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Karsten Kohler and Engelbert Stockhammer

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Growing differently? Financial cycles, austerity, and competitiveness in growth models since the Global Financial Crisis

Karsten Kohler* (karsten.kohler@kcl.ac.uk)

Engelbert Stockhammer* (engelbert.stockhammer@kcl.ac.uk)

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Abstract

The paper contributes to the recent growth models debate through a cross-country analysis of growth drivers before and after the 2008 Global Financial Crisis (GFC). It argues that the widely used dichotomy of export-led versus (debt-financed) consumption-led growth has lost its usefulness since the GFC. The common method to identify those growth models through growth contributions can give misleading results after the GFC that led to sustained changes in the drivers of economic growth. The paper contends that Comparative Political Economy (CPE) neglects the unstable nature of financial growth drivers, effectively ignores fiscal policy, and overemphasises price competitiveness as a growth driver. It shows empirically that, first, debt-financed growth is cyclical and financial booms come with busts and debt overhang; second, post-GFC growth dynamics are strongly shaped by the fiscal policy reaction; third, price competitiveness through wage deflation has played a negligible role in driving growth. We conclude that CPE needs to broaden its analysis of growth drivers in order to understand how the GFC transformed growth models.

Key words: growth models, comparative political economy, post-Keynesian macroeconomics

JEL classification: B52, O43, O47, O57

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*King's College London, Department of European and International Studies, Virginia Woolf Building, 22 Kingsway, London, WC2B 6NR, UK.

1 Introduction

Since the 2008 Global Financial Crisis (GFC), there has been a shift within Comparative Political Economy (CPE) from a focus on static institutional equilibria (in particular in the Varieties of Capitalism (VoC) approach) towards demand-oriented analyses of growth models (Baccaro & Pontusson, 2016; Hall, 2018; Hope & Soskice, 2016; Johnston & Regan, 2018; Schwartz & Tranøy, 2019). The period before the GFC has been characterised as one of two divergent growth models: a competitive export-led regime and a domestic demand-led regime, whose co-existence generated severe macroeconomic imbalances (Hall, 2018; Iversen et al., 2016; Johnston & Regan, 2016). Several authors pointed to the role of asset price inflation and private debt for consumption in the Anglo-liberal domestic demand-led regime (Crouch, 2009; Hay, 2009; Hay & Smith, 2013), and post-Keynesian macroeconomists highlighted the instability of the export-led and debt-led growth model in the form of rising export-dependence and financial fragility (Hein, 2013; Stockhammer, 2016).

We embrace the focus on aggregate demand put forth by the growth models approach but argue that the extant CPE literature has been unduly concerned with the classification of countries into export-led versus (debt-financed) consumption-led regimes. Part of the attractiveness of these concepts lies in their intuitive appeal: a genuinely export-led growth model is one where the dynamism of exports translates into high economic growth underpinned by a political coalition. Conversely, in the consumption-led growth model private consumption, typically financed by household debt, is considered the main driver of growth.[1] Methodologically, many authors use the growth contributions of net exports, private consumption, and sometimes investment and public consumption to identify growth models (Baccaro & Pontusson, 2016; Hall, 2018; Hein, 2019; Hein et al., 2020). These are then often combined with additional information, e.g. sectoral financial balances (Hein, 2019; Hein et al., 2020). In Baccaro and Pontusson (2016) this leads to distinction between export-led and consumption-led growth models, which Behringer & van Treeck (2019) and Hassel et al. (2020) expand on. Hein et al. (2020) qualify these two regimes further by differentiating between 'export-led mercantilist' and 'weakly export-led' growth models on the one hand, and 'domestic demand-led' and 'debt-led private demand boom' models on the other, where the latter is characterised by debt-financed consumption.

However, there is a danger that the typology of export-led and (debt-financed) consumption-led growth that was useful to describe the pre-2008 boom, hampers CPE's understanding of the growth experience after the GFC. We contend that the GFC

[1] We will use the terms 'consumption-led' and 'debt-led' interchangeably unless noted otherwise.

exacerbated inherent contradictions of the pre-crisis growth models that render the export-led/consumption-led dichotomy inappropriate for the post-GFC period. Consider the case of Spain and other previously debt-led growth models, where the GFC induced households to deleverage, while the government pursued austerity. The result is a sharp recession and then stagnation, which results in improved current account positions. Based on growth contributions, Spain could thus be classified as an export-led growth model in the post-crisis period (e.g. Hein et al. 2020 classify it as 'weakly export-led'). We question whether many countries adopted a genuinely export-led model after the GFC. Instead, we will argue that many formerly debt-financed consumption-led models underwent a debt- and austerity-driven depression, whereas most previously export-led models failed to generate sustained growth through exports.

As an alternative to growth contributions, our paper advances the notion of growth drivers, which are factors that are hypothesised to cause changes in the components of aggregate income. Viable growth models rely on a relatively stable set of growth drivers (as well as on political support); thus any analysis of growth models has implicit assumptions about the relevant growth drivers. Analyses of the pre-GFC period mostly considered price competitiveness and real wage growth as sources of export and consumption demand, respectively (Baccaro & Pontusson, 2016; Hall, 2014; Johnston & Regan, 2016). We contend that the current debate takes too narrow a view of what drives aggregate demand and fails to acknowledge how growth drivers change in response to global crises. Specifically, CPE and the growth models approach neglect the unstable nature of financial growth drivers, effectively ignore fiscal policy, and overemphasise price competitiveness as a growth driver.

The contribution of this paper is both theoretical and empirical. On the theoretical side, we provide an analysis of several growth drivers that have hitherto received less or incomplete attention in the growth models literature. Drawing mostly on debates in post-Keynesian economics (PKE), we thereby aim to broaden the theoretical foundations of growth models. Firstly, private demand prior to the GFC was boosted by asset price inflation in several countries (Crouch, 2009; Hay, 2009; Hay & Smith, 2013). More generally, the financialisation literature regards the increasing role of finance as a secular process in which many countries became more dependent on private debt (Fuller, 2015; van der Zwan, 2014). However, the US subprime crisis triggered a global bust of asset prices and household deleveraging. To understand this phenomenon, we integrate the Minskyan notion of financial cycles (Guttmann, 2016; Palley, 2011) into the growth models analysis. In this view, debt-led regimes will not only have periods of debt-financed growth, but also phases of debt-driven depression, where debt overhang and house price busts depress private spending. Secondly, public demand

management through fiscal policy has largely been absent from the growth models debate; arguably because there had been relatively little variation across countries prior to the GFC. However, countries differed strongly in their fiscal response to the GFC, so that fiscal policy potentially became a strong growth driver; especially since fiscal multipliers rise during recessions (Delong & Summers, 2012; Gechert & Rannenberg, 2018). While large parts of the political elite have advocated austerity even in a recession (backed by the notion of expansionary austerity, see Alesina and Perotti, 1997), Keynesians and political economists argue that austerity worsens recessions and has negative long-run effects (Blyth, 2013; Fontana and Sawyer, 2011; Truger, 2013). For the analysis of growth models, this means that fiscal policy has to be considered in its impact on growth. Thirdly, authors in CPE emphasise the role of price competitiveness and wage inflation for export demand (Baccaro & Pontusson, 2016; Hall, 2014; Johnston et al., 2014). After the GFC, many countries aimed to boost their export performance through wage deflation. However, from a structuralist post-Keynesian perspective, non-price competitiveness may be a more important source of export demand (Gräbner et al., 2020; Simonazzi et al., 2013; Storm & Naastepad, 2016). We examine how successful wage deflation has been compared to efforts to improve competitiveness through quality upgrading.

The empirical contribution of this paper shifts the attention away from a classification of growth models towards the drivers of growth. We conduct a cross-country analysis of macroeconomic growth drivers for 30 OECD countries before and in the decade after the GFC. We consider property prices, structural fiscal balances, real effective exchange rates, and export sophistication. Our empirical strategy is simple and comparative. We compare bivariate cross-country correlations of these potential growth drivers with national growth rates in the pre- and post-crisis period, which allows us to identify changes in growth drivers across countries. We also conduct a multivariate cross-country regression of growth drivers to assess their relative empirical support. To be clear, these correlations do not establish causality, but they provide useful insights into the relevance and temporal change of different factors highlighted in the theoretical literature; and a substantive correlation is a necessary, if not sufficient, condition for causality. Overall, our empirical results suggest that: (i) house prices are a strong but cyclical driver of growth and thus periodically turn debt-led growth into debt-driven stagnation; (ii) discretionary fiscal spending has become an important growth driver after the GFC; and (iii) price competitiveness has failed to stimulate growth through foreign demand.

We argue that the GFC has brought to the fore inherent economic and political contradictions of the export-led/consumption-led growth models, which has important

implications for CPE and International Political Economy. The export-led model relies on export demand from the consumption-led model, which broke away after the GFC. Left with excessive trade surpluses that no longer translate into high growth rates, the model faces international political tensions in the form of trade wars. The debt-financed consumption-led model is economically inherently unstable and suffers from additional political constraints during busts. House price deflation can feed populism and countries with political constraints on fiscal expansion will further be confronted with social discontent from austerity. Overall, we see the post-GFC as marked by the inherent contradictions of the export-led/consumption-led growth models out of which new growth models have not yet emerged.

The remainder of the paper is structured as follows. Section 2 discusses analytical shortcomings in CPE that impede an understanding of the post-crisis experience. It then introduces the role of finance, fiscal policy, and non-price competitiveness as drivers of growth. Section 3 gives an overview of growth performances before and in the decade after the GFC and illustrates that while there have been improving current account balances in many countries, this does not reflect genuine export-led growth. Section 4 examines the empirical relevance of different growth drivers in the pre- and post-GFC period. Section 5 concludes and discusses implications of our analysis of growth drivers for CPE and IPE.

2 Growth models and growth drivers in CPE

Our analysis builds on the growth models approach to CPE but argues that it suffers from theoretical and methodological shortcomings that impede an understanding of the post-GFC experience. We first provide our assessment of the existing literature and then present the ingredients for an extension of the analysis of economic growth.

Some analytical shortcomings in CPE

The VoC approach, which has been dominant in CPE until recently, is centred on the concept of competitiveness, which is the reference point for the viability of the different types of capitalism. The initial conception of competitiveness was a broad one, allowing for competitive pressure on labour markets in liberal market economies (LME), as well as a high road involving training and skill orientation for incremental innovation in coordinated market economies (CME). However, in analyses of the Eurozone crisis this narrowed down to price competition (Johnston et al., 2014; Hall, 2014; Iversen et al., 2016; Johnston and Regan, 2016). It was argued that CMEs were able to control wage

growth due to coordinated wage bargaining systems, whereas in (Mediterranean) Mixed Market Economies (MME) uncoordinated unions in the non-tradable sectors pushed up wages, which led to inflationary pressures that undermined price competitiveness. VoC's reference to competitiveness also led to a focus on corporate finance. Household lending and real estate booms have not featured in first generation VoC analyses, but since the crisis have been added as features of MME (Hall 2018) without a systematic theory of financial instability. Likewise, while debates around the use of fiscal policy in Europe are acknowledged, the role of fiscal policy as a source of demand is not theorised (Hall 2018).

Baccaro and Pontusson (2016) introduced the growth models perspective into CPE as an alternative to the supply-side focused VoC. The growth models approach builds on PKE's theory of income distribution as a source of demand formation. Methodologically, Baccaro and Pontusson (2016) used growth contributions, which indicate how much of the growth in aggregate income can be attributed to growth in net exports, consumption, and other income-components. Applying this perspective to Germany, Italy, Sweden and the United Kingdom, they argued that pre-crisis growth in Germany was driven by wage suppression in favour of export growth, while the United Kingdom boosted domestic demand through real wage growth and debt (but without an explicit analysis of finance). Sweden enjoyed more balanced growth, while Italy failed to stimulate aggregate demand. The growth models perspective is a promising one, as it allows for a greater consideration of dynamics and divergence compared to the earlier VoC approach. However, it shares VoC's strong focus on competitiveness. Especially price competitiveness through wage suppression has been identified as a major factor for European growth dynamics, but limited attention is paid to other drivers of demand, such as property price dynamics and fiscal policy.

The growth models approach to CPE was critically discussed and refined in several contributions (Behringer & van Treeck, 2019; Hall, 2018; Hassel et al., 2020; Hein et al., 2020; Hope & Soskice, 2016; Johnston & Regan, 2018). Hassel et al. (2020) offer an analysis of growth models ('growth regimes' in their terminology) that combines both components of demand as well as supply-side institutions. Hein et al. (2020) explicitly consider private borrowing and public spending and thereby overcome some of the blind spots mentioned above. They combine GDP-growth contributions of all income-components with an analysis of the financial balances of the private, public, and external sector. They distinguish 'export-led mercantilist' growth models with both current account surpluses and positive growth contributions of net exports, 'weakly export-led' models with only one of the two, 'debt-led private demand boom' models with strong growth contributions of consumption and private net borrowing, and

finally a 'domestic demand-led' model in which domestic demand is the key source of growth and households are net lenders. With respect to the post-2008 period, Hein et al. (2020, p.21) report a 'tendency towards export-led mercantilist or weakly export-led regimes, on the one hand, and ... domestic demand-led regimes stabilised by government deficits on the other hand'.

All these extensions build on the distinction between an export-led and a domestic demand-led growth model. We contend that this distinction is of limited use for an understanding of the post 2008 period. First, consider a country where households deleverage after a financial bust, and the government pursues austerity. The result is a collapse in domestic demand and an improving current account. The growth contribution of net exports will thus be positive, and the country may be classified as export-led. For example, Hein et al. (2020) classify 80% of their 30 countries as (mercantilist or weakly) export-led in the post-crisis period. We will question below that this a useful characterisation of that period. While the authors discuss that the improvement in current accounts may be largely due to a contraction in import demand, partly induced by austerity, their classification framework does not reflect this. Second, the use of growth contributions is not well equipped to deal with the cyclical nature of certain growth models. While many analyses allow for a debt-led growth model in which debt-financed consumption drives growth during the boom, the methodology is less suitable for identifying contractionary deleveraging in the financial bust.

In our view, the growth models approach would benefit from a broader consideration of growth *drivers* and their dynamics. To clarify terminology: *growth contributions* identify the most dynamic components of aggregate income (consumption, investment, government spending and net exports). *Growth models* can then be regarded as different institutional and political configurations that foster the dominance of either of these components. However, growth contributions as such say little as to why a certain component has grown. By contrast, *growth drivers* are distinct factors that are not themselves part of aggregate income but influence the growth of its components. Indeed, as discussed above, CPE does consider certain growth drivers, especially price competitiveness and wage growth as sources of export-led and consumption-led growth, respectively. However, not only has the set of growth drivers been relatively narrow, but there has also been limited attention to the question how growth drivers change over time. The implicit assumption seems to be that growth drivers are as stable as the institutional environment that make up a growth model.

We argue that an overemphasis in CPE on growth contributions and on a narrow set of growth drivers distracts from those drivers of aggregate demand whose changing

dynamics are critical for an understanding of the decade after the 2008 crisis. To broaden the analysis of growth drivers, we introduce several concepts from macroeconomics, especially PKE, into the growth models approach. According to PKE, capitalist economies are normally characterised by unemployment and excess capacities (Lavoie, 2014; Stockhammer, 2021). As a result, increases in expenditures stimulate economic production. The question then is what motivate different economic actors to spend. We highlight the role of (i) finance as a source of cyclical changes in private demand, (ii) discretionary fiscal policy as a source of public demand, and (iii) non-price competitiveness as a source of export demand.

Finance, financial cycles and private demand

In PKE, the private component of aggregate demand, i.e. consumption and investment, is strongly affected by finance. Asset price inflation, e.g. in real estate markets, has expansionary effects as it raises the wealth of households (Stockhammer & Wildauer, 2016) and stimulates construction. If households further use real estate as collateral to finance their expenditures through credit, property price bubbles are accompanied by rising household debt. It was argued that prior to the GFC, property price bubbles and rising household debt turned some countries into debt-led growth models, especially in southern Europe (Hein, 2013; Stockhammer et al., 2016). Similarly, CPE analyses of 'privatised Keynesianism' (Crouch, 2009) identified property price bubbles as key drivers of consumption demand that led to rising household debt; especially in the 'Anglo-liberal growth models' (Hay, 2009; Hay & Smith, 2013). Schwartz (2008) argued that housing institutions like homeownership rates, high levels of mortgage debt, easy access to mortgage refinancing, and securitisation determined whether the low interest rates prior to the GFC had notable growth-effects. In his view, the financialisation of households is expansionary only in countries with US-style housing markets. Recently, it was shown that financialised growth models are not confined to LMEs, but also appear in CMEs like Denmark, Sweden, and the Netherlands (Anderson & Kurzer, 2020), as well as Dependent Market Economies in eastern Europe, such as Hungary and the Baltics (Bohle, 2014, 2018).

We share the focus on finance as a driver of private demand. However, we argue that the existing literature has failed to acknowledge the cyclical nature of debt-led growth. Recent macroeconomic research examines financial cycles, which are periodic ups and downs in private credit and property prices. These cycles are longer than regular business cycles (on average over 16 years) and are much more volatile than fluctuations in output (Borio, 2014). The existence of such financial cycles accords well with the Minskyan branch of PKE, which argues that financial crises are the result of

endogenous cycles. During economic booms, actors successively adopt riskier financial positions to finance expenditures, so that financial fragility in the macroeconomy increases. Eventually, rising fragility drags down spending and thus aggregate demand; cash flows decline, and a contractionary deleveraging process sets in. While Minsky's (2016) original analyses focussed on corporate debt and stock prices, recent formal models extend his framework to household debt and property price cycles (e.g. Ryoo, 2016). There is also a more institutionalist Minskyan literature that argues that these cycles can assume the form of long waves, as financial innovation and deregulation allow for extended upswings (Guttmann, 2016, chap. 2; Palley, 2011). Accordingly, property price-driven growth episodes will be followed by sustained downturns that drag down private demand.

Fiscal policy, austerity and public demand

While there is a CPE literature on fiscal regimes and on the structure of welfare states (Haffert & Mertens, 2019; Martin, 2015), fiscal policy has received relatively little attention as a potential growth driver. Fiscal multipliers and government spending as an autonomous source of demand feature prominently in PKE but this has not informed growth models analyses. The importance of fiscal policy came to the fore in the post-crisis period, which was characterised by fierce debates about the effects of fiscal austerity. A prominent argument within mainstream economics claims negative effects of high public debt ratios on economic growth (Reinhart & Rogoff, 2010) and expansionary effects of fiscal consolidation (Alesina & Perotti, 1997). These ideas were highly influential in the US-American and European policy debate after the crisis and provided intellectual support for fiscal austerity after the 2008 crisis.

Political economists, post-Keynesians, as well as some New Keynesian mainstream economists have been highly critical of austerity. Blyth (2013) traces the historical and intellectual origins of austerity and presents several historical cases where austerity amplified downturns. From a Keynesian perspective, fiscal spending is expansionary through multiplier effects and can drive long-run growth as it constitutes an autonomous source of aggregate demand (Allain, 2015; Hein, 2018). A substantial amount of econometric research finds that fiscal multipliers are larger during recessions compared to normal times (e.g. Blanchard and Leigh, 2014; see Gechert and Rannenberg, 2018 for a meta-analysis). Delong and Summers (2012) argue that stronger output-effects of fiscal policy in a recession are due to the absence of supply constraints and contractionary monetary policy responses. Besides larger multiplier effects in the short run, fiscal policy in a recession may also have long-run effects on economic growth due to hysteresis (Delong & Summers, 2012; Fatás & Summers, 2018;

Gechert et al., 2019). Temporary falls in actual output can have permanent effects on potential output due to the deskilling of workforces and a decline in capital productivity. From this perspective, austerity in the post-crisis period worsened the recession and is likely to have permanently negative effects on growth (Fontana & Sawyer, 2011; Truger, 2013).

Non-price competitiveness and foreign demand

Besides price competitiveness through wage restraint, the quality and uniqueness of exports can be an important source of export demand. The relevance of such *non-price* competitiveness has been emphasised, among others, by structuralist post-Keynesian macroeconomists that theorise the role of (uneven) productive structures for growth performance (Gräbner et al., 2020; Simonazzi et al., 2013; Storm & Naastepad, 2016). They present evidence that the price elasticities of exports of major Eurozone countries are low and that net exports are mostly driven by domestic and foreign demand. In times where emerging markets increasingly dominate low-technology export markets, countries that are specialised in complex goods are more successful in securing their export market shares. Prior to the GFC, southern European countries were specialised in sectors with low productivity and little innovation potential. These sectors produce goods with a low income elasticity of export demand, whose export markets have therefore grown less rapidly than the markets for high-technology goods. Northern European countries, by contrast, managed to develop innovative sectors and thereby conquered the highest value-added segments of the export market. In this view, uneven development and industrial policies play a more prominent role that cost differentials.

This perspective has some similarity with earlier contributions in VoC on diversified quality production (Sorge & Streeck, 1988), but these have been side-lined by recent VoC analyses of the Eurozone crisis. In VoC, the institutional configuration of CMEs fosters incremental innovation through close links between technical universities and research systems, vocational training, and co-operative employer-employee relations that are conducive to investment in skills and high-value added production (Iversen et al., 2016; Hall, 2018). Recently, Vermeiren (2017) argues that especially for CMEs, non-price competitiveness in the production of quality-differentiated goods is important as these goods tend to be price-inelastic.

3 Growth before and after the GFC: domestic versus foreign components

We start our empirical analysis by a general assessment of economic growth and its domestic and foreign components before the GFC (between 2000 and 2007), and during and after the GFC (2008 to 2017). Our analysis posits that the 2008 GFC constitutes the key rupture in the global political economy during this period. The GFC was a truly global crisis in that it emanated from the financial centre USA and then hit countries around the globe within a short period of time. It led to a global recession in 2009 and triggered a reversal in growth and financial dynamics in many countries (as we will show below). By contrast, the subsequent 2010-12 Eurozone crisis was regionally confined and, more importantly, was a crisis in government bond markets that took place *against* the macroeconomic backdrop of the GFC. As Adam Tooze (2018, p. 156) put it in his seminal work on the GFC: 'It wasn't the sovereign debt crisis of 2010 that halted Europe's growth, it was the transatlantic banking crisis of 2008'. Accordingly, we divide our sample along the GFC. Notably, our 'post-GFC' period purposefully includes the GFC (and the Eurozone crisis), as we are interested in how the crisis affected growth drivers and growth performance.

Our aim is not to classify countries into growth models; instead, we are interested in how growth drivers have changed since 2008, how this has translated into cross-country differences in growth, and what this means for the growth models approach. Our sample of 30 high-income OECD countries includes the English-speaking Pacific, North America, and Europe (Australia, New Zealand; Canada, USA; Ireland, United Kingdom); the Nordic countries (Denmark, Finland, Iceland, Norway, Sweden); the Benelux countries (Belgium, the Netherlands, Luxembourg); the German-speaking countries (Austria, Germany, Switzerland); southern Europe (France, Greece, Italy, Portugal, Spain); the Visegrád eastern European countries (Czech Republic, Hungary, Poland, Slovakia) plus Slovenia; and the Baltics (Estonia, Latvia, Lithuania).

Table 1 reports key macroeconomic indicators for the pre-GFC (2000-2007) and the post-GFC period (2008-2017). The first column contains the average real gross national income (GNI) growth rate. GNI is defined as gross domestic product (GDP) plus net income received from abroad. GNI thus measures the final income that accrues to the households, corporations and the government of an economy (see also Behringer & van Treeck, 2019). For many countries, the difference between GNI and GDP is trivial; but there are a few exceptions. For example, Ireland and Luxembourg, but also Czech Republic and Poland host many large multinational corporations that distribute profits

to foreign owners, so that their GNI is smaller than their GDP.[2] In addition, many southern European countries faced significant external debt service costs in the post-crisis period, which is better accounted for by GNI than GDP.

[2] In the case of Ireland, a change in the residency of several large multinational corporations in 2015distorted the measurement of GDP, leading to a GDP growth rate of 26%. The national statistical office of Ireland now reports an adjusted figure that corrects for these distortions, but this is only available for GNI, which constitutes another motivation to use GNI in this paper (see Table A1 in the Appendix).

Table 1: Macroeconomic performance, 2000-2007 and 2008-2017

	(1)		(2)	(3)		(4)		(5)	
	Real GNI growth (%), average		Cyclical peak of real GNI, year	GNI growth contribution of current account (%), average		GNI growth contribution of domestic income (%), average		Current account (%GNI), average	
	2000-2007	2008-2017	2000-2017	2000-2007	2008-2017	2000-2007	2008-2017	2000-2007	2008-2017
AUS	3.14	2.85		-0.44	0.40	3.57	2.46	-5.53	-3.90
NZL	3.41	2.50		-0.40	0.36	3.81	2.13	-4.56	-3.46
CAN	3.07	1.64	2008	0.14	-0.41	2.93	2.05	1.75	-2.84
USA	2.78	1.52		-0.37	0.22	3.15	1.29	-4.69	-2.62
IRL	5.32	1.09	2007	-1.78	1.02	7.14	0.074	-2.91	-1.61
GBR	2.83	1.00	2007	-0.20	-0.021	3.03	1.02	-2.46	-4.11
DNK	2.10	0.93	2008	0.032	0.72	2.07	0.22	2.61	6.50
FIN	3.67	0.099	2008, 2011	-0.058	-0.41	3.72	0.51	6.12	-0.44
ISL	4.54	2.32	2007	-1.43	2.52	5.98	-0.20	-10.7	-3.35
NOR	2.50	1.56		1.22	-0.56	1.28	2.12	14.0	10.2
SWE	3.66	1.43	2007	0.72	-0.46	2.93	1.89	6.13	5.04
BEL	2.33	1.09	2008	-0.54	-0.023	3.09	1.11	2.69	0.53
NLD	2.10	0.92	2007, 2011	0.42	0.54	1.68	0.37	4.74	7.98
LUX	4.20	-1.29	2001, 2007	0.88	-0.39	3.32	-0.90	11.1	8.53
AUT	2.62	0.95	2008	0.81	-0.16	1.81	1.11	1.70	2.36
DEU	1.90	1.31	2001, 2008	1.09	0.20	0.80	1.10	2.85	6.78
CHE	1.84	1.58	2006, 2010	0.33	-0.15	1.51	1.73	11.1	8.90
FRA	2.15	0.83	2008	-0.44	-0.024	2.60	0.86	0.60	-0.85
GRC	3.60	-2.55	2007	-1.45	1.49	5.05	-4.04	-8.17	-5.68
ITA	1.52	-0.45	2007, 2011	-0.32	0.42	1.84	-0.87	-0.55	-0.21
PRT	1.18	0.054	2007	-0.27	1.09	1.45	-1.04	-9.66	-3.91
ESP	3.53	0.54	2008	-1.04	1.21	4.57	-0.67	-6.11	-1.35
CZE	3.91	1.57	2008	-0.50	0.67	4.41	0.90	-4.34	-0.92
HUN	3.63	1.38	2008	-0.19	1.10	3.82	0.28	-7.68	1.22
POL	3.79	3.28		-0.072	0.56	3.86	2.72	-4.19	-3.04
SVK	5.41	2.54	2008	-0.58	0.29	5.99	2.25	-5.52	-2.18
SVN	4.05	0.73	2011	-0.23	1.22	4.28	-0.49	-1.60	2.42
EST	7.19	1.22	2007	-2.34	1.89	9.53	-0.67	-11.2	0.19
LVA	8.27	0.34	2007	-2.59	2.16	10.9	-1.81	-11.2	-1.40
LTU	7.35	1.44	2008	-1.22	1.64	8.57	-0.20	-8.13	-1.42
Total	3.59	1.08		-0.36	0.57	3.95	0.51	-1.46	0.58

Data sources: World Bank, OECD, CSO Ireland; authors' calculations. See Appendix, Table A1, for further information on the sample and data construction.

Notes: GNI: gross national income. For Ireland, a modified GNI (total period) and modified current account (2008-2017) was used. The grey shaded cells indicate an improvement in the current account position compared to the pre-crisis period. Cyclical peaks in the natural logarithm of GNI were found by a simple algorithm that identifies a peak in a series y_t *in year* t *whenever* $(y_t - y_{t-1}) > 0 \,\&\, (y_t - y_{t-2}) > 0 \,\&\, (y_{t+1} - y_t) < 0 \,\&\, (y_{t+2} - y_t) < 0$ *. Growth contribution of current account were constructed as* $GRWTH^{CA}_{CONTR} = (CA_t - CA_{t-1})/GNI_{t-1}$ *and growth contribution of domestic income as* $GRWTH^{DI}_{CONTR} = GRWTH - GRWTH^{CA}_{CONTR}$.

The pre-GFC period was a phase of high but uneven income growth (3.6% on average). While some countries' growth performance was modest and stayed below 2% on average (Germany, Switzerland, Italy, Portugal), many countries grew between 2% and 4%, including southern Europe's Greece and Spain, as well as Poland, Czech Republic and Slovenia in eastern Europe. Exceptional economic booms took place in Iceland, Ireland, Slovakia and the Baltics, which grew on average by more than 4%. By contrast, the post-crisis period is characterised by a pervasive convergence on much more sluggish growth rates of around 1.1% on average. Again, there is some heterogeneity with some countries performing especially poorly as reflected in negative or stagnant growth (Greece, Luxembourg, Italy, Portugal). Overall, the period after the GFC is thus one of comparatively slow growth but with notable cross-country heterogeneity.

The second column of Table 1 reports turning points in national income to check whether the GFC was indeed the main break within our sample.[3] The results strongly support our periodisation: for the vast majority of countries, the years 2007-08 constitute the single peak in the period 2000-2017. The only exceptions are Finland, the Netherlands, and Italy, which experienced a second peak in 2011. For some countries, no peak is identified as there was no expansion followed by a contraction that was at least two years long. Switzerland and Slovenia are the only countries in the sample that exclusively exhibit peaks that do not coincide with the GFC (2006/2010 and 2011, respectively).

To relate our analysis to the existing growth models literature, columns 3 and 4 of Table 1 report the growth contributions of the current account and domestic income (consumption, investment, government spending) for the two periods.[4] On average, the current account growth contribution was negative in the pre-crisis period, reflecting the fact that many advanced countries worsened their current account positions during the pre-GFC boom. Exceptions are well-known export-led countries such as Norway, Sweden, Netherlands, Austria, Germany, and Switzerland. In the post-crisis period, the current account contribution becomes positive on average. Interestingly, many countries that had negative current account contributions prior to the crisis now exhibit positive ones. Countries in which this pattern is particularly pronounced are

[3] This is based on a simple algorithm which records a peak in a specific year whenever the (natural logarithm of) GNI underwent an expansion with respect to the previous two years and a contraction with respect to the two following years.

[4] In line with our use of GNI instead of GDP, we use the current account instead of the net export contribution.

Ireland, Spain, Greece, the Baltics, and Iceland, which were commonly classified as debt- (or consumption-)led prior to the GFC.

Finally, column 5 reports the current account to GNI ratio. The grey-shading indicates an improvement in the current account position compared to the pre-crisis period. More than two thirds of the countries in the sample improved their current account position after the GFC. Indeed, many countries that had large negative current account positions during the pre-crisis period substantially reduced these deficits, while surplus countries such as Austria, Denmark, Germany, and the Netherlands further increased their surpluses.

Taken at face value, these results may be interpreted as a shift towards export-led growth for most countries. Indeed, in Hein et al. (2020; Table 6) 24 out of 30 countries are classified as either 'export-led mercantilist' or 'weakly export-led'; only North America, New Zealand, France, and Finland are classified as domestic demand-led. However, a closer look casts doubt on this interpretation. First, column 4 of Table 1 shows that the domestic growth contribution has substantially increased not only for the English-speaking countries (except Ireland), but also for several countries previously known for their strong export-orientation; notably Norway, Sweden, Austria, Switzerland, and Germany. These countries continue to exhibit large current account surpluses, but in what sense are they still export-led?

Second, and more importantly, a decomposition of the growth contribution of the current account into imports and exports casts further doubt on the view that export-orientation has generally increased (Table 2). This exercise is especially interesting for the countries that substantially reduced their current account deficits in the post-crisis period, i.e. southern Europe (except France), the Baltics, Iceland, and Ireland. Within this group, Greece and Spain are extreme cases that achieved a highly unusual positive growth-contribution of imports due to a brutal reduction in imports. While not as extreme, the other countries also substantially slowed down the growth of their imports. The last column of Table 2 compares the relative size of the change in the growth contribution of exports and imports over the two periods. It turns out that for all countries except for Ireland,[5] the improvement in the import contribution dominates that of the export contribution. This stunning result suggests that the strong

[5] Brazys and Regan (2017) convincingly argue that the Irish recovery from the GFC had nothing to do with fiscal consolidation and structural reforms, but rather with a state-led enterprise policy that managed to attract FDI in high-tech computer and information services. This is likely to be the source of Irelands comparatively strong export performance.

improvement in the growth contribution of current accounts was largely driven by a reduction in import demand rather than an increase in exports.

Table 2: Growth contributions of exports and imports, 2000-2007 and 2008-2017

	GNI growth contribution of exports (%), average		GNI growth contribution of imports (%), average		$\Delta GRWTH^{EXP}_{CONTR} > \Delta GRWTH^{IMP}_{CONTR}$?
	2000-2007	2008-2017	2000-2007	2008-2017	
AUS	0.70	0.93	-1.28	-0.88	NO
NZL	1.14	0.79	-1.61	-1.05	NO
CAN	0.74	0.34	-1.49	-0.74	NO
USA	0.47	0.39	-0.79	-0.37	NO
IRL	8.80	12.9	-8.15	-9.07	YES
GBR	1.20	0.66	-1.43	-0.69	NO
DNK	2.47	1.26	-2.74	-0.99	NO
FIN	2.48	0.17	-2.32	-0.56	NO
ISL	2.21	2.89	-3.24	-0.70	NO
NOR	0.55	0.23	-1.46	-0.70	NO
SWE	2.51	0.93	-1.92	-1.17	NO
BEL	3.31	1.91	-3.00	-2.05	NO
NLD	3.28	2.60	-2.99	-2.05	NO
LUX	13.6	12.0	-10.5	-11.2	NO
AUT	3.11	1.23	-2.45	-1.21	NO
DEU	2.74	1.41	-1.74	-1.34	NO
CHE	2.43	1.61	-1.44	-1.37	NO
FRA	1.12	0.68	-1.33	-0.81	NO
GRC	1.23	0.25	-2.04	0.91	NO
ITA	1.06	0.35	-1.11	-0.10	NO
PRT	1.40	1.53	-1.21	-0.89	NO
ESP	1.25	0.96	-2.11	0.19	NO
CZE	6.60	4.02	-6.27	-3.23	NO
HUN	7.57	4.14	-7.24	-3.09	NO
POL	3.33	2.93	-3.09	-2.32	NO
SVK	8.78	4.14	-8.91	-3.25	NO
SVN	5.58	2.80	-5.21	-1.52	NO
EST	5.63	3.29	-7.70	-2.16	NO
LVA	4.31	2.53	-6.90	-0.58	NO
LTU	5.45	4.31	-6.74	-3.03	NO
Total	3.50	2.47	-3.61	-1.87	NO

Data sources: World Bank, OECD, CSO Ireland; authors' calculations. See Appendix, Table A1.
Notes: GNI: gross national income. Growth contribution of exports and imports are constructed as $GRWTH^{EXP}_{CONTR} = (EXP_t - EXP_{t-1})/GNI_{t-1}$ *and* $GRWTH^{IMP}_{CONTR} = -(IMP_t - IMP_{t-1})/GNI_{t-1}$. $\Delta GRWTH_{CONTR}$ *denotes the change in the growth contribution between the two periods.*

In our view, the combination of a widespread improvement in the current account position with a general slowdown in economic growth reflects the internal and external contradictions of the export-led and the debt-led pre-crisis growth models rather than a general shift towards export-led growth. Internally, while many deficit-countries sought to boost their net exports, current accounts were improved by slashing imports in the wake of weak aggregate demand. We will show that this contraction in aggregate demand is especially relevant in those countries that underwent debt-led booms in the pre-crisis period. While export growth also contributed to a rebalancing of deficit-countries, it is generally less important for growth than the contraction in import demand. Externally, the contraction in debt-led countries manifested itself in falling export demand in the previously export-led countries. As a result, domestic demand components gained importance; despite the fact that these countries still exhibit substantial surpluses. Overall, our results thus question the usefulness of the dichotomy of export-led and debt-led growth for the post-crisis experience.

We will discuss the implications of our assessment of the post-GFC period for the growth models debate in section 5. In the next section, we go beyond a decomposition of growth rates and examine potential growth drivers and how they have changed across the two periods.

4 Growth drivers before and after the GFC: finance, fiscal policy, and competitiveness

To assess the role of finance, fiscal policy, and competitiveness for growth, we examine the association of proxies for these growth drivers with economic growth in the pre- and post-GFC period (see Table 3).[6] We utilise scatterplots which (i) allow for a cross-country comparison, (ii) reveal changes in growth drivers between the two periods, and (iii) indicate how, and how strongly, these drivers are linked to growth. We also examine their effects with a multivariate regression.

Table 3: Overview of key growth drivers

	Finance	Fiscal policy	Competitiveness	
Aggregate demand-component	Private: consumption, (residential) investment	Public: government spending and taxation	Foreign: net exports	
Key growth drivers and their proxies	Property prices, household debt	Structural fiscal balance	Price competitiveness: Nominal unit labour costs	Non-price competitiveness: Measure of export sophistication

4.1 Finance: debt-led growth and financial cycles

To capture sources of finance-driven private demand, we use the growth rate of real house prices, which is expected to stimulate consumption and residential investment through wealth effects and capital gains. We also examine the change in household debt-to-income ratios. The pre-crisis period is characterised by a strong increase in house prices and household debt, especially in English-speaking countries such as Ireland, Australia, and the UK; southern European countries like Spain; the Baltics, but also Denmark and Norway. In these countries, both house prices and household debt grew by 50% or more between 2000 and 2007. These figures are in line with a rich CPE literature on the financialisation of households prior to the crisis (see, e.g., Bohle 2013, 2018 on Hungary and the Baltics; Hay & Smith 2013 on the UK and Ireland; and Anderson & Kurzer 2020 on Denmark, Sweden, and the Netherlands). Fuller (2015) documents that liberal housing institutions such as widespread

[6] The corresponding data can be found in the Appendix (Tables A2-A4).

homeownership, loan-to-value ratios, mortgage subsidies and the size of secondary markets for securitised loans fostered the increase in private debt in these countries.

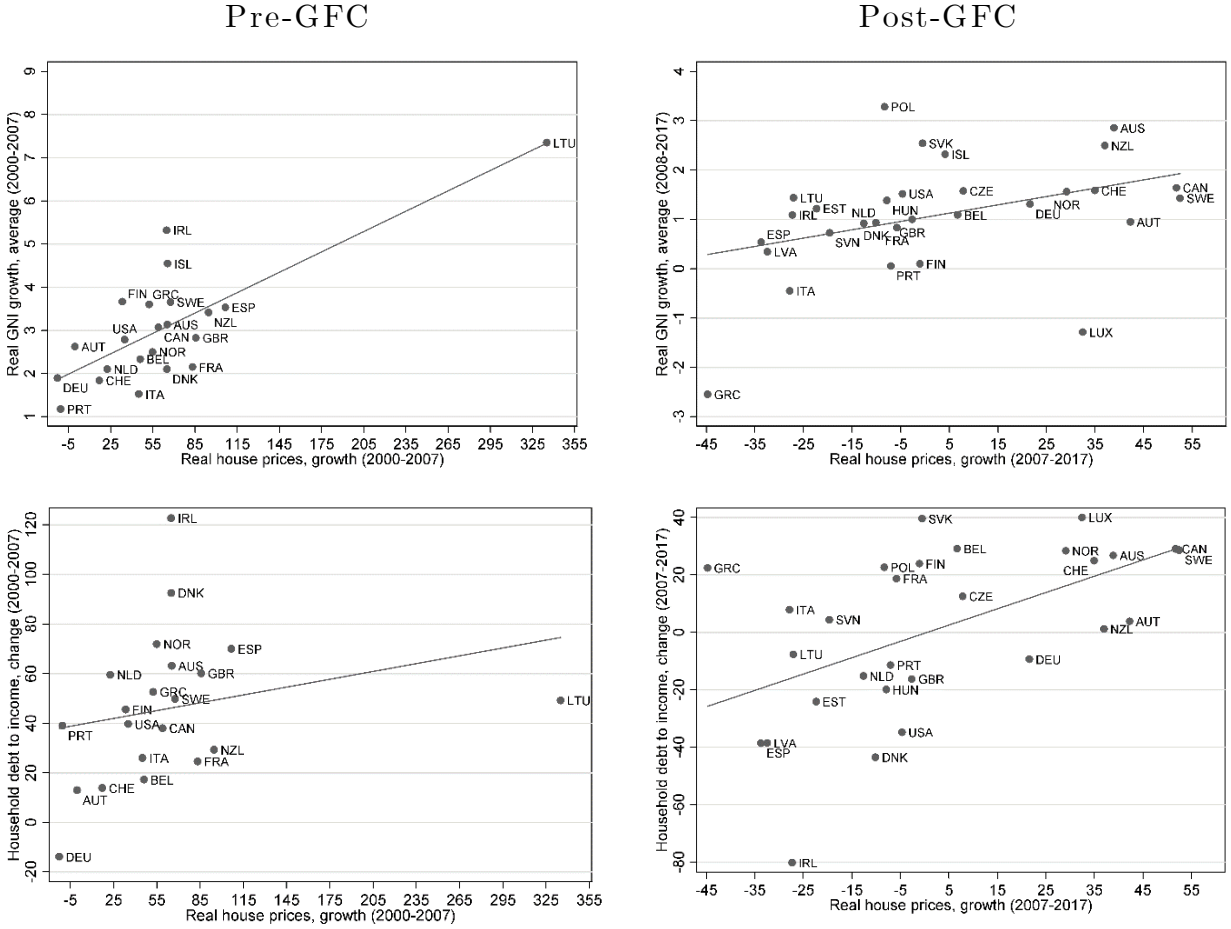
The scatter plots in the left column of Figure 1 demonstrate a positive link between property price inflation and growth on the one hand, and between household debt and house prices on the other. Notably, the link between house prices and growth is fairly tight and statistically significant (and does not hinge on the extreme case of Lithuania).[7] The fit of the regression line is comparatively good ($R^2 = 0.62$), suggesting that growth-effects of house prices are in principle not limited to countries with liberal housing institutions. However, our scatterplots reveal that it was predominantly countries with liberal housing institutions discussed in CPE, in which strong house price inflation was economically significant in the pre-crisis period.

The GFC came with a dramatic reversal in housing dynamics in many countries.[8] Overall, it is a period of falling real estate prices and household deleveraging. The countries that previously experienced booms, i.e. Ireland, Denmark, Spain, the Baltics, the US and the UK, are now going through severe busts. A few countries undergo rising household debt ratios (notably Luxembourg and Slovakia) and experience some house price inflation (e.g. Sweden, Canada, and Austria), but the magnitudes are nowhere near the pre-crisis period. The second column of Figure 1 shows that the link between house prices and growth is still statistically significant in the post-GFC period: countries that underwent housing busts (e.g. Greece, Italy, Latvia, Spain) performed poorly, whereas output in countries with strong house price growth grew comparatively fast (e.g. Canada and Sweden).

[7] When dropping Lithuania from the sample, the estimated slope coefficient in the upper-left panel remains statistically significant at the 5% level and the slope coefficient in the lower-left panel, in fact, becomes statistically significant (see note below Figure 1 for details).

[8] This is confirmed by a formal turning point analysis of house prices (see Table A2 in the Appendix).

Figure 1: House prices and GNI growth (upper panel), house prices and household debt (lower panel); before and after 2008



Data sources: OECD, BIS; authors' calculations. See Appendix, Table A1, for data definitions and data restrictions.

Notes: Regression lines (p-values in parentheses) for

upper left panel:

$$GRWTH = 2.068 + 0.016HPR,\ R^2 = 0.62$$
$$(0.00)\quad (0.00)$$

upper right panel:

$$GRWTH = 1.045 + 0.017HPR, R^2 = 0.15$$
$$(0.00)\quad (0.032)$$

lower left panel:

$$HHD = 39.306 + 0.105HPR, R^2 = 0.06$$
$$(0.00)\quad (0.279)$$

lower right panel:

$$HHD = -0.336 + 0.567HPR, R^2 = 0.29$$
$$(0.944)\quad (0.003)$$

When dropping LTU, the regression line in the upper left panel becomes:

$$GRWTH = 2.074 + 0.016HPR, R^2 = 0.26$$
$$(0.00)\quad (0.019)$$

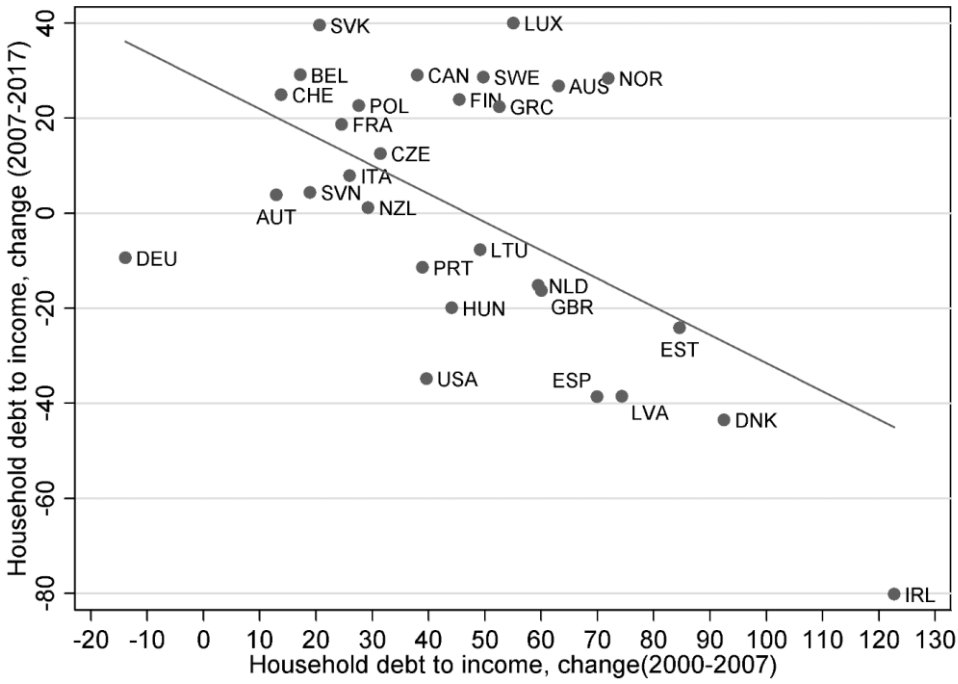
the regression line in the lower left panel becomes:

$$HHD = 23.835 + 0.449HPR, R^2 = 0.24$$
$$(0.045)\quad (0.029)$$

The dynamics of household debt in the post-crisis period are again positively correlated with house prices and the relationship is now statistically significant. Most countries that experienced a fall in house prices also underwent household deleveraging, especially Ireland (-80.2%-pts), Spain (-38.6%-pts), and Latvia (-38.5%-pts).

In our view, the changing dynamics of housing and finance between the pre- and the post-GFC period are an expression of the financial cycle (Borio, 2014; Guttmann, 2016; Palley, 2011). Those countries that experienced a surge in household debt prior to 2008, underwent strong household deleveraging during the post-GFC period (Figure 2). By the same token, countries that avoided surging household debt in the pre-crisis period either exhibit more stable household debt ratios in the post-crisis period or continue on a modest household debt growth path. Interestingly, these are often countries with more regulated housing markets like Austria, Germany, Italy and Slovenia (Fuller, 2015; Schwartz, 2008).

Figure 2: The financial cycle: change in household debt before and after 2008



Data sources: OECD, BIS; authors' calculations. See Appendix, Table A1.

Notes: Regression line (p-values in parentheses):

$$HHD_{post} = \underset{(0.004)}{27.845} - \underset{(0.001)}{0.594} HHD_{pre}, R^2 = 0.32$$

In sum, our results show that growth dynamics are strongly related to the financial cycle, both in the pre- and post-crisis period. Those countries that underwent a house price bust after the GFC experienced a stronger reduction in growth, especially some southern European and English-speaking countries, as well as the Baltics.

4.2 Fiscal policy: short expansion, sustained austerity

To capture fiscal policy as a driver of public demand, we use the cyclically adjusted primary fiscal balance (i.e. before interest payments) to potential output, also known as the structural fiscal balance. Unlike the financial balance of the public sector considered in Hein et al. (2020), the 'cyclically adjusted' balance is adjusted for those types of fiscal expenditures and revenues that are sensitive to the business cycle, e.g. income taxes and unemployment benefits (the so-called automatic stabilisers). It is a widely used measure that aims to capture that component of the fiscal balance that is due to discretionary fiscal policy actions. It is normalised by potential output in order

to avoid distortions stemming from cyclical changes in the denominator. A potential weakness of this measure is that it relies on an estimation of potential output, which is defined as the maximum output that is compatible with a stable inflation rate, i.e. it incorporates contested concepts like the NAIRU (Non-Accelerating Inflation Rate of Unemployment). In the past years it may understate potential output substantially.[9] The structural fiscal balance is a commonly used measure of the fiscal stance, both in the EU's fiscal surveillance framework and in recent growth model studies (Behringer & van Treeck, 2019). Despite its shortcomings, for our purpose of cross-country comparison we consider the structural fiscal balance a reasonable measure.

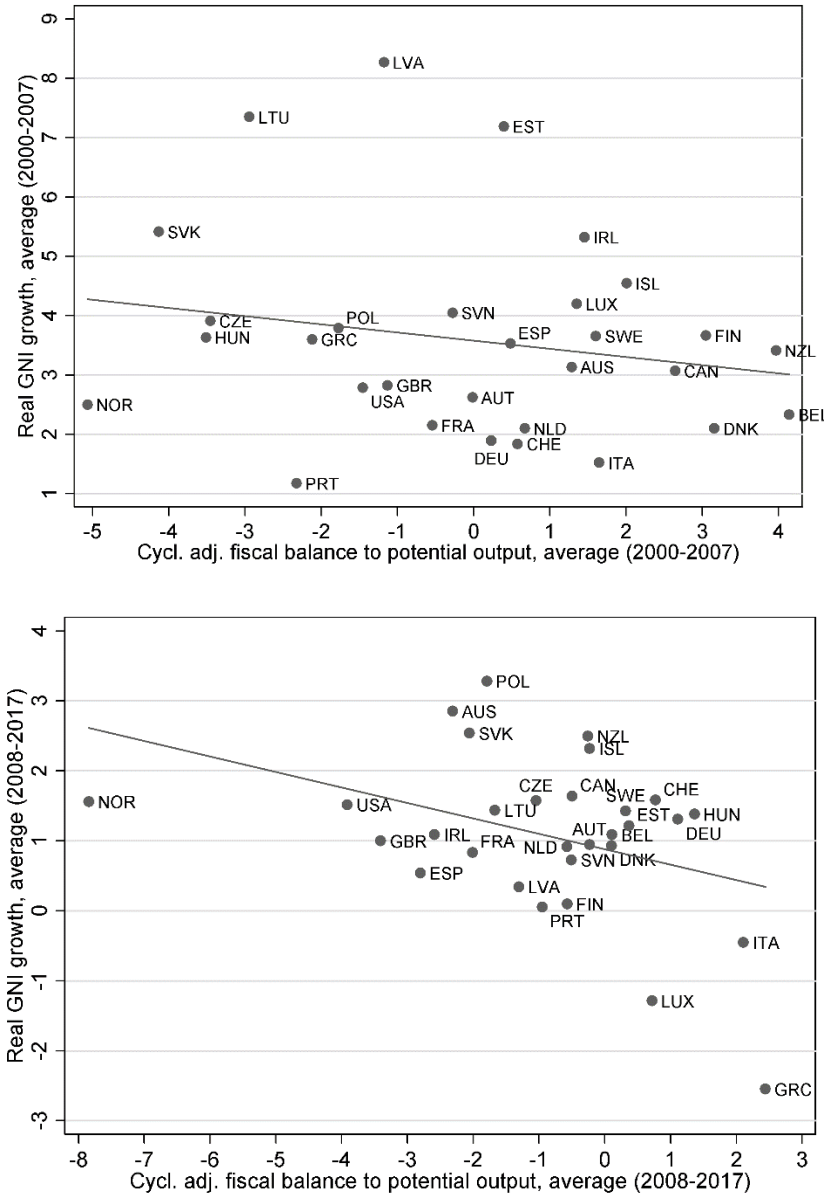
The period prior to the GFC yields a heterogeneous picture: expansionary fiscal policy can be observed in many eastern European countries (especially Slovakia, Hungary, Czech Republic, Lithuania), but also in Norway. By contrast, the Benelux countries, many Nordic countries (Denmark, Finland, Iceland, Sweden) and southern Europe's Italy and Spain ran structural surpluses. Indeed, it is well-known that not all countries that were affected by sovereign debt problems after the GFC were previously running fiscal deficits. The upper panel of Figure 3 displays a theoretically expected negative, but statistically insignificant link between budget balances and growth for the pre-crisis period. During the GFC, almost all countries responded with a strong initial fiscal expansion. Many countries then embarked on gradual fiscal consolidation from 2010 onwards by gradually raising their fiscal balances (see Figure A1 in the Appendix). Indeed, the period is known for the harsh austerity that was attached with official financial assistance of the troika in Ireland, Greece, Spain, and Portugal (Perez & Matsaganis, 2018) despite the fact that these countries were in a recession. Fiscal retrenchment also took place under the Coalition government in the UK (Lavery, 2018) but this was during a period of weak recovery.

For the relationship between discretionary fiscal policy and economic growth, the structural fiscal balance over the whole post-crisis period matters. After all, according to the Keynesian theories discussed in section 2, fiscal stimulus during recessions is expected to have sustained positive effects on growth. The lower panel of Figure 3 shows that in absolute terms, structural fiscal expansion was especially strong in the English-speaking countries (USA, UK, Ireland, Australia), but also Norway and Spain. By contrast, some countries overall engaged in severe fiscal contraction; above all Greece and Italy, but also Hungary, Germany, Switzerland and Luxembourg. Notably, the fitted line suggests that the link between economic growth and public demand has become tighter in the post-crisis period, as reflected in a steeper slope that becomes

[9] As inflation has been consistently low and relatively stable since 2008 this may be interpreted as actual output being close to potential output.

statistically significant at the 5% level. This result is consistent with higher fiscal multipliers during recessions and negative hysteresis effects (Fatás & Summers, 2018; Gechert et al., 2019). Hysteresis through a deskilling of the workforce and falling productivity can translate multiplier effects into permanently negative effects of growth.

Figure 3: Cyclically adjusted fiscal balance (to potential output) and GNI growth, 2000-2007 and 2008-2017



Data source: IMF; authors' calculations. See Appendix, Table A1.

Notes: Regression lines (p-values in parentheses) for:

upper panel:

$$GRWTH = 3.580 - 0.138FISBAL, R^2 = 0.04$$
$$(0.00) \quad (0.303)$$

lower panel:

$$GRWTH = 0.881 - 0.221FISBAL, R^2 = 0.15$$
$$(0.000) \quad (0.037)$$

Indeed, it is precisely those countries that enacted vigorous austerity policies to attain a positive structural balance (e.g. Greece: 2.4%; Italy: 2.1%, Luxembourg: 0.72%) that are at the bottom of the post-crisis growth performances. Austerity after the Great Recession was thus indeed highly counterproductive (Blyth, 2013). By contrast, countries that enacted a more intense initial fiscal expansion, such as the United States (-3.91%) and the United Kingdom (-3.41%), display markedly better growth rates. Stockhammer et al. (2019) arrive at similar results using estimated fiscal multipliers and the fiscal stance of the USA, UK, Germany and the southern European countries, showing that fiscal policy explains a substantial part of the differences in growth performance.

4.3 Competitiveness: labour costs versus export sophistication

We finally consider competitiveness as a driver of foreign demand. Our proxy for price competitiveness is the real effective exchange rate based on unit labour cost in manufacturing ($\text{REER}_{\text{MANUF}}$). The effective exchange rate is a trade-weighted average over a basket of exchange rates. It is deflated by the domestic relative to foreign unit labour costs in manufacturing. This proxy thus captures changes in the relative price competitiveness of an economy as determined by excess nominal wage growth over productivity growth in the manufacturing sector. Given that manufactured goods make up 87.4% of all exports of the median country in our sample (88.5% in the pre-crisis and 86.3% in the post-crisis period)[10], we consider this to be a good proxy for the price competitiveness of exports, but we note that it does not account for service exports.[11]

In line with VoC analyses (Johnston et al., 2014; Hall, 2014; Iversen et al., 2016; Johnston and Regan, 2016), the pre-GFC period came with a worsening of price competitiveness for many countries, especially in southern Europe (e.g. Greece +23.6% and Spain +19.4%). However, in Figure 4, upper panel, the fitted line between the growth rate of $\text{REER}_{\text{MANUF}}$ and GNI growth has a statistically insignificant *positive* slope. Thus, there is little evidence that a worsening of price competitiveness was a drag on growth.

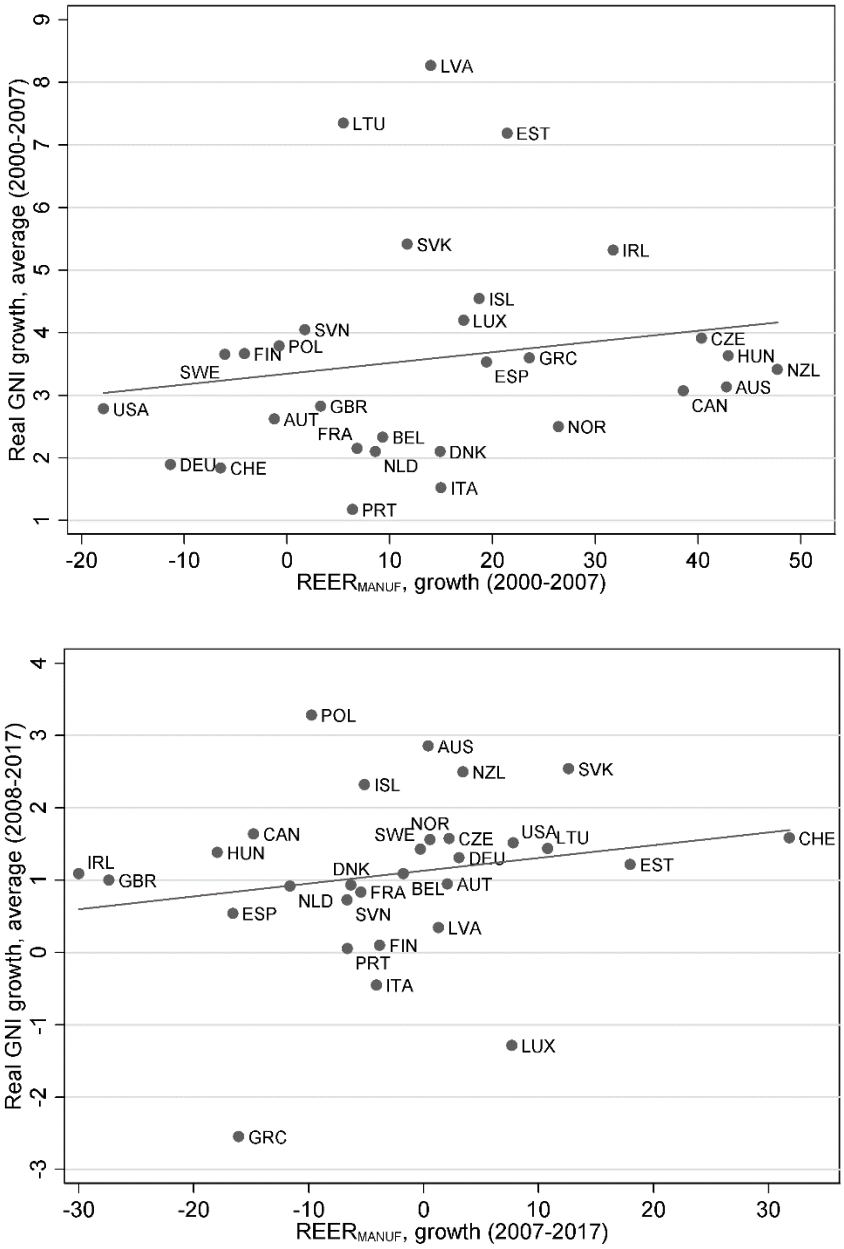
For many countries, the post-crisis period came with a reversal of $\text{REER}_{\text{MANUF}}$ dynamics. Many countries underwent a real depreciation in manufacturing; the UK, Ireland, Hungary, Spain and Greece by more than -15%. For the latter four, this is undoubtedly due to heavy structural reforms in the context of official financial

[10] Own calculations based on World Bank's TCdata360 database

[11] We checked the robustness of our results by using the aggregate real effective exchange instead, but this makes little difference.

assistance (Perez & Matsaganis, 2019). However, the fitted line in the lower panel of Figure 4 again exhibits a positive but statistically insignificant coefficient. The reason for this phenomenon is that many countries that did improve their relative price competitiveness after the crisis, simply did not enjoy higher growth rates. Overall, this casts doubt on the importance of price competitiveness as a key driver of growth.

Figure 4: Growth of real effective exchange rate in manufacturing ($\text{REER}_{\text{MANUF}}$) and average GNI growth rate, before and after 2008



Data source: OECD; authors' calculations; See Appendix, Table A1.

Notes: Regression lines (p-values in parentheses) for:

upper panel:

$$GRWTH = 3.345 + 0.017 REER_{MANUF},\ R^2 = 0.03$$
$$(0.00)\ \ (0.361)$$

lower panel:

$$GRWTH = 1.130 + 0.018 REER_{MANUF},\ R^2 = 0.04$$
$$(0.00)\ \ (0.306)$$

As a measure of non-price competitiveness, we use the average economic complexity index (ECI). The ECI is based on disaggregated data on trade in products and captures two dimensions: the diversity of a country's exported products (the number of distinct products it exports)[12] and their ubiquity (the total number of countries that export these products) (Hidalgo & Hausmann, 2009). A country that exports a diverse range of products that few other countries can produce will get a high ECI score. It is thus quality, not price that determines ECI scores. Hausmann et al. (2007) show that the complexity of exports is a good predictor of growth.[13] A drawback of the ECI is that it does not account for service exports. However, as noted above, manufactured products are the lion's share in exports, and this has barely changed over the two periods. An alternative approach is to estimate the price-elasticity of total exports (Baccaro & Benassi, 2017; Baccaro & Pontusson, 2016). A low price elasticity can then be interpreted as non-price competitiveness being important. The ECI has the advantage that it condenses descriptive information embodied in the network of product-level trade data. Unlike a price-elasticity, the ECI is not a statistical estimate and is thus not sensitive to the details of the estimation.

The average values of the ECI prior to the crisis broadly reflect conventional wisdom about productive structures. Export-led countries like Germany, known for its specialisation in medium-high technology exports (Gräbner et al., 2020; Storm & Naastepad, 2016), Switzerland and Sweden are at the top with ECI scores between 2 and 3.1. The USA and UK also exhibit relatively high scores, illustrating that a country can be externally highly competitive (e.g. through the export of cars and aircrafts), but still exhibit current account deficits. The Visegrád and Benelux countries hold a middle ground, whereas Greece and Portugal, the Baltics, New Zealand and Australia appear at the bottom.

Figure 5 plots the ECI against growth performance. In the upper panel, the average level of export sophistication is negatively correlated with growth prior to the GFC. This unexpected relationship appears to be related to the previously discussed finance-driven boom that occurred in countries with low export sophistication, such as the Baltics, New Zealand and Greece. At the same time, countries with high export sophistication such as Germany and Switzerland only exhibited modest growth rates prior to the crisis.

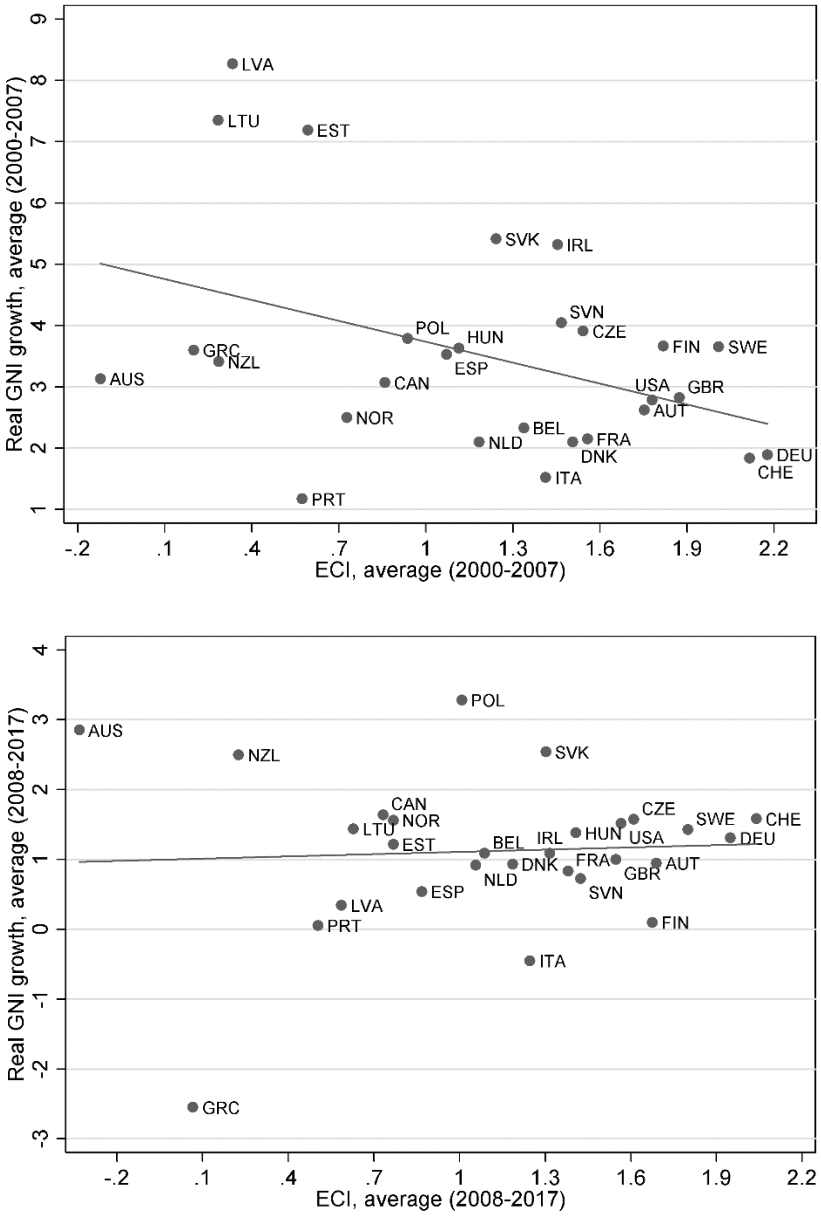
[12] The number of distinct exported products is measured by revealed comparative advantage. Whenever the share of an exported good in a countries' total exports exceeds the good's share in total world exports, the country is said to have a revealed comparative advantage in this good.

[13] The ECI has also been used as a measure of technological capabilities in the comparative study on the Eurozone by Gräbner et al. (2020).

In the post-crisis period, only Norway and the eastern European countries (except Slovenia) exhibit a higher ECI compared to before the crisis. This is likely to reflect technological upgrading through foreign direct investment (FDI) that already began prior to the GFC, when transnational corporations from northern Europe relocated parts of their production to eastern Europe. This allowed these countries to develop or deepen segments of high-tech manufacturing (e.g. cars, electronics, and pharmaceutical industries) (Bohle, 2018; Stockhammer et al., 2016). This stands in sharp contrast to southern Europe, which further reduced its already low level of non-price competitiveness. If structural reforms imposed by the troika were ever intended to increase non-price competitiveness, they failed spectacularly.

The correlation between the ECI and growth becomes positive in the period after the GFC but is not statistically significant (lower panel of Figure 5). Additional tests suggest a more reliable link: when excluding the outliers Australia and New Zealand, whose dynamics are partly driven by their trade linkages with booming China, the correlation becomes strongly positive and statistically significant at the 5% level.

Figure 5: Export complexity index (ECI) and GNI growth, 2000-2007 and 2008-2017



Data source: OEC; authors' calculations. See Appendix, Table A1.

Notes: Regression lines (p-values in parentheses) for:

upper panel:

$$GRWTH = 4.872 - 1.136ECI,\ R^2 = 0.17$$
$$(0.00)\quad (0.031)$$

lower panel:

$$GRWTH = 1.003 + 0.106ECI,\ R^2 = 0.00$$
$$(0.040)\quad (0.777)$$

Without AUS and NZL, the regression line in the lower panel becomes:

$$GRWTH = -0.004 + 0.838ECI,\ R^2 = 0.15$$
$$(0.994)\quad (0.048)$$

It can be argued that competitiveness should directly impact the current account. Thus a plot of our competitiveness variables against the current account balance may constitute a better test (see Appendix, Figure A2). These plots support our findings. Prior to the GFC, $\text{REER}_{\text{MANUF}}$ exhibits the expected negative relationship with the current account, but the coefficient is not statistically significant. In the period after the GFC, this correlation unexpectedly becomes positive and statistically significant. This suggests a failure of real depreciation to stimulate foreign demand. By contrast, when plotting the ECI against the current account balance, we find a positive and statistically significant link in both time periods.

Overall, this suggests that non-price competitiveness may be a more important source of foreign demand than price competitiveness. The latter seems to have lost relevance for net exports in the period after the GFC. Structural reforms reduced labour cost in many countries that previously had debt-led booms, but this had little impact on growth. In fact, they may have further worsened non-price competitiveness. Storm and Naastepad (2016, p. 63) argue that labour market flexibility can be harmful for productivity and innovation, as they disincentivise firms to invest in workers' firm-specific human capital and labour-saving technical change. By contrast, countries with a high export sophistication, especially northern Europe and the Visegrád economies, better managed to sustain growth in an environment of overall diminished international trade.

4.4. An econometric test

We finally check whether the main results from the bivariate scatterplots hold up in a multivariate regression (Table 4). Due to limited degrees of freedom and a potential simultaneity bias, the results have to be taken with some caution. Compared to the bivariate scatterplots, the advantage of the multivariate regression is that it controls for all four growth drivers simultaneously. In the pre-crisis period, only house prices growth (HPR) is statistically significant (at the 1% level) and positively related to GNI growth, in line with the notion of debt-led growth. In the post-crisis period, the coefficient on HPR remains positive and statistically significant. In addition, the slope coefficient on the structural fiscal balance (FISBAL) becomes negative and statistically significant at the 5% level, consistent with Keynesian theories of fiscal policy. By contrast, our proxies for price and non-price competitiveness are statistically insignificant in both periods. Overall, this confirms the importance of house price dynamics and the increasing relevance of fiscal policy for economic growth in the post-crisis period.

Table 4: Multivariate regression

	Real GNI growth (%), average 2000-2007	Real GNI growth (%), average 2008-2017
HPR	0.016***	0.018**
	(0.000)	(0.015)
FISBAL	0.005	-0.189**
	(0.963)	(0.038)
$REER_{MANU}$	0.009	0.016
	(0.640)	(0.271)
ECI	0.224	-0.008
	(0.687)	(0.980)
Constant	1.580	0.975**
	(0.117)	(0.024)
Observations	21	28
R^2	0.66	0.42

Notes: P-values in parentheses. HPR: growth of real house price index; FISBAL: average cyclically adjusted structural fiscal balance to potential output; $REER_{MANU}$: growth in real effective exchange rate based on manufacturing unit labour cost, ECI: average economic complexity index. The reduced sample size is due to missing house price data for most eastern European countries prior to the GFC and missing values of ECI for Iceland and Luxembourg (see Table A1 in the Appendix for details).

5 Discussion: Implications for Comparative and International Political Economy

Our analysis has shown that the post-crisis period came with improved current accounts for most countries, but importantly this was associated with weak growth or stagnation. Wage deflation intended to improve current account balances but did not turn out to be a successful growth driver. Overall, there has been no shift towards genuinely export-led growth. Instead, macroeconomic performances in many countries are associated with changes in growth drivers triggered by the GFC, specifically the downturn of a financial cycle and crisis management though fiscal policy. In some countries, especially the English-speaking ones, financial busts were cushioned by strong fiscal expansion during the recession. Other countries, especially in southern Europe, worsened their recessions through fiscal austerity and ended up at the bottom of post-GFC growth performances.

We abstain from classifying growth models based on our analysis of growth drivers. First, our analysis showed that growth drivers, for example house prices and fiscal policy, changed considerably in response to a major crisis in the global political economy. By extension, the subsequent dynamics of growth models may change drastically. Second, we showed that growth has been overall poor since the GFC. We

thus do not think that new growth models are in place. Rather we are in an interregnum where growth drivers have become diversified, and we see the contradictions of the old growth models unfold. However, the fact that new growth models are not yet formed still allows us to draw out some implications for the growth models debate.

At the theoretical level, we argue for a more prominent role of the financial cycle and government demand policies, and we think that price competitiveness is overrated. First, property price cycles are an important driver of private demand, *even in the downturn*. While debt-financed consumption-led growth (also known as privatised Keynesianism or the Anglo-liberal growth model) has featured prominently in CPE (Crouch, 2009; Hay, 2009; Hay & Smith, 2013; Hein, 2013; Stockhammer et al., 2016), the cyclical nature of this growth model has not been fully appreciated. Minskyan asset price bubbles may drive up growth and household debt for sustained periods, but this will be followed by debt-led depressions (Borio, 2014; Guttmann, 2016; Palley, 2011). While widespread homeownership and liberal housing institutions highlighted in CPE (Fuller, 2015; Schwartz, 2008) seem to make countries more prone to such financial cycles, the growth-effects of house prices are relatively similar across countries. Second, fiscal policy strongly shaped domestic demand-led growth models in the post-crisis period, albeit in two very different forms: as a stabiliser in some countries, but as contractionary austerity in others. Fiscal multipliers are larger in recessions and austerity can permanently reduce productivity (Fatás & Summers, 2018; Gechert et al., 2019), which means that government spending and taxation must be considered as a key driver of growth models. In CPE, welfare state regimes have received a lot of attention, but the growth implications of government policy feature less prominently. Thirdly, the relevance of price competitiveness has been overstated in CPE (Baccaro & Pontusson, 2016; Johnston et al., 2014; Johnston & Regan, 2016). Internal devaluation improved current accounts after the crisis, but not growth. By contrast, especially the eastern European Visegrád countries improved their export competitiveness through quality upgrading and accomplished above-average growth rates. This calls for a shift in attention from labour market institutions and wage coordination towards the institutional and political determinants of productivity and economic complexity, as highlighted in structuralist PKE and, partly, VoC (Gräbner et al., 2020; Simonazzi et al., 2013; Storm & Naastepad, 2016; Vermeiren, 2017).

Methodologically, we contend that the dichotomy of export-led vs (debt-financed) consumption-led growth models via growth contributions, which had proven useful for the period prior to the GFC, may give misleading results for the period after. The most apparent case in point is that most of the observed positive growth contributions of

net exports in the post-crisis period are dominated by a slowdown in import growth (mostly due to weak domestic demand) rather than growing exports. Based on growth contributions, these countries may appear 'export-led', but neither did they deliver a notable export performance nor did their exports lead to growth. Similarly, growth contributions are unhelpful to detect the key role of financial busts in the debt-led growth model. A bust may show up as a decline in private domestic demand and thus suggest a change in the growth model, where in fact such cyclical behaviour is inherent to the debt-led model. Thus, we suggest basing the analysis of growth models on growth drivers rather than growth contributions. This brings problems of causal identification which are more challenging than in the analysis of growth contributions, and potentially opens a pandora's box of manifold potential growth drivers. We hope to have demonstrated that the post-Keynesian theory of demand-formation offers an analytical framework to broaden and operationalise relevant growth drivers.

Finally, our analysis also has implications for debates in International Political Economy (IPE). In a recent contribution, Blyth & Matthijs (2017) criticise a narrow microeconomic focus in IPE since the 1990s and argue in favour of stronger Keynesian macro-foundations. They introduce the notion of a Macroeconomic Regime, which is defined as a set of institutions that are geared towards specific policy targets: full employment in the post-war period and price stability since the 1980s. Macroeconomic Regimes are stable for a while, but then endogenously undermine themselves through unintended outcomes like high inflation or financial instability that trigger political pressures towards regime change. Our approach is consistent with Blyth and Matthjis (2017)'s call for Keynesian macroeconomic foundations and endogenous instability. However, in our view, inherent contradictions are specifically related to the export-led and debt-led growth models that were in place prior to the GFC, rather than a policy target such as price stability that has been common across growth models.

First, prior to the GFC, the export-led and debt-led model were in a symbiotic relationship whereby the latter would absorb the exports of the former. This symbiosis broke down after the GFC, when import demand in the consumption-led model contracted due to household deleveraging. Second, export-led growth through current account surpluses more generally is a beggar-thy-neighbour policy that cannot succeed globally. As more countries pursue surpluses, this strategy becomes self-defeating. On the political side, the beggar-thy-neighbour character of excessive surpluses is likely to induce retaliation from trade partners. A prime example for such a response is the ongoing trade war between China and the USA. Trump has also repeatedly criticised Germany's current account surpluses and threatened to introduce tariffs on German

cars. Given these constraints, we doubt that multiple countries will be able to successfully pursue export-led growth over longer periods.

Third, there have also been attempts to revive the debt-led growth model that was in place prior to the GFC; most blatantly the 'help to buy' programmes in the UK that enable high loan-to-value ratios for first-time buyers via state-sponsored loan guarantees. However, our analysis points to the riskiness of such policies, as asset price-driven growth eventually gives way to debt-driven depressions. There are also political constraints to this model. Recent research shows that regions that were excluded from house prices gains were more likely to vote for Brexit (Adler & Ansell, 2020). The volatility of house prices inherent to debt-led growth models is therefore likely to trigger social discontent that may undermine their political stability. In addition, the ability to use fiscal policy to mitigate financial busts depends on specific (supranational) political constraints: while countries like the USA and UK could support their fiscal expansions through monetary policy, EMU membership and ECB conditionality severely constrained the policy space of southern Europe. Southern Europe was thus compelled to pursue austerity leading to rising poverty, inequality, and social protests (Perez & Matsaganis, 2018), which further compromise the political underpinning of debt-led growth.

This paper's attempt to identify growth drivers after the GFC is based on data that precede the current coronavirus crisis. Similar to the GFC, the COVID-19 pandemic is a global crisis that hits different growth models at the same time. We conjecture that the pandemic will give more prominence to the factors we have highlighted: the financial cycle and fiscal policy. Lockdowns have increased the indebtedness of businesses and created arrears in rent and mortgage payment that may impact housing markets. As of now it appears that the pandemic may shift the main source of financial instability from households to firms, especially SMEs, which will come out of the crisis with high debt burdens. At the same time, fiscal policy has become an even more important growth driver, with fiscal expansions at an unprecedented scale. In the Eurozone, this has revived tensions between surplus and deficit countries over fiscal transfers, which were eventually resolved in favour of a €750bn collective recovery package. Thus, there are signs that the decisive use of fiscal expansion in the pandemic will increase the acceptance of public demand management as an alternative to export-led and debt-led growth. While it is too early to tell, the growth models literature might soon enough add a 'state-led' growth model to its conceptual toolbox.

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Appendix

Table A1: Data definition

Variable	Definition/unit	Sources	Notes and data restrictions
Real GNI growth	Annual growth rate of real gross national income (real gross domestic product plus net factor incomes from abroad); percent	World Bank: World Development Indicators; OECD; Central Statistics Office Ireland	For Ireland, a modified GNI measure was used that adjusts 'for factor income of redomiciled companies, depreciation on R&D service imports and trade in IP, and depreciation on aircraft leasing'.[14]
Current account to GNI ratio	Percent	World Bank: World Development Indicators; Central Statistics Office Ireland	For Ireland, a modified current account measure was used for the data points 2008-2017 that adjusts 'for the depreciation of capital assets sometimes held outside Ireland owned by Irish resident foreign-owned firms, e.g. IP and leased aircraft, alongside the repatriated global income of companies that moved their headquarters to Ireland (e.g. redomiciled firms or corporate inversions)'.[15] Data only from 2002 for Belgium and Ireland.
Real effective exchange rate based on unit labour cost in manufacturing ($REER_{MANUF}$)	Trade-weighted exchange rate based on basket of currencies; deflated by relative unit labour cost; index	OECD	For Lithuania, the economy-wide real effective exchange rate from BIS was used.
Economic complexity index (ECI)	Based on trade in products from UN Comtrade SITC2; index	Observatory of Economic Complexity (OEC)	For further information on construction, see Hidalgo and Hausmann (2009) and https://oec.world/en/resources/methods#eci (last accessed 01/10/2020). Data for Iceland and Luxembourg missing. For Belgium only until 2014.
Real house prices	Index	OECD, BIS	Data for Estonia and Slovakia only from 2005; for Latvia only from 2006; for Luxembourg, Hungary and Slovenia only from 2007; for Czech Republic only from 2008; for Poland only from 2010.

[14] See https://www.cso.ie/en/releasesandpublications/ep/p-nie/nie2017/mgni/ (last accessed 06/11/2020)

[15] See https://www.cso.ie/en/releasesandpublications/in/acabi/amodifiedcurrentaccountbalanceforireland2007-2017/ (last accessed 06/11/2020)

Household debt to income	Percent	OECD, BIS	Debt is primarily mortgage loans and consumer credit. Includes debt of non-profit institutions serving households. Income is net household disposable income for all countries (data from OECD) except for New Zealand where GDP was used (data from BIS). Net disposable household income plus net interest and dividend income minus taxes net of transfers. Data for Iceland missing; for Ireland only from 2001; for Switzerland only until 2016.
Cyclically adjusted primary fiscal balance to potential output	Fiscal balance minus net interest payments; adjusted for the components of the observed fiscal balance that are sensitive to the output gap; percent	IMF Fiscal Monitor	Data for USA only from 2001; for Latvia only from 2003; for New Zealand and Lithuania only from 2005.

Table A2: Empirical indicators for finance-driven private demand; before and after the 2008 crisis

	Real house prices, growth		Cyclical peak of real house prices, year	Household debt (%income), change	
	2000-2007	2007-2017	2000-2017	2000-2007	2007-2017
AUS	65.3	38.9	2010	63.1	26.8
NZL	94.6	37.0	2007	29.3	1.15
CAN	59.0	51.7		38.0	29.0
USA	35.0	-4.67	2006	39.6	-34.8
IRL	64.9	-27.3	2007	122.7	-80.2
GBR	85.7	-2.65	2007	60.1	-16.3
DNK	65.0	-10.1	2007	92.5	-43.5
FIN	33.3	-1.08	2007, 2010	45.5	23.9
ISL	65.6	4.10	2007		
NOR	54.9	29.1	2007	71.9	28.4
SWE	67.5	52.5	2007	49.7	28.6
BEL	46.0	6.73	2013	17.2	29.1
NLD	22.7	-12.6	2008	59.5	-15.2
LUX		32.5		55.1	40.0
AUT	-0.33	42.2		12.9	3.81
DEU	-12.8	21.6		-13.9	-9.40
CHE	17.0	34.9		13.8	24.9
FRA	83.2	-5.78	2007, 2011	24.6	18.7
GRC	52.4	-44.7	2007	52.6	22.4
ITA	45.1	-27.8	2007	26.0	7.86
PRT	-10.5	-7.02	2001	38.9	-11.4
ESP	106.6	-33.7	2007	69.9	-38.6
CZE		7.83		31.4	12.5
HUN		-7.90		44.1	-19.9
POL		-8.35		27.6	22.6
SVK		-0.52	2008	20.6	39.5
SVN		-19.6	2008	19.0	4.37
EST		-22.3	2007	84.6	-24.1
LVA		-32.4	2007	74.3	-38.5
LTU	335.1	-27.0	2007	49.2	-7.68
Total	62.5	2.11		45.5	0.82

Data sources: OECD, BIS; see Table A1; authors' calculations.

Note: Cyclical peaks in the natural logarithm of real house prices were found by a simple algorithm that identifies a peak in a series y_t *in year* t *whenever* $(y_t - y_{t-1}) > 0 \,\&\, (y_t - y_{t-2}) > 0 \,\&\, (y_{t+1} - y_t) < 0 \,\&\, (y_{t+2} - y_t) < 0$. *Note that for CZE, HUN, POL, the series only begins in 2008 or later making it unlikely for any turning point associated with the GFC to be detected.*

Table A3: Empirical indicator for fiscal policy; 2000-2007 and 2008-2017

	Cyclically adjusted primary fiscal balance (%potential output), average	
	2000-2007	2008-2017
AUS	1.29	-2.31
NZL	3.97	-0.26
CAN	2.65	-0.50
USA	-1.45	-3.91
IRL	1.45	-2.59
GBR	-1.13	-3.41
DNK	3.16	0.10
FIN	3.05	-0.57
ISL	2.01	-0.23
NOR	-5.07	-7.84
SWE	1.60	0.32
BEL	4.14	0.11
NLD	0.67	-0.58
LUX	1.35	0.72
AUT	-0.014	-0.23
DEU	0.23	1.11
CHE	0.58	0.77
FRA	-0.54	-2.01
GRC	-2.12	2.44
ITA	1.65	2.11
PRT	-2.32	-0.95
ESP	0.48	-2.80
CZE	-3.45	-1.04
HUN	-3.51	1.36
POL	-1.77	-1.79
SVK	-4.13	-2.05
SVN	-0.28	-0.51
EST	0.39	0.37
LVA	-1.18	-1.31
LTU	-2.94	-1.67
Total	-0.042	-0.90

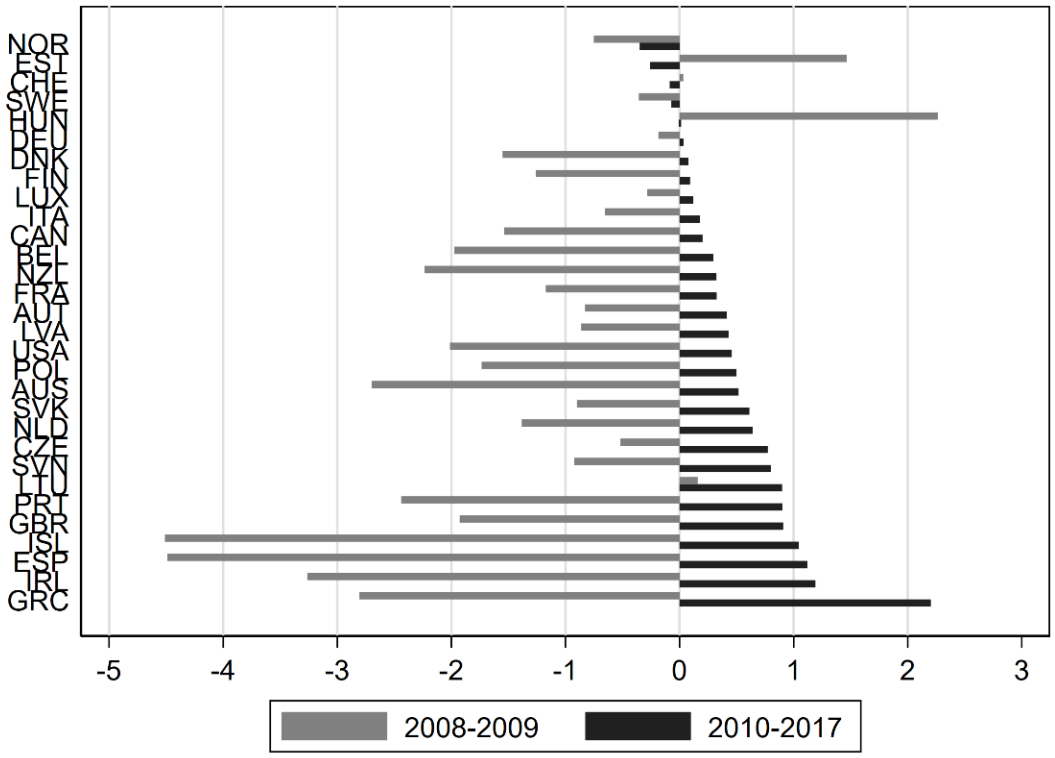
Data source: IMF; see Table A1 in the appendix; authors' calculations.

Table A4: Empirical indicators for price competitiveness and non-price competitiveness, before and after the 2008 crisis

	Price competitiveness		Non-price competitiveness	
	Real effective exchange rate based on unit labour cost in manufacturing, growth		Economic Complexity Index, average	
	2000-2007	2007-2017	2000-2007	2008-2017
AUS	42.8	0.42	-0.12	-0.33
NZL	47.7	3.41	0.29	0.23
CAN	38.6	-14.8	0.86	0.73
USA	-17.9	7.79	1.78	1.57
IRL	31.7	-30.0	1.45	1.32
GBR	3.25	-27.4	1.87	1.55
DNK	14.9	-6.30	1.51	1.19
FIN	-4.16	-3.81	1.82	1.68
ISL	18.7	-5.14		
NOR	26.4	0.57	0.73	0.77
SWE	-6.06	-0.29	2.01	1.80
BEL	9.33	-1.76	1.34	1.09
NLD	8.59	-11.6	1.18	1.06
LUX	17.2	7.66		
AUT	-1.23	2.08	1.75	1.69
DEU	-11.4	3.09	2.18	1.95
CHE	-6.46	31.8	2.12	2.04
FRA	6.81	-5.44	1.56	1.38
GRC	23.6	-16.1	0.20	0.066
ITA	15.0	-4.10	1.41	1.25
PRT	6.39	-6.64	0.57	0.50
ESP	19.4	-16.6	1.07	0.87
CZE	40.3	2.21	1.54	1.61
HUN	42.9	-17.9	1.11	1.41
POL	-0.78	-9.74	0.94	1.01
SVK	11.7	12.6	1.24	1.30
SVN	1.73	-6.66	1.47	1.42
EST	21.4	18.0	0.59	0.77
LVA	14.0	1.30	0.33	0.59
LTU	5.48	10.8	0.28	0.63
Total	14.0	-2.75	1.18	1.11

Data sources: OECD, OEC; see Table A1; authors' calculations.

Figure A1: Annual change in the cyclically adjusted fiscal balance (% of potential output), average over 2008-09 and 2010-17

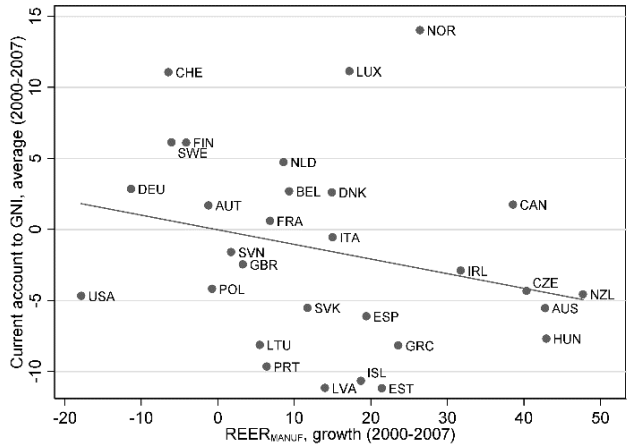


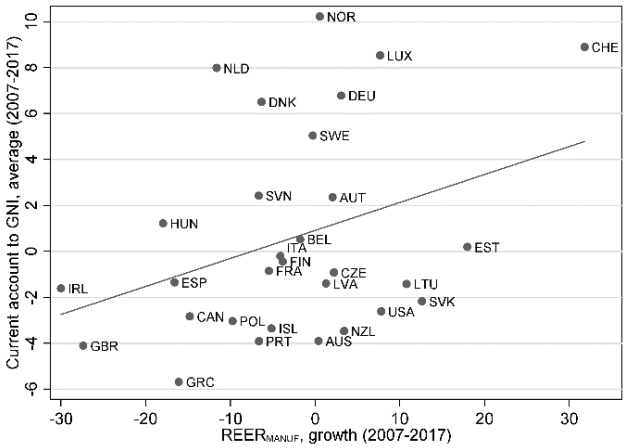
Data source: IMF; see Appendix, Table A1; authors' calculations.
Notes: In ascending order based on the 2010-17 average.

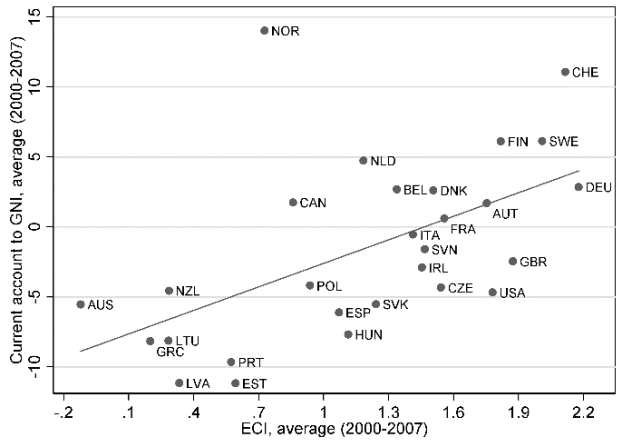
Figure A2: Competitiveness and current account balances: Real effective exchange rate (based on manufacturing unit labour cost) (upper panel) and economic complexity index (lower panel)

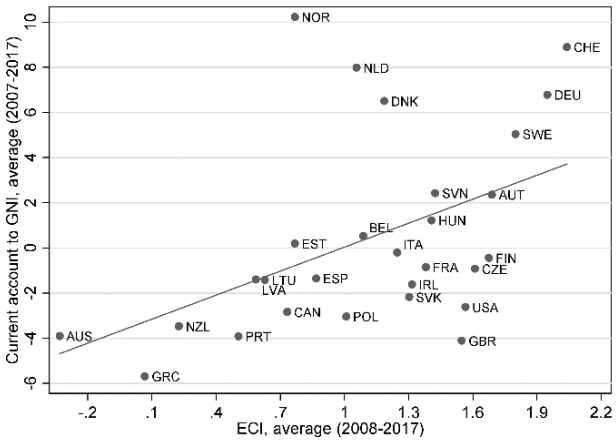
Pre-GFC

Post-GFC









Data sources: World Bank, OECD, OEC; see Appendix, Table A1; authors' calculations.

Notes: Regression lines (p-values in parentheses) for

upper left panel:

$$CA = -0.014 - 0.103REER_{MANUF},\ R^2 = 0.07$$
$$(0.993)\quad (0.166)$$

for upper right panel:

$$CA = 0.914\ + 0.122REER_{MANUF},\ R^2 = 0.12$$
$$(0.261)\quad (0.060)$$

for lower left panel:

$$CA = -8.201 + 5.605ECI,\ R^2 = 0.31$$
$$(0.001)\quad (0.002)$$

for lower right panel:

$$CA = -3.499 + 3.541ECI, R^2 = 0.23.$$
$$(0.039)\quad (0.011)$$