
Date: 02/09/22 Time: 17:52
Sample: 1980 2018
Periods included: 39
Cross-sections included: 27
Total panel (balanced) observations: 1053

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	27.42661	5.242483	5.231608	0.0000
U_D	-0.116777	0.031758	-3.677045	0.0002
C_B_D	-0.073175	0.022685	-3.225643	0.0013
W_S	-72.97871	8.436169	-8.650693	0.0000
T_G	1.378412	0.041389	33.30403	0.0000
F_G	-0.140815	0.050006	-2.815958	0.0050
GDPPC	0.000171	4.44E-05	3.851789	0.0001

R-squared	0.674736	Mean dependent var	34.55017
Adjusted R-squared	0.672871	S.D. dependent var	32.59307
S.E. of regression	18.64168	Akaike info criterion	8.695303
Sum squared resid	363497.9	Schwarz criterion	8.728271
Log likelihood	-4571.077	Hannan-Quinn criter.	8.707801
F-statistic	361.6420	Durbin-Watson stat	0.069045
Prob(F-statistic)	0.000000		

Fixed Effects Model, Wage Share Regression, 36 countries

NB: A full set of regression results is available from the supervisor on request.

Specification I

Dependent Variable: W_S
Method: Panel Least Squares
Date: 01/28/22 Time: 01:40
Sample: 1980 2018
Periods included: 39
Cross-sections included: 36
Total panel (balanced) observations: 1404

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.529497	0.003655	144.8844	0.0000
U_D	0.000651	0.000129	5.059526	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.855531	Mean dependent var	0.547455
Adjusted R-squared	0.851726	S.D. dependent var	0.084726
S.E. of regression	0.032625	Akaike info criterion	-3.981473
Sum squared resid	1.455027	Schwarz criterion	-3.843195
Log likelihood	2831.994	Hannan-Quinn criter.	-3.929789
F-statistic	224.8670	Durbin-Watson stat	0.192883
Prob(F-statistic)	0.000000		

Specification II

Dependent Variable: W_S
Method: Panel Least Squares
Date: 02/08/22 Time: 14:40
Sample: 1980 2018
Periods included: 39
Cross-sections included: 36
Total panel (balanced) observations: 1404

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.657037	0.007204	91.19970	0.0000
U_D	-0.000615	0.000131	-4.691936	0.0000
T_G	-0.000608	0.000102	-5.978105	0.0000
F_G	-0.001127	8.42E-05	-13.39380	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.887770	Mean dependent var	0.547455
Adjusted R-squared	0.884645	S.D. dependent var	0.084726
S.E. of regression	0.028776	Akaike info criterion	-4.231139
Sum squared resid	1.130330	Schwarz criterion	-4.085386
Log likelihood	3009.259	Hannan-Quinn criter.	-4.176661
F-statistic	284.1445	Durbin-Watson stat	0.253478
Prob(F-statistic)	0.000000		

Specification III

Dependent Variable: W_S
Method: Panel Least Squares
Date: 02/09/22 Time: 19:49
Sample: 1980 2018
Periods included: 39
Cross-sections included: 36
Total panel (balanced) observations: 1404

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.573331	0.006338	90.45492	0.0000
U_D	0.000152	0.000139	1.093428	0.2744
GDPPC	-1.39E-06	1.66E-07	-8.364945	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.862570	Mean dependent var	0.547455
Adjusted R-squared	0.858848	S.D. dependent var	0.084726
S.E. of regression	0.031832	Akaike info criterion	-4.030004
Sum squared resid	1.384126	Schwarz criterion	-3.887989
Log likelihood	2867.063	Hannan-Quinn criter.	-3.976923
F-statistic	231.7197	Durbin-Watson stat	0.198619
Prob(F-statistic)	0.000000		

Specification IV

Dependent Variable: W_S
Method: Panel Least Squares
Date: 02/08/22 Time: 00:57
Sample: 1980 2018
Periods included: 39
Cross-sections included: 36
Total panel (balanced) observations: 1404

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.628063	0.004288	146.4651	0.0000
T_G	-0.000598	0.000102	-5.852564	0.0000
F_G	-0.001124	9.51E-05	-11.81753	0.0000
GDPPC	5.25E-07	1.83E-07	2.868248	0.0042

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.886643	Mean dependent var	0.547455
Adjusted R-squared	0.883487	S.D. dependent var	0.084726
S.E. of regression	0.028920	Akaike info criterion	-4.221149
Sum squared resid	1.141678	Schwarz criterion	-4.075396
Log likelihood	3002.246	Hannan-Quinn criter.	-4.166671
F-statistic	280.9630	Durbin-Watson stat	0.252411
Prob(F-statistic)	0.000000		

Specification V

Dependent Variable: W_S
Method: Panel Least Squares
Date: 01/28/22 Time: 01:52
Sample: 1980 2018
Periods included: 39
Cross-sections included: 36
Total panel (balanced) observations: 1404

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.653862	0.007335	89.14630	0.0000
U_D	-0.000572	0.000132	-4.321317	0.0000
GDPPC	4.08E-07	1.84E-07	2.220249	0.0266
T_G	-0.000613	0.000102	-6.036608	0.0000
F_G	-0.001240	9.83E-05	-12.62263	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.888174	Mean dependent var	0.547455
Adjusted R-squared	0.884976	S.D. dependent var	0.084726
S.E. of regression	0.028735	Akaike info criterion	-4.233322
Sum squared resid	1.126259	Schwarz criterion	-4.083832
Log likelihood	3011.792	Hannan-Quinn criter.	-4.177447
F-statistic	277.7822	Durbin-Watson stat	0.258933
Prob(F-statistic)	0.000000		

Specification VI

Dependent Variable: W_S
Method: Panel Least Squares
Date: 02/09/22 Time: 19:52
Sample: 1980 2018
Periods included: 39
Cross-sections included: 36
Total panel (balanced) observations: 1404

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.652754	0.007401	88.20220	0.0000
U_D	-0.000603	0.000135	-4.458922	0.0000
T_G	-0.000594	0.000103	-5.758466	0.0000
F_G	-0.001233	9.84E-05	-12.52728	0.0000
GDPPC	4.74E-07	1.93E-07	2.454893	0.0142
2007_2018	-0.002348	0.002100	-1.118509	0.2635

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.888276	Mean dependent var	0.547455
Adjusted R-squared	0.884998	S.D. dependent var	0.084726
S.E. of regression	0.028732	Akaike info criterion	-4.232815
Sum squared resid	1.125226	Schwarz criterion	-4.079588
Log likelihood	3012.436	Hannan-Quinn criter.	-4.175543
F-statistic	270.9188	Durbin-Watson stat	0.259010
Prob(F-statistic)	0.000000		

Fixed Effects Model, Export Share Regression, 36 countries

NB: A full set of regression results is available from the supervisor on request.

Specification I

Dependent Variable: EX_S
Method: Panel Least Squares
Date: 02/08/22 Time: 14:28
Sample: 1980 2018
Periods included: 39
Cross-sections included: 36
Total panel (balanced) observations: 1404

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	38.82346	0.775476	50.06400	0.0000
U_D	-0.230655	0.027292	-8.451414	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.944064	Mean dependent var	32.45830
Adjusted R-squared	0.942591	S.D. dependent var	28.89279
S.E. of regression	6.922738	Akaike info criterion	6.733499
Sum squared resid	65512.51	Schwarz criterion	6.871777
Log likelihood	-4689.917	Hannan-Quinn criter.	6.785183
F-statistic	640.8850	Durbin-Watson stat	0.282578
Prob(F-statistic)	0.000000		

Specification II

Dependent Variable: EX_S
Method: Panel Least Squares
Date: 02/08/22 Time: 14:29
Sample: 1980 2018
Periods included: 39
Cross-sections included: 36
Total panel (balanced) observations: 1404

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	85.36150	2.859661	29.85022	0.0000
W_S	-96.63477	5.214377	-18.53237	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.952960	Mean dependent var	32.45830
Adjusted R-squared	0.951721	S.D. dependent var	28.89279
S.E. of regression	6.348435	Akaike info criterion	6.560293
Sum squared resid	55093.69	Schwarz criterion	6.698571
Log likelihood	-4568.326	Hannan-Quinn criter.	6.611977
F-statistic	769.2644	Durbin-Watson stat	0.324916
Prob(F-statistic)	0.000000		

Specification III

Dependent Variable: EX_S
Method: Panel Least Squares
Date: 02/08/22 Time: 14:35
Sample: 1980 2018
Periods included: 39
Cross-sections included: 36
Total panel (balanced) observations: 1404

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	87.43498	2.828506	30.91207	0.0000
U_D	-0.170911	0.024844	-6.879499	0.0000
W_S	-91.80699	5.175997	-17.73706	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.954535	Mean dependent var	32.45830
Adjusted R-squared	0.953304	S.D. dependent var	28.89279
S.E. of regression	6.243520	Akaike info criterion	6.527658
Sum squared resid	53248.79	Schwarz criterion	6.669673
Log likelihood	-4544.416	Hannan-Quinn criter.	6.580739
F-statistic	775.1183	Durbin-Watson stat	0.333900
Prob(F-statistic)	0.000000		

Specification IV

Dependent Variable: EX_S
Method: Panel Least Squares
Date: 02/09/22 Time: 19:58
Sample: 1980 2018
Periods included: 39
Cross-sections included: 36
Total panel (balanced) observations: 1404

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.380921	0.769840	9.587602	0.0000
T_G	0.426801	0.018347	23.26243	0.0000
F_G	0.044130	0.017074	2.584610	0.0099
GDPPC	0.000181	3.29E-05	5.514264	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.968583	Mean dependent var	32.45830
Adjusted R-squared	0.967708	S.D. dependent var	28.89279
S.E. of regression	5.192030	Akaike info criterion	6.159511
Sum squared resid	36796.54	Schwarz criterion	6.305263
Log likelihood	-4284.977	Hannan-Quinn criter.	6.213989
F-statistic	1107.428	Durbin-Watson stat	0.403814
Prob(F-statistic)	0.000000		

Specification V

Dependent Variable: EX_S
Method: Panel Least Squares
Date: 02/08/22 Time: 14:36
Sample: 1980 2018
Periods included: 39
Cross-sections included: 36
Total panel (balanced) observations: 1404

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	34.89708	3.389586	10.29538	0.0000
U_D	0.024099	0.023340	1.032497	0.3020
W_S	-44.51863	4.781447	-9.310702	0.0000
T_G	0.404164	0.018203	22.20270	0.0000
F_G	0.062893	0.015814	3.977020	0.0001

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.969905	Mean dependent var	32.45830
Adjusted R-squared	0.969044	S.D. dependent var	28.89279
S.E. of regression	5.083489	Akaike info criterion	6.117949
Sum squared resid	35248.29	Schwarz criterion	6.267438
Log likelihood	-4254.800	Hannan-Quinn criter.	6.173824
F-statistic	1127.139	Durbin-Watson stat	0.408074
Prob(F-statistic)	0.000000		

Specification VI

Dependent Variable: EX_S
Method: Panel Least Squares
Date: 02/09/22 Time: 20:00
Sample: 1980 2018
Periods included: 39
Cross-sections included: 36
Total panel (balanced) observations: 1404

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	34.47159	3.336937	10.33031	0.0000
U_D	0.045664	0.023198	1.968461	0.0492
W_S	-46.41427	4.714823	-9.844329	0.0000
T_G	0.400256	0.017927	22.32715	0.0000
F_G	0.001254	0.018081	0.069379	0.9447
GDPPC	0.000215	3.21E-05	6.700069	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.970864	Mean dependent var	32.45830
Adjusted R-squared	0.970009	S.D. dependent var	28.89279
S.E. of regression	5.003623	Akaike info criterion	6.086969
Sum squared resid	34124.39	Schwarz criterion	6.240196
Log likelihood	-4232.052	Hannan-Quinn criter.	6.144240
F-statistic	1135.445	Durbin-Watson stat	0.424050
Prob(F-statistic)	0.000000		

Appendix III: Additional Data Sources

Argentina: Collective bargaining 0% up to 1987, 70% for 1988-1990. Based on Lamarche (2015: 2) who reports that collective bargaining was suspended from 1976-1987 and estimates collective bargaining at 70% for the late 80s to early 90s.

Benin: Union density, 11% in 2019, 15% in 2009 (DTDA, 2021/2022a: ii); collective bargaining, 10% in 2012 (DTDA, 2021/2022a: 10).

Bolivia: Union density 12% in 2007. "[T]rade union density representing members paying dues of employees at 35%, or 12% among total employment." (DTDA,2021: 7). This is a rough estimate.

Brazil: 1986 union density figure deleted. The figure presented in Visser (2019) is an outlier and does not fit with what Cardoso (2002) reports (namely, that unionisation peaked in Brazil around 1990).

Egypt: Union density dwindled to 11% in 2019 from 23% in 2016 (DTDA. 2020/2021b). DTDA 2016 report UD as 23%. Union density estimated at 14% in 2000s based on Beinin's (2012: 4) estimate of 3.8 million members in official unions out of 27 million total employment.

Indonesia: Union density figures for 2001 and 2002 (33.69% and 24.15%) reported in Visser (2019) are outliers (more than twice any other figure for Indonesia). There is very little literature on labour in Indonesia, but there is no evidence of any exceptional spike in union membership in these years (see for example PSI, 2016). Therefore, these datapoints were deleted and replaced by interpolated values.

Kenya: Union density data for 2012, 2014, 2016-2019 (12%, 11%, 17%, 15%) reported in DTDA (2020). Union density data for 1985 and 2000 calculated from union membership data presented in UNTC-CS (No date, Table 2.3).

Mexico: Union density 26% in 1984 (Fairris, 2004: 11). Fairris's estimate for 2000 (17%) matches Visser's (16.73). Collective bargaining 1984 (18.3). Own estimate

based on 1984 Union density data and ratio of collective bargaining to union density in 2000.

South Africa: Collective bargaining: estimates for 1984, 1994 and 1995 based on historic ratio of collective bargaining to trade union density.

Tanzania: Union density 3.2% in 2019 (DTDA, 2021/2022b: 7); 1.96 in 2000 and 3.61 in 1995, calculated from union membership data presented in UNTC-CS (No date, Table 2.3).

Tanzania: Union density in 2019 3.2% (DTDA, 2021/2022b: 7). Union density for 1985 and 2000 (3.61%, 1.96%) calculated from union membership data presented in UNTC-CS (No date, Table 2.3) ()

Tunisia: Union density 15.8% in 2010 (Feltrin, 2019, Table 3).

Zambia: Union density in 2019 3.2% (DTDA, 2021/2022b: 7). Union density for 1985 and 2001 (13.4%, 5.9%) calculated from union membership data presented in UNTC-CS (No date, Table 2.3).

Zimbabwe: Union density in 2015 2.5% (DTDA, 2015: 6). Union density for 1995 and 2002 (5.7%, 3.0%) calculated from union membership data presented in UNTC-CS (No date, Table 2.3).

Appendix IV: Hausman Test for Collective Bargaining Sample

Fixed Effects (Collective Bargaining Sample)

	I	II	III	IV	V
INTERCEPT (C)	0.547081 [106.4574***] (0.005139)	0.661373 [86.12231***] (0.007679)	0.611555 [79.11297***] (0.007730)	0.661149 [82.84179****] (0.007981)	0.666944 [83.52219****] (0.007985)
U_D	0.000432 [3.552423***] (0.000122)	-0.000626 [-5.290259***] (0.000118)	-5.76E-05 [-0.465063] (0.000124)	-0.000625 [-5.267443***] (0.000119)	-0.000466 [-3.822639***] (0.000122)
C_B	-2.09E-05 [-0.195426] (0.000107)	-2.46E-05 [-0.267311] (9.19E-05)	-0.000145 [-1.422846] (0.000102)	-2.32E-05 [-0.249556] (9.29E-05)	-4.04E-05 [-0438926] (9.20E-05)
GDPPC	-	-	-1.48E-06 [-10.74542***] (1.38E-07)	1.67E-08 [0.103820] (1.61E-07)	2.66E-07 [-1.569996] (1.69E-07)
T_G	-	-0.000130 [-1.217919] (0.000107)	-	-0.000130 [-1.220975] (0.000107)	-0.000223 [-2.075276**] (0.000107)
F_G	-	-0.001162 [-15.24764***] (7.62E-05)	-	-0.001167 [-12.86289***] (9.07E-05)	-0.000223 [-0.001190***] (8.99E-05)
2007_2018	-	-	-	-	0.010438 [4.835631***] (0.002159)
R-squared	0.889194	0.918206	0.900432	0.918206	0.920040
Adjusted R-squared	0.886164	0.915805	0.897610	0.915723	0.917531
Log-likelihood	2299.497	2459.328	2355.802	2459.333	2471.267
F-statistic	293.4778***	382.4246***	319.0135***	369.7304***	366.7594***
Durbin-Watson stat	0.186691	0.256060	0.200038	0.256317	0.262970
Sample:	1980 2018	1980 2018	1980 2018	1980 2018	1980 2018
Periods included	39	39	39	39	39
Cross-sections included	27	27	27	27	27
Total panel (balanced) observation	1053	1053	1053	1053	1053

Fixed Effects (CB sample)

	I	II	III	IV
INTERCEPT (C)	42.23343 [31.96568***] (1.321212)	100.7503 [24.12806***] (4.175648)	45.59754 [9.486207***] (4.806720)	42.75841 [9.024919***] (4.737816)
W_S	-	-106.9620 [-14.63325***] (7.309516)	-58.89705 [-8.644154***] (-8.644154)	-59.03504 [-8.829747***] (6.685927)
U_D	-0.215776 [-6.907193***] (0.031239)	-0.169606 [-5.931140***] (0.028596)	0.011687 [0.447230] (0.026133)	0.022884 [0.890283] (0.025704)
C_B_D	-0.009627 [-0.350462] (0.0350462)	-0.011860 [-0.474568] (0.024991)	-0.004091 [-0.204387***] (0.020018)	0.013963 [0.703507] (0.019847)
GDPPC	-	-	-	0.000218 [6.352157***] (3.43E-05)
T_G	-	-	0.477448 [20.56464***] (0.023217)	0.470270 [20.61674***] (0.022810)
F_G	-	-	0.018538 [1.008308] (0.018385)	-0.048351 [-2.314633] (0.020889)
R-squared	0.953752	0.961757	0.975519	0.976451
Adjusted R-squared	0.952487	0.960673	0.974776	0.975712
Log-likelihood	-3544.076	-3444.011	-3209.417	-3188.731

F-statistic	754.1968	887.1370***	1312.417***	1321.666***
Durbin-Watson stat	0.289531	0.319554	0.432012	0.452482
Sample:	1980 2018	1980 2018	1980 2018	1980 2018
Periods included	39	39	39	39
Cross-sections included	27	27	27	27
Total panel (balanced) observation	1053	1053	1053	1053

Collective bargaining – Hausman Test

Wage Share

	Specification III		
Test Summary	Chi-Sq. (χ^2) Statistic	Chi-Sq. d.f	Prob.
Cross-section random	13.572320	4	0.0088

	Specification IV		
Test Summary	Chi-Sq. (χ^2) Statistic	Chi-Sq. d.f	Prob.
Cross-section random	18.861401	4	0.0020

Export Share

	Specification III		
Test Summary	Chi-Sq. (χ^2) Statistic	Chi-Sq. d.f	Prob.
Cross-section random	31.106766	5	0.0000

	Specification IV		
Test Summary	Chi-Sq. (χ^2) Statistic	Chi-Sq. d.f	Prob.
Cross-section random	30.246048	6	0.0000