Economic Policy Reforms 2016
Going for Growth Interim Report

Chapter 3

From GDP to average household income: A look at the transmission channels

This chapter reviews the association between GDP and living standards from the perspective of the average household, focusing on the income dimension. It discusses the mechanisms through which GDP growth "trickles down" to household sector income with a view to assessing whether and to what extent such mechanisms are amenable to policy intervention. To do so, the chapter provides a proper assessment of the link between income generated from GDP and income distributed to households, which implies examining income distribution between household and the non-household sectors of the economy.

From GDP to average household income: A look at the transmission channels

Main findings

- Real GDP has tended to grow by more than real household income in the majority of OECD countries between the mid-1990s and 2013.
- This growth gap is partly due to factors having little policy traction, such as differential developments between the price of domestic output and the price of consumption faced by domestic households, driven notably by terms-of-trade effects: consumption prices have tended to rise relative to output prices in most OECD countries over the period, the only exceptions being commodity exporters such as Norway, Australia and Canada.
- The household income share of GDP, simply defined as the ratio of nominal household disposable income over nominal GDP, has been stable over the period, on average across OECD countries, but with cross-country heterogeneity, with for instance a large decline in Austria and Korea and a large increase in the Slovak Republic and Finland.
- Developments in the household income share of GDP reflect developments in the distribution of production income between the household and non-household sectors of the economy. This can in turn be assessed by looking at household labour, capital and secondary income shares of GDP:
  - About half of OECD countries have experienced a decline in the labour share of GDP, in particular Portugal, Slovenia and Japan, while the other half have experienced an increase, though of a lower magnitude.
  - The vast majority of OECD countries have experienced a decline in the household capital income share of GDP, in particular Belgium and Italy, while only a few countries, including Portugal and the United States, have seen an increase.
  - Concomitant declines in the labour and household capital income shares of GDP could suggest that a rising share of profits has been retained by the corporate sector instead of being redistributed to the household sector.
  - The decline in the household capital income share of GDP could be overstated to the extent that the corporate sector has been reducing the use of dividends in favour of alternative profit redistribution mechanisms to shareholders, such as share buybacks – and that associated capital gains are not recorded in macroeconomic data.
  - The vast majority of OECD countries experienced an increase in the household secondary income share of GDP over the past two decades, i.e. in the share of production income that is being redistributed by the government to the household sector. However, this largely reflects the increases in public income transfers over the early phases of the crisis, which cushioned household incomes from the fall in GDP.

- ❖ In addition, the increase in the secondary household income share could be overstated to the extent that it does not allow for measuring the negative effect of a shift in the tax composition from direct to indirect sources, in particular consumption taxes; yet associated reforms have been quite frequent across the OECD over the last two decades.

- The analysis did not reveal clear links between the changes in income distribution at the macro-level and the rise in income inequality within the household sector experienced by many OECD countries over the last decades.

Introduction

GDP per capita is a widely used measure of living standards and a key headline indicator of economic performance. The emphasis given to GDP growth relies on the assumption that higher GDP per capita is associated with rising living standards for most households. This view has been increasingly challenged. On its own, GDP per capita falls short of accurately measuring people's wellbeing, even from a narrow material living standard perspective.[1] In that respect, one issue that has received little attention is the extent to which GDP growth "trickles down" to households. Yet this is of primary relevance from a wellbeing perspective, as recognised for instance by the Stiglitz Commission (Stiglitz et al. 2009).[2]

Assessing the links between GDP growth and household income growth is also of particular interest for the understanding of developments in income inequality.[3] How GDP growth generates income for the household sector, and the composition of this income, are important factors for inequality. For instance, the distribution of income between labour and capital does matter for understanding income inequality. However, assessing this may have become more complex than in the past as households have more diverse sources of income and there is considerable dispersion within the categories of income. It is thus important to go beyond the classic concept of labour share to understand inequality, notably by enlarging the concept to the different types of household income sources.

Given these challenges, the chapter analyses the association between GDP and living standards from the perspective of the average household, focusing on the income dimension. The idea is to better understand the mechanisms through which GDP growth "trickles down" to household sector income. This justifies a proper assessment of the link between income generated from GDP and income distributed to households, which implies examining income distribution between household and non-household sectors of the economy.[4]

The chapter is structured as follows: the first section describes the measurement framework used throughout the chapter, based on the System of National Accounts (SNA). The second section delivers a snapshot overview of developments in real household income compared to GDP over the last two decades. It also sheds light on the drivers that are, in principle, least amenable to policy intervention, e.g. differential developments between the prices faced by households and those of domestic output and primary income flows with the rest of the world. The third section analyses how income generated from domestic production is distributed between the household and non-household sectors of the economy, in particular the general government and the corporate sector, with a focus on the functional income distribution, in other words on income distribution between labour and capital. The fourth section delivers an assessment of the link between income distribution across household and non-household sectors and income distribution within the household sector.

Adjusted Household Disposable Income: definition and cross-country patterns

For the purpose of this chapter, the level of resources accruing to the household sector is gauged through adjusted household disposable income (AHDI) from the National Accounts, combining information on a large number of market and non-market income sources (including income derived from hidden or underground activities).[5] This is considered as the best available measure of material conditions from a cross-country perspective, although it may not be fully reflective of households' command over economic resources (Box 3.1).[6] For ease of exposition, Figure 3.1 provides a simplified overview of income flows between the household and non-household sectors of the economy as measured in the SNA.

Box 3.1. **Adjusted household disposable income from the national accounts: limitations**

Adjusted household disposable income from the national accounts includes some non-cash items that households may not recognise as part of their income:

- Employer contributions to social security, and employer payments for private pensions, healthcare, and other benefits do not enter the pay-packets of workers but are part of household income in the national accounts. This is because compensation of employees is defined in the national accounts with a view to explicitly measuring the full cost of labour as a factor of production. For example, whereas in the real world social contributions are paid directly by the employers to the social funds and are never seen by the employees, the national accounts treat them as part of wages paid to households. As a result, the "compensation of employees" item includes all contributions, including imputed contributions. In this chapter, this item is included in the definition of labour income.
- Homeowners-occupiers do not receive an income from the housing services that they provide to themselves. Yet an income is imputed in the national accounts, called "imputed rent". This income flow is estimated based on actual rents of comparable accommodations, but national statistical offices apply different methodologies in this respect. In this chapter, this item is included in the definition of household capital income.
- Households benefit from the services supplied by general government, such as healthcare, education, housing, recreational and cultural services, but associated transfers are not spendable. The national accounts attribute to household income an imputed value for such services, i.e. "social transfers in-kind", to distinguish them from cash transfers. Their measurement is problematic given the non-market nature of these services (and could be very different from the household point of view). Indeed, the national accounts valuation of social transfer in-kind is based on the price of inputs used in the production process, hence on expenditure by general government. In this chapter, this item is included in the definition of household secondary income.

The non-recording of capital gains and losses is another limitation of the household income account. Agents face a potential holding gain or loss whenever the price fluctuates. A distinction is made between "unrealised" and "realised" gains and losses. A typical unrealised gain or loss occurs when the price of a share held by an agent changes but when the agent has not yet sold his holdings. By contrast, realised gains (or losses) result from the sale of the shares. The proceeds received from the holding gain are in most cases subject to taxation.

Box 3.1. **Adjusted household disposable income from the national accounts: limitations** *(cont.)*

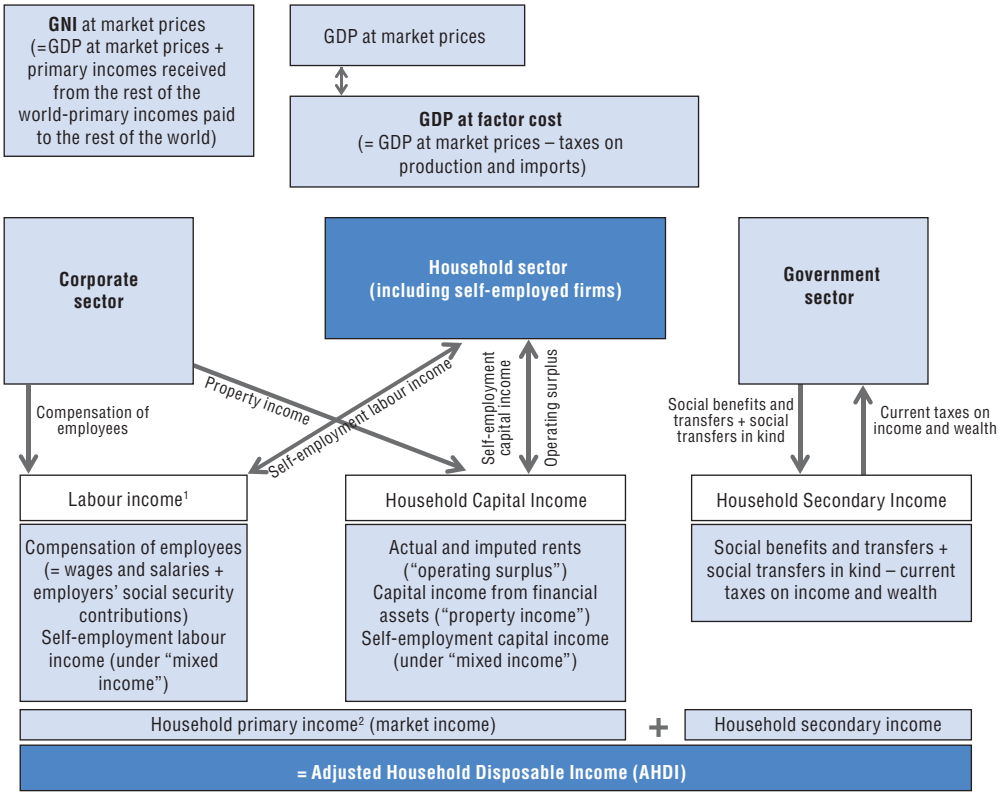
Households in OECD countries have on several occasions in the recent past benefited from rises, or suffered from falls, in the prices of these two types of assets; for instance during the stock market bubble toward the end of the 1990s, and the steep drop in stock prices starting in 2000 and more recently, during the housing market bubble. Asset price changes induce positive or negative wealth effects, allowing household to consume more or less than their disposable income. These so-called "wealth effects "may play a major role in households' perception of own economic resources, but they cannot be inferred from national accounts.

Against this background, household capital income as defined in this chapter based on the SNA excludes capital gains and losses, whether realised or not. Income from housing assets is included insofar as it reflects actual and imputed rents (the latter accruing to homeowner occupiers). Financial income covers interest received on households' financial investments and dividends paid by companies to households but, due to the exclusion of capital gains, other forms of financial income are excluded from the SNA. Such is the case of share buy-backs, which have been playing a growing role in corporate profit redistribution strategy. This income transfer from firms to households is not recorded in the household income account.

Finally and related to the previous point, the impact of the external sector on household income in the SNA covers essentially primary income, that is, income from work, dividends and interest. Financial transactions with the rest of the world do not affect household income nor do they affect GDP. By contrast, such transactions affect the balance sheet of resident institutional sectors as defined in the SNA: households, the general government and corporations. As a result, external macroeconomic imbalances stemming from e.g. net borrowing *vis à vis* the rest of the world do not influence the distribution of income between the general government and households but may eventually influence the distribution of wealth and savings between the general government and households, an issue that goes beyond the scope of the current chapter.

AHDI is obtained by adding two broad components: 1) the flows that make up individuals' primary (or market) income: labour income (compensation of employees and labour income of the self-employed – the latter being part of "mixed income") and capital income (income derived from financial assets, essentially dividends and interest, included under "property income" and from non-financial assets, essentially actual and imputed rents, included under "operating surplus", as well as self-employment capital income – the latter being part of "mixed income"); and 2) secondary or redistribution income: the cash and in-kind social transfers that households receive from governments (such as public education and healthcare services) net of the current taxes on income and wealth and the social security contributions paid by households. In this respect, consumption taxes are not considered among taxes paid by the household sector in the SNA. They appear in the difference between GDP at market prices and GDP at factor costs (i.e. GDP at market prices minus taxes on production and imports). AHDI can be expressed both in gross and net terms, with the difference being households' consumption of fixed capital.[7] The bulk of this chapter relies on the gross measure to make the link with GDP, which is a gross concept, and because of better cross-country comparability.[8]

Figure 3.1. **Income flows between the household and non-household sectors: a simplified overview of the System of National Accounts (SNA)**



1. In the case of self-employed, only overall (mixed) income is reported. In order to split their income into the labour and capital components, the labour income of self-employed is imputed by assuming that their annual wage is the same as for the average employees of the whole economy. The capital income is then approximated by taking the difference between mixed income of self-employed and their imputed labour income.
2. Household primary income corresponds to income derived from market activities and is sometimes referred to as "market income".

The limitations associated with the definition of household income in the SNA should be kept in mind and differences across countries and over time should therefore be interpreted in light of different institutional arrangements. Nevertheless, the SNA system relies on a number of harmonising procedures implemented with a view to maximising cross-country comparability. Importantly for the purpose of this chapter, such procedures ensure a very good level of comparability for the household income account. Comparability may be more problematic for the household financial and balance sheet accounts and this may limit cross-country analysis of household wealth and savings. One of the most relevant issues in this respect is the recording of pension contributions and pension benefits of employees between capitalisation and pay-as-you go systems (Box 3.2). This chapter performs a comparative analysis of household income but not of household wealth. As a result, the analysis should not be affected by differences in institutional arrangements governing countries' pension systems, reflecting harmonising adjustments applied within the household income account.

For the average household, the main income component is compensation of employees, followed by self-employment income[9] and transfers in-kind provided by the government (Figure 3.2, Panel A). When the AHDI decomposition is simplified into labour and capital income (which make up primary income) and secondary income, labour income appears as the most important income source in most countries (Figure 3.2, Panel B).

Box 3.2. **How pension and social security funds are recorded in the household income accounts**

One can distinguish two main types of pension systems: those functioning as "savings plans" (also called "full capitalisation systems") and those functioning as "transfer plans" (also called "pay-as-you-go systems"). If the pension plan is a savings plan (often called a "pension fund"), each employee contributes to a fund from which his or her future pension benefit will be paid. The national accounts record all contributions to the plan (both those of employers and of employees) as a form of savings by employees (i.e. an increase in the pension asset of employees) and pension benefits as "dis-saving" (i.e. a decrease of the pension asset of retirees).

By contrast, a pension system is a transfer plan (rather than a savings plan) when the pension contributions of current employees are used to pay the pension benefits of current retirees. In this case (which is typical of social security pension systems), the national accounts deduct pension contributions from income (and thus they are also deducted from savings), and pension benefits are considered part of income (and thus included in savings). Pension contributions are included in current transfers paid by households and pension benefits in current transfers by households.

To harmonise the measure of household income, the SNA framework records pension contributions and benefits of savings plans (i.e. pension funds) as if they were transfer plans (i.e. social security).* As a result, cross-country comparisons of household income accounts are in principle unaffected by cross-country differences in the institutional settings governing the funding of pension systems. In this chapter, pension benefits and contributions are included in the definition of household secondary (net) income, being considered as transfer income.

* This (transfer) income flow from the corporate sector to the household sector is not shown in the simplified overview of income flows between SNA sectors (Figure 3.1). In principle, it would appear as a secondary income flow from the corporate sector (pension funds) to the household sector.

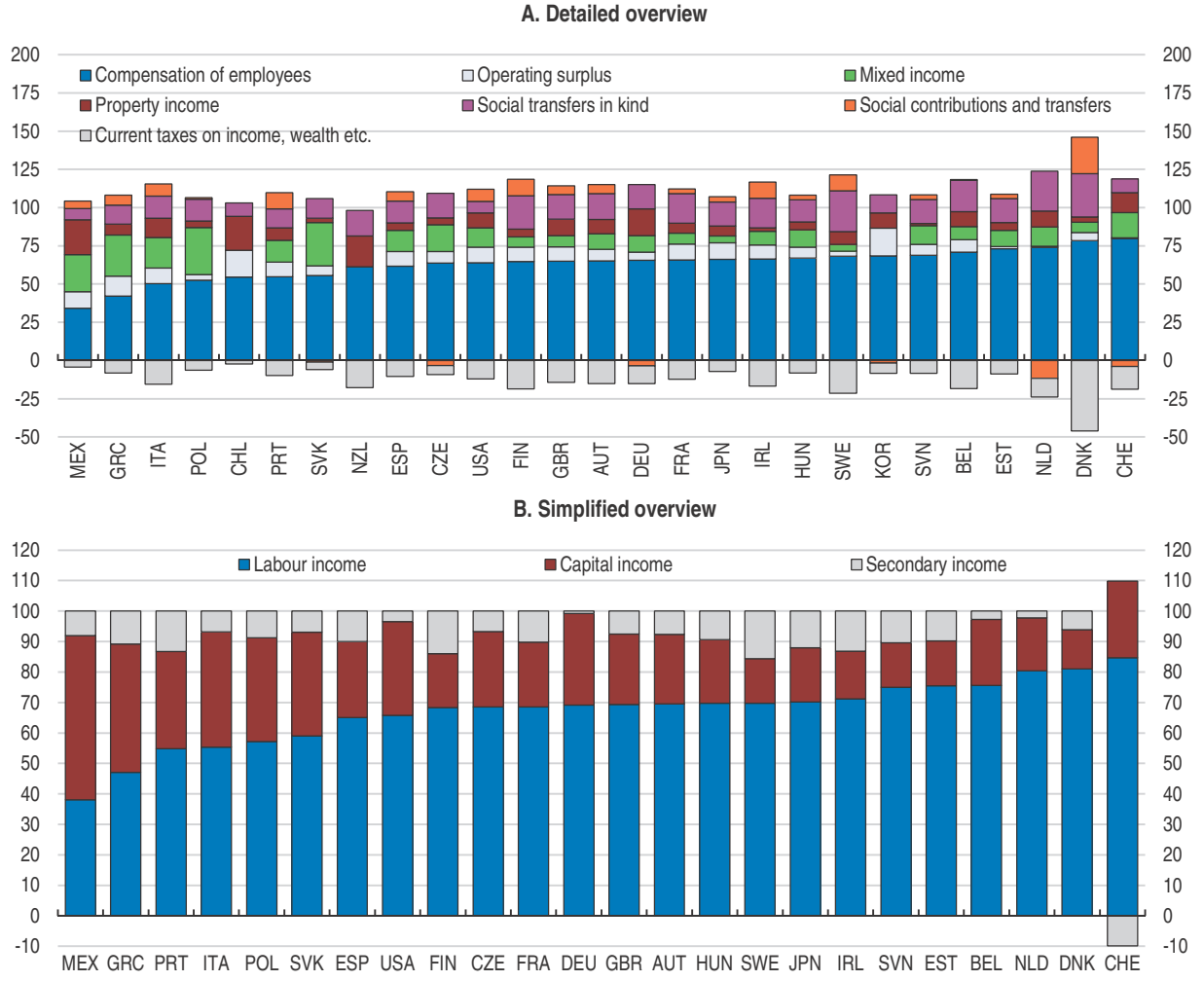
Tracking income growth from the household perspective and explaining the gap *vis-à-vis* GDP growth

From a welfare perspective, household income growth is best measured in real consumption terms (i.e. changes in nominal household income should be deflated with consumption prices and not with output prices which are used to deflate GDP). This is what ultimately matters to assess household consumption possibilities as a function of production income. Tracking growth from the household income perspective thus starts with the simple comparison between growth in GDP and growth in real adjusted household income with a view to assessing the extent to which income generated from GDP trickles down to the average household. This comparison suggests that since the mid-1990s and in particular over the pre-crisis period, GDP has tended to grow more than households' economic resources in many OECD countries (Figure 3.3, Panels A and B). The gap was particularly large in Korea and Ireland. In fact, only a few countries with large commodity-producing sectors experienced stronger gains in real household incomes relative to GDP (e.g. Norway and Australia).

The growth gap between GDP and household incomes temporarily narrowed during the initial phase of the crisis, as automatic stabilisers (i.e. rises in net income transfers from government to households during recessions) and discretionary income-support

Figure 3.2. **Components of adjusted household disposable income[1] (AHDI)**

As a percentage of gross adjusted household disposable income, 2013



1. The data refer to the components of gross adjusted household disposable income based on the System of National Accounts. The sum of compensation of employees, property income, operating surplus and mixed income (i.e. labour and capital income of the self-employed) represents primary or market income. Social contributions and transfers and social transfers in kind minus current taxes on income and wealth represent secondary income (income that the government redistributes to households directly or indirectly). See Figure 3.1 for a definition of the respective components shown in panels A and B. Components do not exactly sum to household gross adjusted disposable income due to statistical discrepancies. Data refer to 2014 for Czech Republic, Denmark, Finland, Italy, the Netherlands, Portugal and Sweden; 2012 for New Zealand and Switzerland. For Chile and Korea, the component "Operating surplus" includes mixed income.

Source: OECD, *National Accounts Database*.

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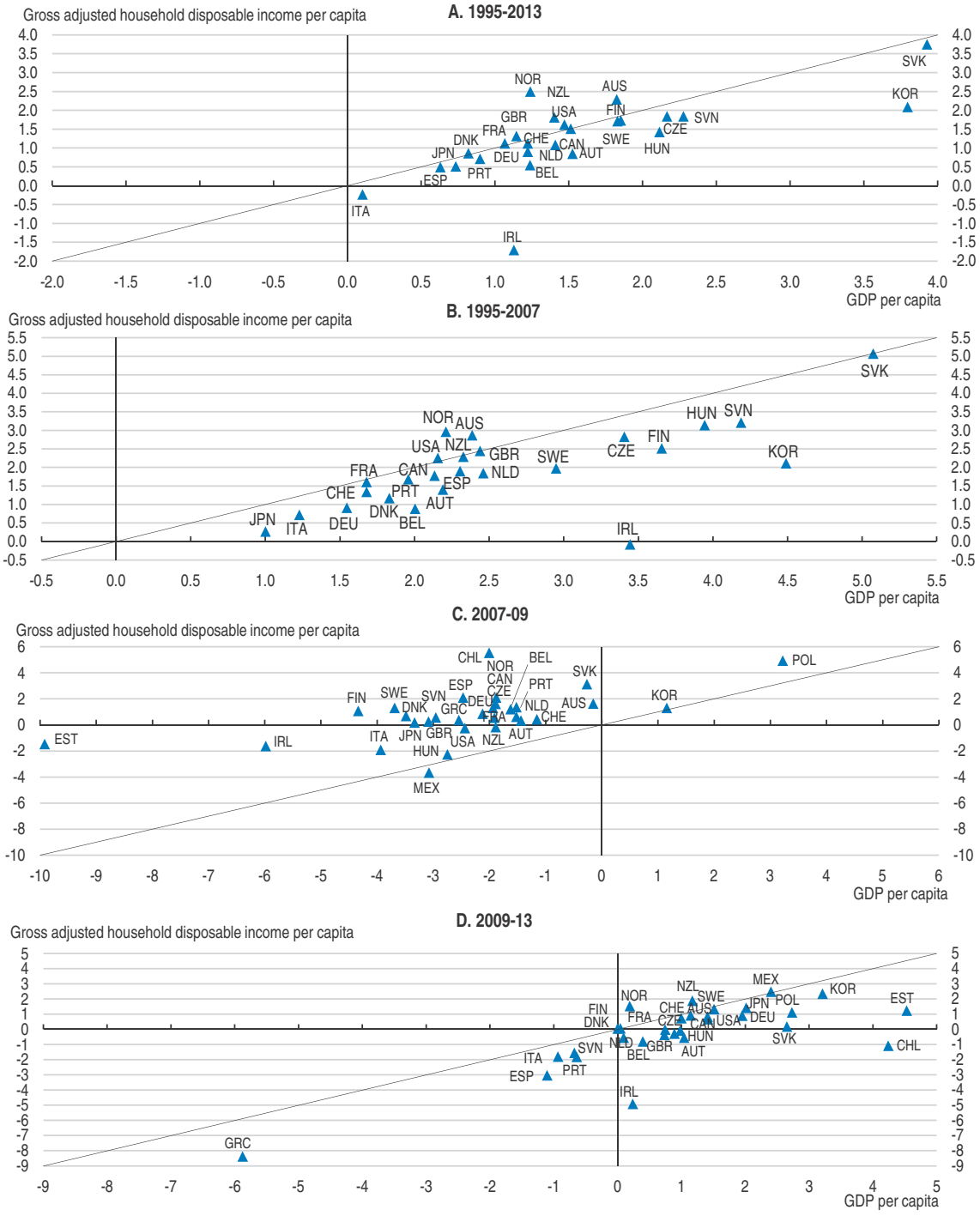
measures introduced to moderate the fall in aggregate demand at the early stages of the recession had the effect – to a varying extent across countries – of protecting households' disposable incomes from recession-induced losses in market incomes (i.e. income from work and capital) (Figure 3.3, Panel C).[10] However, with the effect of automatic stabilisers and anti-crisis measures tapering off, the diverging trends resumed as GDP growth largely outpaced household income growth in 2009-13 (Figure 3.3, Panel D). Indeed, more than one third of OECD countries experienced contracting household real disposable incomes in post-crisis years, reflecting in part the impact of fiscal consolidation.

Figure 3.3. **Real annual growth rates of GDP and adjusted household disposable income[1] (AHDI)**

Average annual growth rates, percentage



1. Gross adjusted household disposable income and GDP are expressed in USD, constant prices and constant PPPs, OECD base year 2010. Gross adjusted household disposable income is deflated with the deflator for actual individual consumption while GDP per capita is deflated with the GDP deflator. For panel A, data refer to 1995-2014 for Canada, Czech Republic, Finland, Italy, Korea, the Netherlands, Norway, Portugal and Sweden; 1995-2012 for Switzerland; 1999-2013 for Hungary, Ireland, Spain and the United Kingdom; 1999-2012 for New Zealand; for panel B, data refer to 1999-2007 for Hungary, Ireland, Spain, the United Kingdom and New Zealand; for panel C, data refer to 2008-09 for Chile; for panel D, data refer to 2009-14 for Canada, Czech Republic, Finland, Italy, Korea, the Netherlands, Norway, Portugal and Sweden; 2009-12 for New Zealand and Switzerland.

Source: OECD, *National Accounts Database*.

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The contribution of relative price movements to the growth gap

Differential developments between GDP and household income in real terms may reflect differential developments between consumption and output prices (Figure 3.4, Panels A and B). Indeed, different price indices are used to convert nominal values in real values, respectively the GDP deflator for domestic output and the consumption deflator for household income.

The comparison between real and nominal terms shows that a very large part of the growth gap between GDP and real household income is due to relative price effects over the period under consideration (i.e. 1995-2013). Most OECD countries experienced declines in output relative to consumer prices while the only ones experiencing increases in output prices relative to consumer prices are commodity-exporters such as Australia, Canada and Norway (Figure 3.4, Panel C) – pointing to terms-of-trade effects. In nominal terms, growth in household income was remarkably close to GDP growth.

Such relative price effects could reflect a number of factors, including:

- Secular declines in the relative price of investment reducing output prices more than consumer prices, and, related, secular declines in the price of tradable relative to non-tradable products, especially in services.
- Temporary increases in commodity prices generating favourable terms-of-trade effects in commodity-exporting countries over the period under consideration.
- Increases in consumer prices resulting from tax reforms shifting the burden from direct to indirect taxes and in particular to VAT over the period under consideration.[11]

The contribution of cross-border income flows to the growth gap

Part of the gap between growth in GDP and household income may also reflect that between the income produced within the territory and the income received by residents. Household incomes are measured for resident units, regardless of whether these incomes are obtained within the national territory or not. In addition to the income received from the production within the territory, which is included in GDP, residents may receive income derived from production outside the territory, which is excluded from GDP.[12] Adding the net primary income flows with the rest of the world to GDP allows for coming closer to the resources that can trickle down to resident households. These primary incomes consist of wages and salaries, property income (interest and dividends) and taxes and subsidies on production. The final result is Gross National Income (GNI), which can be considered as a "bridge" measure: GNI is, unlike GDP, an income-based concept and not a production based concept, since it includes income derived from production abroad and excludes the value of output repaid to foreign factors of production. As a result, assessing developments in household income relative to GNI instead of GDP underscores the potential role of primary income flows with the rest of the world.[13]

A look at the evolution of GNI suggests that developments in primary income flows with the rest of the world also account for part of the growth gap between real GDP and real household income (Figure 3.5, Panels A and B), but to a much lesser extent than relative prices. Weaker GNI relative to GDP growth seems to have contributed to weaker growth of household income relative to GDP in e.g. Belgium and Korea (Figure 3.5, Panel C). At the opposite end of the spectrum, stronger GNI relative to GDP growth seems to have contributed to stronger growth of household income relative to GDP in e.g. Australia and Norway, which suggests that associated foreign income inflows were also driven by rising

Figure 3.4. **Comparing growth in GDP and in AHDI: the role of relative prices**[1]

1995-2013

1. For panel A, gross adjusted household disposable income per capita and GDP per capita are expressed in USD, constant prices and constant PPPs, OECD base year 2010. Gross adjusted household disposable income per capita is deflated with the deflator for actual individual consumption (consumer prices) while GDP per capita is deflated with the GDP deflator (output prices). For panel B, gross adjusted household disposable income per capita and GDP per capita are expressed in current prices. Data refer to 1995-2014 for Canada, Czech Republic, Finland, Italy, Korea, the Netherlands, Norway, Portugal and Sweden; 1995-2012 for Switzerland; 1999-2013 for Hungary, Ireland, Spain and the United Kingdom; 1999-2012 for New Zealand.

Source: OECD, *National Accounts Database*.

StatLink http://dx.doi.org/10.1787/888933324010

Figure 3.5. **Comparing growth in GDP and in AHDI: the role of primary income flows with the rest of the world**[1]

Percentage, 1995-2013

1. Gross national income (GNI), Gross domestic product (GDP) and gross adjusted household disposable income are expressed in USD, constant prices and constant PPPs, OECD base year 2010. For gross adjusted household disposable income, PPPs and deflators are those for actual individual consumption of households while for GDP and GNI, PPPs and deflators are those for GDP. Data refer to 1995-2014 for Canada, Czech Republic, Finland, Italy, Korea, the Netherlands, Norway, Portugal and Sweden; 1995-2012 for Switzerland; 1999-2013 for Hungary, Ireland, Spain and the United Kingdom; 1999-2012 for New Zealand.

Source: OECD, *National Accounts Database*.

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commodity prices over the period under consideration (Figure 3.5, Panel C). Nevertheless, in most cases, developments in primary income flows with the rest of the world do not seem to explain much of the wedge between real GDP and real household income dynamics: indeed, a number of countries (for example Ireland and Italy) experienced equivalent growth gaps in terms of either GDP or GNI.

A wrap-up on the growth gap of household income vis-à vis GDP

This section has looked at the respective contributions of relative prices and cross-border income flows to the growth gap between real household disposable income and real GDP. It finds that the former explains a substantial portion of the gap while the contribution of the latter is negligible except for a few countries. Taking these factors into account, the rest of the chapter focuses on the factors potentially driving a wedge between AHDI and GDP, both expressed in nominal terms.

In order to do so, the chapter introduces the household income share of GDP, a synthetic measure of the growth dividends from the household perspective, which is simply defined as the ratio of nominal AHDI to nominal GDP. A significant decline in the ratio would indicate that a substantial portion of the growth gap in real terms remains to be explained, even after taking into account relative price effects. As it turns out, such ratio has been stable over the last two decades, on average across OECD countries (Figure 3.6, Panels A and B).[14] Nevertheless, this stability masks differential trends across countries, with marked declines – of around 6 percentage points – in Austria, Korea, Belgium and Norway and marked increases – of around 10 and 5 percentage points – in the Slovak Republic and Finland, respectively (Figure 3.6, Panel B).

The finding of a broad stability on average is formally confirmed by econometric analysis: the elasticity of adjusted household disposable income to GDP is not statistically different from unity, once controlling for country-fixed effects and other factors.[15] This incidentally implies that the wide cross-country differences in the level of household income shares of GDP (Figure 3.6, Panel A) tend to persist over time. They are likely due to factors such as the degree of countries' openness, their trade structure and industrial composition.[16]

Income distribution between the household and non-household sectors

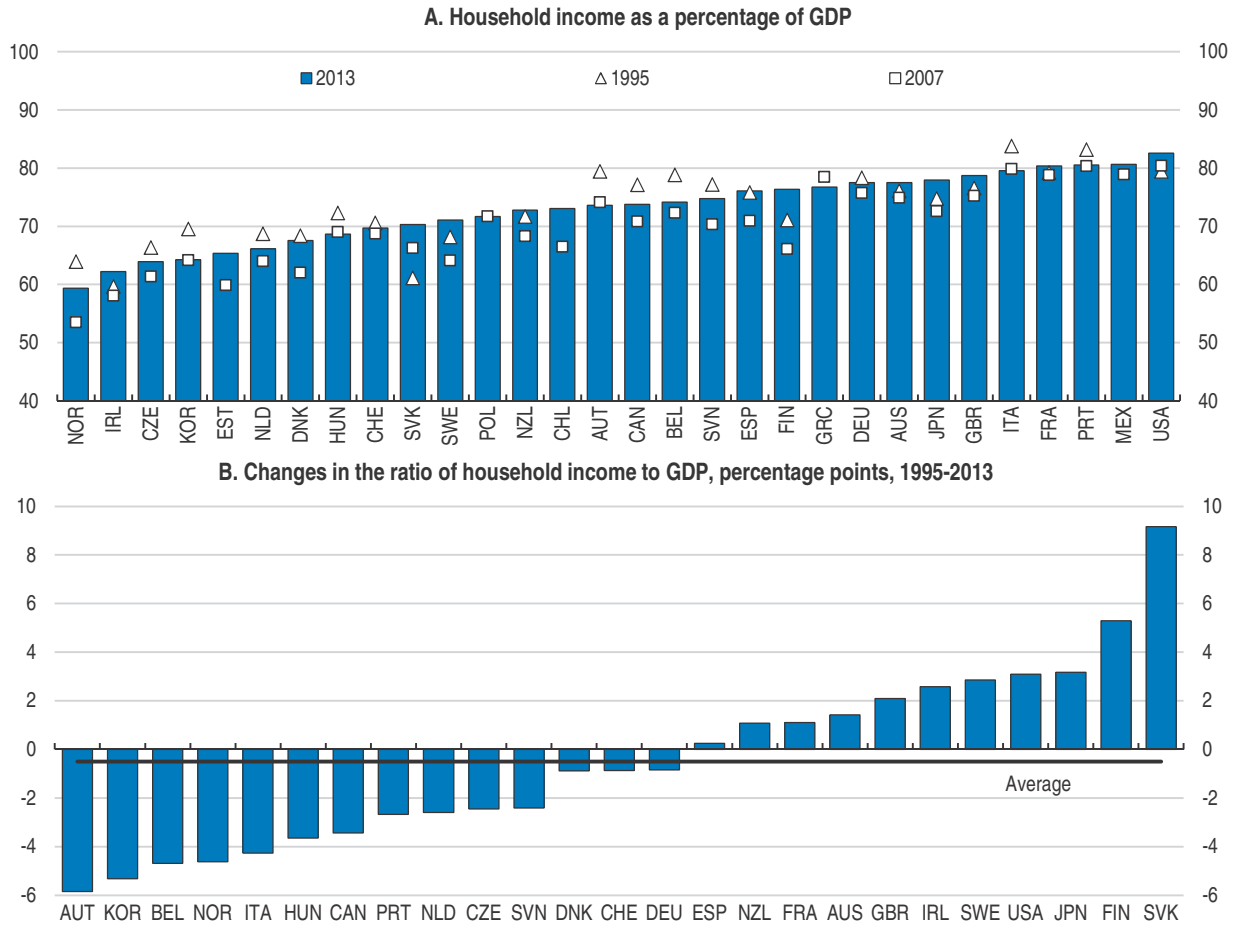
This section provides an exploratory analysis of the household income share along its components with a view to understanding the channels through which production income (GDP) translates into household income. This requires assessing the link between GDP and the three household income components defined in the first section: labour and capital (i.e. primary income); and secondary income, i.e. income redistributed from the government. This allows for shedding some light on income distribution between the household and non-household sectors of the national economy, in particular the government and corporate sectors.

The labour share of GDP

Labour represents the main source of overall income for the average household (Figure 3.2). Capital income also plays a role, but it represents a comparatively minor income source and, depending on the mode of capital remuneration, may be redistributed from the corporate to the household sector with a lag.[17]As a result, the functional income distribution, i.e. the division of income generated by domestic production between the

Figure 3.6. **The household income share of GDP**[1]

Nominal terms



1. Gross domestic product (GDP) and household income are expressed in current prices. For 1995, data refer to 1999 for Hungary, Ireland, Spain, New Zealand and United Kingdom. For 2013, data refer to 2014 for Canada, Czech Republic, Finland, Italy, Korea, the Netherlands, Norway, Portugal and Sweden; 2012 for New Zealand and Switzerland.

Source: OECD, *National Accounts Database*.

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remuneration of labour and that of capital, hence the aggregate labour share, is likely to influence in the short to medium term the division of income generated by domestic production between the household and non-household sectors.

Declines in the labour share have been documented over the past decades, even though the magnitude of such decline has been the object of controversies.[18] A wide array of research has investigated the drivers of this trend, focusing in particular on the role of globalisation along with that of changing policies and institutions. The main conclusions from this literature are summarised in the appendix. This section delivers a new assessment of developments in the labour share on the basis of SNA data.

The labour share is defined as the GDP share of income that is received by workers, be they employees or self-employed, in the form of labour compensation. Proper measurement of the aggregate labour share requires addressing a number of issues, such as estimating the division of income between labour and capital for the self-employed (Box 3.3).

Box 3.3. **Measuring the aggregate labour share**

The aggregate labour share is typically computed by dividing gross labour compensation by GDP at factor costs. There are several measurement issues associated with this calculation:

- *Measurement issues in specific industries*. In some industries, measurement of the labour share is problematic, which could impact on that of the aggregate labour share. For example, the value added of the public administration, as measured in the national accounts, is often equal to the sum of labour costs. As a consequence the labour share may be dramatically inflated in the public sector. Outside the public sector, in industries such as mining and fuel production, value added fluctuates quite a lot while wages do not, thereby inducing large fluctuations in the labour share.
- *Labour compensation of the self-employed*: the revenue of the self-employed is a mix of *labour* and capital incomes, which are typically not identified separately in the national accounts and appear under the item "mixed income". This requires imputing *labour* income for the self-employed. There is wide consensus that the remuneration of proprietor's labour should be assumed equal to the average compensation of wage earners (Arpaia et al., 2009).*

To analyse the mechanism whereby income generated by aggregate production trickles down to households, the labour share must be defined at the aggregate level by assuming that wage of the self-employed is the same as for the average employee of the whole economy.

In order to gauge the robustness of the analysis, the aggregate labour share can be confronted to alternative comparable datasets, relying on recent work published by Karabarbounis and Neiman (2014). The correlations between the aggregate labour share estimates of this chapter and those of Karabarbounis and Neiman are very close to one: they range between 0.90 and 0.95 for the levels and between 0.78 and 0.85 for the annual changes between 1995 and 2010.

Finally, this chapter uses as a denominator of the labour share of GDP at market prices and not at factor costs. This is necessary to analyse the link between GDP and household material living standards with a view to getting closer on the purchasing power of household incomes. This also takes into account the fact that government absorbs part of the value added (see European Commission, 2007, for a discussion). In any case, this measurement choice has no impact on results since the correlation between the labour share measured in terms of GDP at market prices and factor costs is higher than 0.97 both in levels and differences.

An additional analytical issue is the treatment of those at the top of the pay distribution; those are often more akin to entrepreneurs, employed by shareholders and rewarded with stock options which are an entitlement based on future profits and reduce the future returns to other shareholders. OECD (2012) delivered adjusted labour shares, by excluding the top 1% earners' income from the computation of the wage bill for seven countries over the period 1990 to mid-2000s: this shows that the drop in the "adjusted" *labour* share – or the labour share for the bottom 99% of income earners – is even greater than the drop in the "unadjusted" *labour* share, especially for the United States and Canada, due to an increase in the wage share of top income earners. One recent study estimates that the labour share excluding the contribution of top incomes has declined so much in the US that it is lower today than at any other time since the 1930s (Giovannoni, 2014). This may reflect the surge in CEO and other top executives' compensation, one of the main driving forces beyond the broader well-documented finding of an increase in the share of national income accruing to top incomes (Atkinson et al. 2011, Fernandes et al. 2009, Frydman and Jenker, 2010). This issue is beyond the scope of the current chapter but is left for future research, building on recent OECD work on top incomes (Ruiz and Woloszko, 2015).

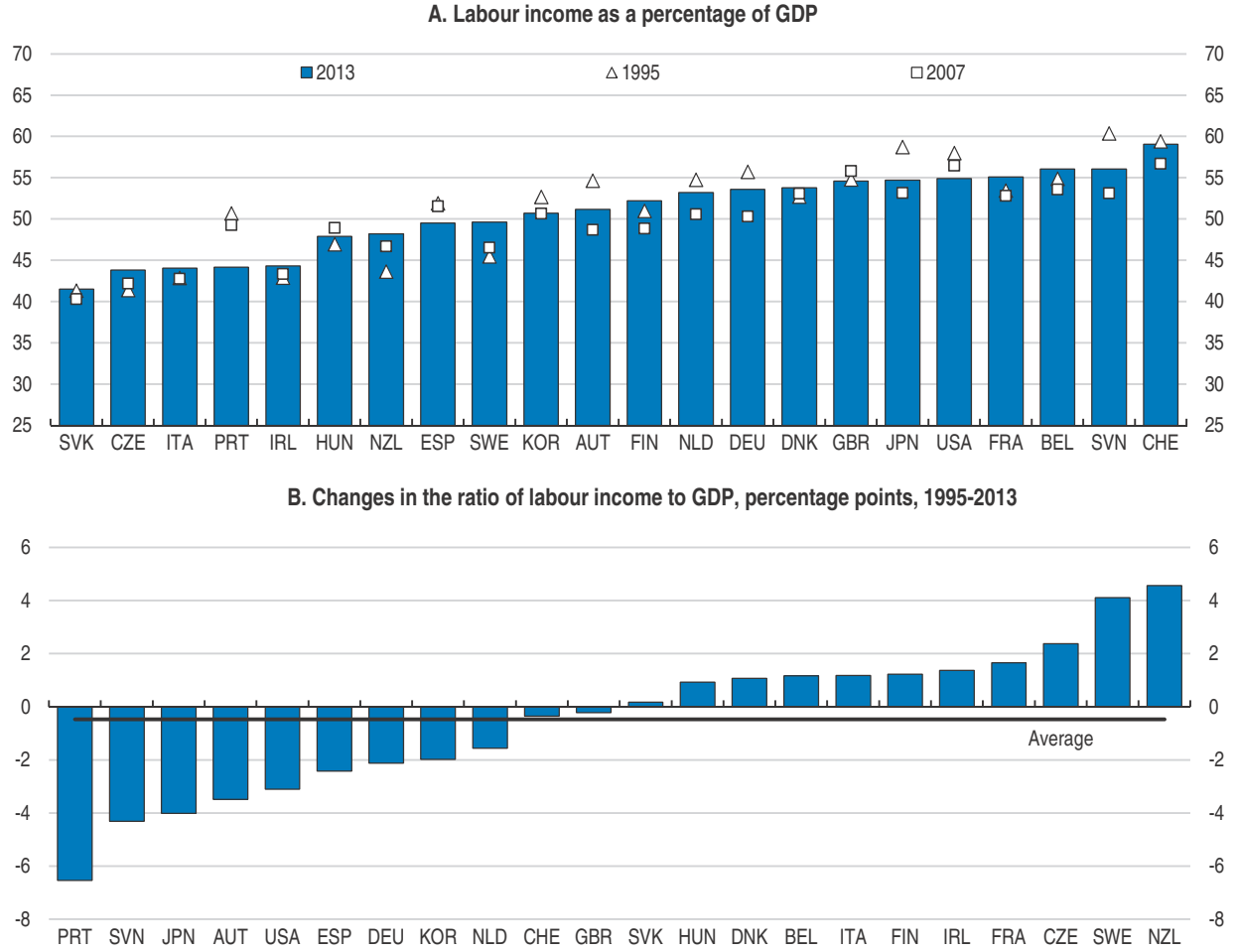
* An alternative method, when focusing on the business sector and working at the industry level, is to impute the hourly compensation of a proprietor's labour share by using the industry average compensation of employees.

National accounts data suggest a relative stability in the labour share over the last two decades, on average across OECD countries for which the data are available (Figure 3.7), somewhat in contrast with earlier studies. However, this average picture masks cross-country heterogeneity. Slightly half of the countries experienced a decline in the labour share: by more than 6 percentage points in Portugal, around 3 in the United States and 2 percentage points in Germany and Spain. Increases in the labour share experienced by the other half of the countries were of lower magnitude, generally between 1 and 2 percentage points, except in New Zealand and Sweden where such increases reached almost 5 percentage points.

The difference between the findings of this chapter and of previous studies is likely to reflect differences in the vintage of the data and the nature of the approach. In particular, most studies have measured the labour share for a subset of industries as opposed to the

Figure 3.7. **The labour share of GDP**[1]

Nominal terms



1. The labour share is defined as the sum of employees' wages and compensation and labour income of the self-employed, over GDP. Labour income of the self-employed is imputed by assuming that their annual wage is the same as for the average employee of the whole economy. GDP and wages and compensation are expressed in current prices. For 1995, data refer to 1998 for the United States; 1999 for Spain, the United Kingdom, Hungary, Ireland and New Zealand. For 2013, data refer to 2014 for Czech Republic, Finland, Italy, Korea, the Netherlands, Portugal, Sweden; 2012 for Switzerland, New Zealand and the United States.

Source: OECD, *National Accounts Database*.

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aggregate economy, for instance by focusing on the non-primary business sector (as done in OECD, 2012) while others have also excluded the self-employed (as done in Karabarbounis and Neiman, 2014). The current findings may mask compositional effects arising from cross-industry differences as well as workers' reallocation between industries. As a result, the aggregate approach needs to be complemented with a finer industry-level approach in future work.

The household capital income share of GDP

Capital represents a smaller source of overall income than labour for the average household, but this this income source is far from negligible and highly variable across countries (Figure 3.2).[19] Since capital is ultimately held by households, developments in economy-wide capital income over the last decades should have ultimately trickled down to the household sector.[20] This section provides a preliminary exploration of developments in capital income for the average household with a view to shedding light on this issue. Before doing so, it is useful to remind the SNA definition of household capital income. Such income covers the three following items:

- *Household operating surplus*: this item corresponds to income from housing services, that is, actual and "imputed" rents. In countries where homeownership is dominant such as France and Italy, most output in the housing sector is recorded as imputed rent paid by homeowners to themselves and this item amounts to around 10% of household adjusted disposable income per capita.
- *Capital income of the self-employed*: this item corresponds to the remuneration of capital for unincorporated enterprises, which are included in the household sector alongside "real" households. The national accounts do not generally allow for distinguishing between income from capital and labour for the self-employed, and the sum of the two is therefore called "mixed income". The split between the remuneration of labour and that of capital needs to be imputed, as explained in Box 3.3. The resulting capital income share is highly heterogeneous across countries, between 2.5% and 20% of adjusted household disposable income per capita, not least reflecting the heterogeneous incidence of self-employment.
- *Property income*: this item corresponds to the returns on households' financial investments (interest, dividends, and imputed interests from life insurance policies). It represents a smaller part of household income per capita compared to other capital income components and may not deliver a comprehensive assessment of returns to financial capital, reflecting the following limitations: i) it excludes capital gains and losses, whether realised or unrealised, and ii) as a result, it excludes capital gains from share buy-backs, yet such corporate profits redistribution mechanism to shareholders has been on the rise relative to dividend pay-out and iii) in some countries such as Germany and Italy it includes self-employment income accruing to a very substantial group of small individual firms.[21]The latter limitation has been shown to affect foremost cross-country level comparisons, leaving trend comparisons largely unaffected.[22]

Proper measurement of the capital income share ideally requires taking into account capital depreciation. The increasing share of fast-depreciating capital, notably intangible and knowledge-based capital (KBC) in all OECD countries implies an increase in the average depreciation rate of the overall capital stock (Andrews and Criuscolo, 2013). Experts generally assume a depreciation rate around 15% for intangible capital, which is much

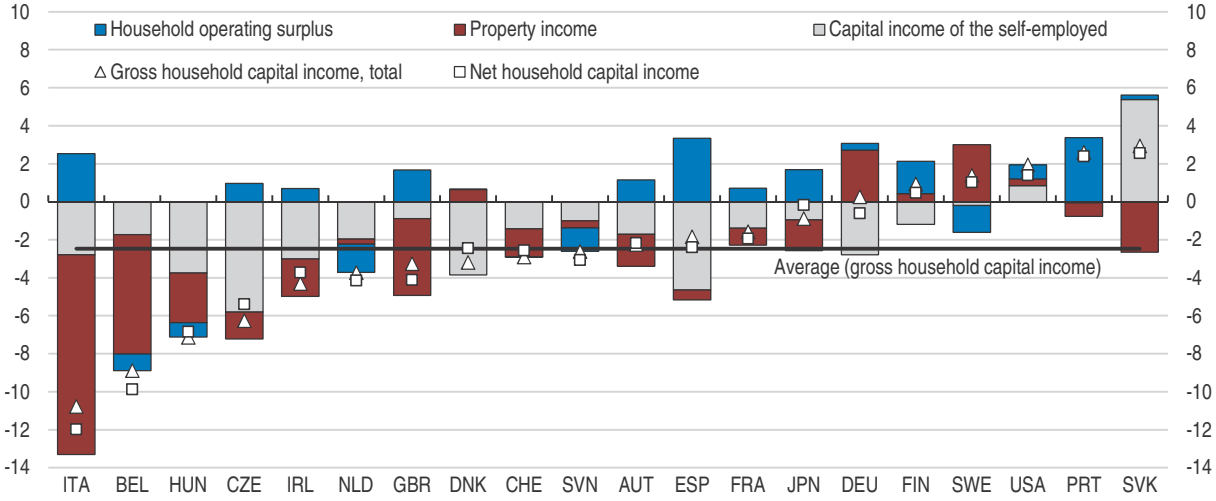
higher than the depreciation rate applied to tangible capital, although this is a new area of research which implies that any such estimate is surrounded by uncertainty. Even without formally taking into account KBC, recent empirical findings based on a sample of G7 countries suggest that trend rise in the capital income share is less pronounced when measured in net terms, reflecting increasing depreciation rates (Rognlie, 2015).

In practice however, methods for calculating consumption of fixed capital are complex and tend to differ between countries, thus creating doubts about the comparability of results. In addition, depreciation data are only available for a subset of countries in the SNA. As a result of these issues, this chapter presents both gross and net capital income shares. While the net concept is more appropriate in theory, results should be interpreted with care, reflecting comparability and measurement issues.

According to SNA data, the household capital income share of GDP (i.e. the ratio of capital income accruing to the household sector over GDP) has declined in the vast majority of OECD countries since the mid-90s (Figure 3.8).[23] The average decline of 2.5 percentage points masks cross-country differences in magnitude: from more than 12 percentage points in Italy to around 1 percentage point in France. The decline in property income may partly reflect declining interest payments on government debt held by households, as suggested by the sharper decline observed in Italy and Belgium, since in these countries bonds and other debt securities represent a higher proportion of household financial assets compared to the rest of the OECD.[24] Portugal and the United States are among the few countries experiencing a rise in the household capital income share and they are also among the countries experiencing a marked decline in the labour share. This

Figure 3.8. **The evolution of the household capital income share of GDP and its components**[1]

Nominal terms, percentage points, 1995-2013



1. The household capital income share is defined as the sum of household operating surplus, capital income of the self-employed and property income, over GDP. Capital income of the self-employed is imputed by the difference between their mixed income and their labour income, assuming that their annual wage is the same as for the average employee of the whole economy. GDP and household capital income are expressed in current prices. Net capital income is obtained by subtracting households' consumption of fixed capital from gross capital income. For 1995, data refer to 1998 for the United States; 1999 for Spain, the United Kingdom, Hungary, Ireland and New Zealand. For 2013, data refer to 2014 for Czech Republic, Finland, Italy, Korea, the Netherlands, Portugal, Sweden; 2012 for Switzerland, New Zealand and the United States.

Source: OECD, *National Accounts Database*.

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could suggest a shift in the functional income distribution. Nevertheless, a number of countries experienced a decline in the household capital income share amid stability (e.g. United Kingdom) or decline (e.g. Austria) in the labour share.

Income from housing services has been the only component of household capital income not falling relative to GDP. This corresponds to rental income, most of which is imputed in the national accounts on the grounds of owner-occupied housing. This finding echoes recent work by Rognlie (2015) as well as Bonnet et al. (2014) who show that the trend rise in the capital share of GDP has been driven by the housing sector.[25] This could mitigate the adverse distributional consequences of rising capital incomes, because housing is more equitably distribut ed than other capital assets (i.e. financial assets), as recently shown in OECD (2015b).[26] The role of housing cannot be properly addressed through SNA data, due to cross-country differences in the methodology applied for imputing owner-occupied rents (Box 3.1).

Parallel declines in labour and household capital income shares of GDP could suggest that a rising share of primary income has been retained by the corporate sector. This would be consistent with Karabarbounis and Neiman (2014) who show that the decline of the labour share has been the counterpart of a concomitant increase in corporate savings.[27] Nevertheless, the findings reported in this chapter provide a more complex picture: widespread declines in the household capital income share have coincided with mixed developments in the labour share (i.e. increases in some countries, declines in others). The decline in household capital income could nevertheless be overestimated in the current analysis if the nature of capital income has been changing towards forms of remuneration that are not covered by the SNA. This notably applies to realised capital gains, as discussed before, including share buy-backs, which have been increasingly used by corporations as a way to redistribute profits to shareholders. Assessing developments in household capital income in association with developments in corporate profit distribution and savings behaviour is also an important area for future research.

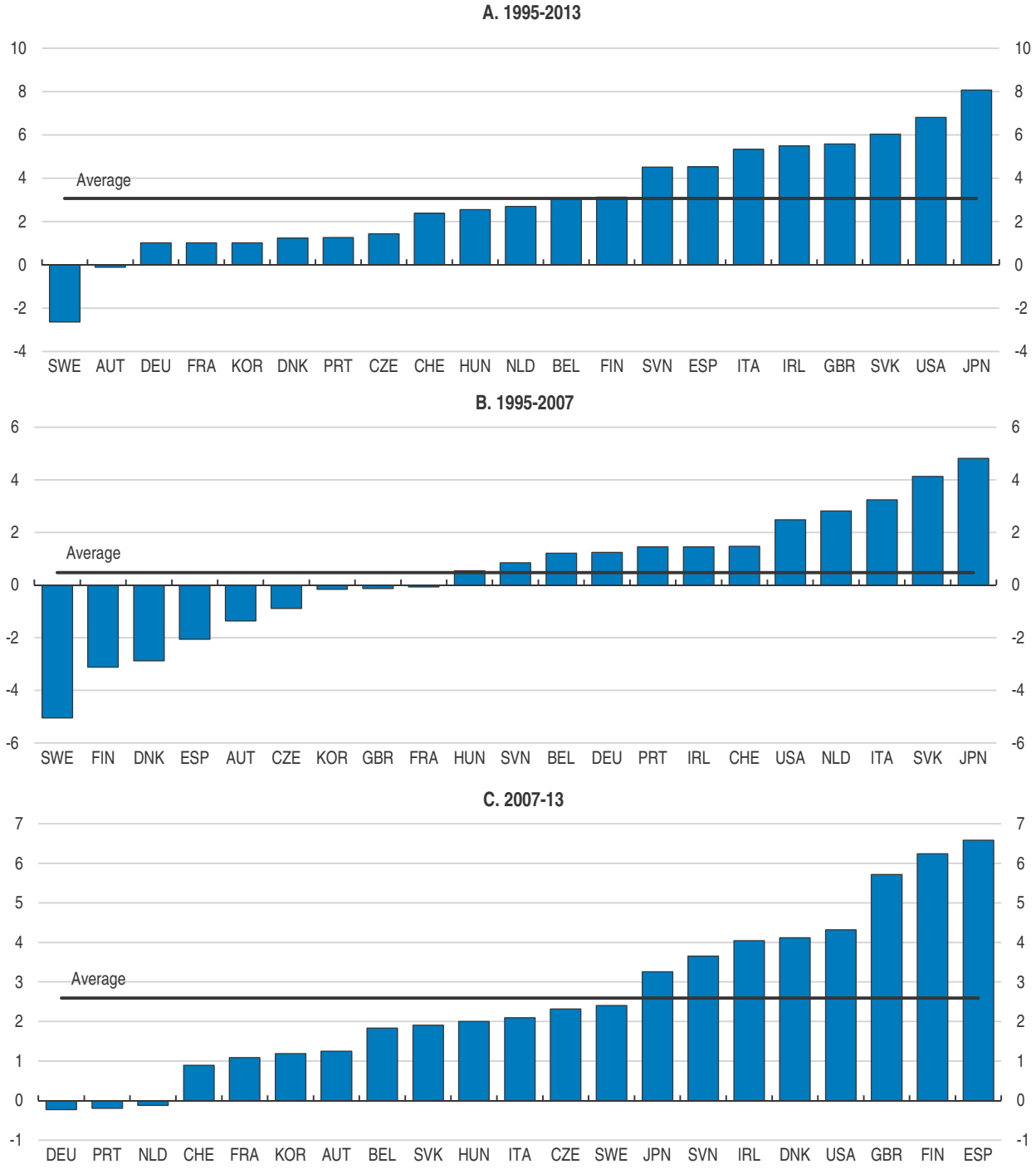
The household secondary income share of GDP

Developments in the household income share of GDP may also reflect income flows between the household and the government sector. Indeed, so far the analysis has focused on household primary income, that is, income from labour and capital. This needs to be complemented with an analysis of household secondary income, that is, income that the government redistributes in cash or in-kind to households, net of the current taxes on income and wealth paid by households (see Figures 3.1 and 3.2).

Secondary household income shares of GDP have been rising in many countries (Figure 3.9, Panel A). This finding should be qualified: it largely reflects higher social transfers and lower taxes during the crisis period (Figure 3.9, Panels B and C), which have cushioned household disposable incomes from the falls in GDP and market income. Apart from the crisis period, cross-country trends have been heterogeneous, with around one third of countries experiencing declines of more than 2 percentage points, another third facing rises of more than 2 percentage points, and the rest seeing relative stability in the share of household secondary income in GDP (Figure 3.9). All in all, income redistributed by the government does not appear as a major long-term driver of disposable income for the average household, but rather as a key income stabiliser over the economic cycle, which is broadly consistent with priors on the cushioning role of the welfare state.

Figure 3.9. **The evolution of the household secondary income share of GDP**[1]

Nominal terms, percentage points, 1995-2013



1. The household secondary income share is defined as the sum of the net social benefits, transfers, and social transfers in-kind received by households, minus current taxes on income, wealth, etc. over GDP. The household secondary income share is defined as the ratio of household secondary income over GDP. GDP and household secondary income are expressed in current prices. For 1995, data refer to 1998 for the United States; 1999 for Spain, the United Kingdom, Hungary, Ireland and New Zealand. For 2013, data refer to 2014 for Czech Republic, Finland, Italy, Korea, the Netherlands, Portugal, Sweden; 2012 for Switzerland, New Zealand and the United States.

Source: OECD, *National Accounts Database*.

StatLink http://dx.doi.org/10.1787/888933324062

The finding of an increase in income redistributed from governments to households could also be overestimated to the extent that consumption taxes are excluded from taxes paid by households in the SNA framework, as emphasised above. Yet across high-income countries the recent period has been characterised by a trend shift in the tax structure towards consumption taxes,[28] which is likely to have reduced the purchasing power of household incomes. Indeed, this is in line with the findings reported in the first section of this chapter, that is, a decline in real household incomes, when nominal household income is deflated with consumer prices, as those have increased in many countries relative to output prices.

A Wrap-up on the household income share of GDP

To wrap-up, the changes in the household income share of GDP presented at the beginning of this chapter can be decomposed as changes in the labour share of GDP, in the household capital income share of GDP, and in the household secondary income share of GDP (Figure 3.10). This summary decomposition delivers the following broad conclusions:

- Over the period 1995-2013, declines in the household income share of GDP were in most cases largely driven by declines in the household capital income share of GDP while increases were driven by increases in the household secondary income share of GDP. The contribution of labour income was heterogeneous across countries, but generally of lower magnitude (Figure 3.10, Panel A).
- The relative contribution of labour, household capital and household secondary income shares partly reflects the cushioning role of secondary income redistributed by governments at the onset of the crisis (Figure 3.10, Panels B and C). Indeed, most OECD countries experienced declines in the household income share of GDP over the pre-crisis period; this was driven by declines in primary incomes, in particular by declines in the household capital income share but also, though to a lesser extent, by declines in the labour share. Such declines were not generally compensated by increases in household secondary income shares of GDP, in contrast with the crisis period.

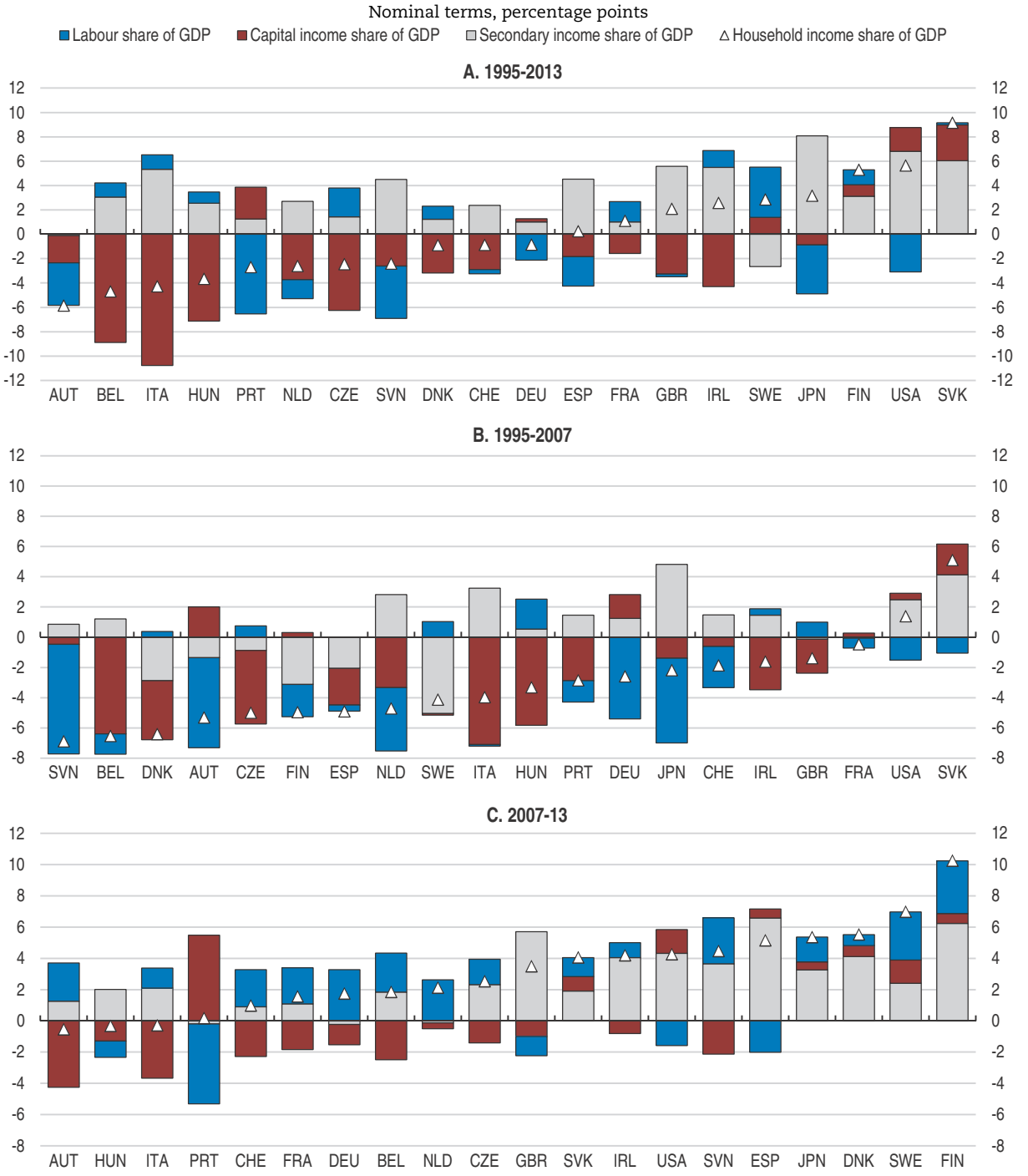
From functional income distribution to income inequality

Functional income distribution, which can be defined as the division of income between labour and capital, is often expected to explain income inequality. However, the link is not a simple one whereby income is divided into workers receiving only wages and capitalists or landlords receiving only profits and rents. First, most people have multiple sources of income, notably from labour and from capital; second, there is considerable inequality within each category of income, notably within labour and capital income. Even if there were only two types of income, wage and capital, the effect on income inequality of changes in the functional income distribution would depend on the degree of correlation between wage and capital income and on the relative dispersion between the two income sources.[29]

Market income

Empirically, declines in the labour share have been associated with widening market-income inequalities,[30] even though the correlation is not very high and a number of countries have experienced increases in both labour shares *and* inequality of market incomes (Figure 3.11). The association is even weaker for household capital income. Developments in the household capital income share reveal nothing on market-income inequality, as most OECD countries have experienced declines in household capital income

Figure 3.10. **Decomposing the changes in the household income share of GDP**[1]



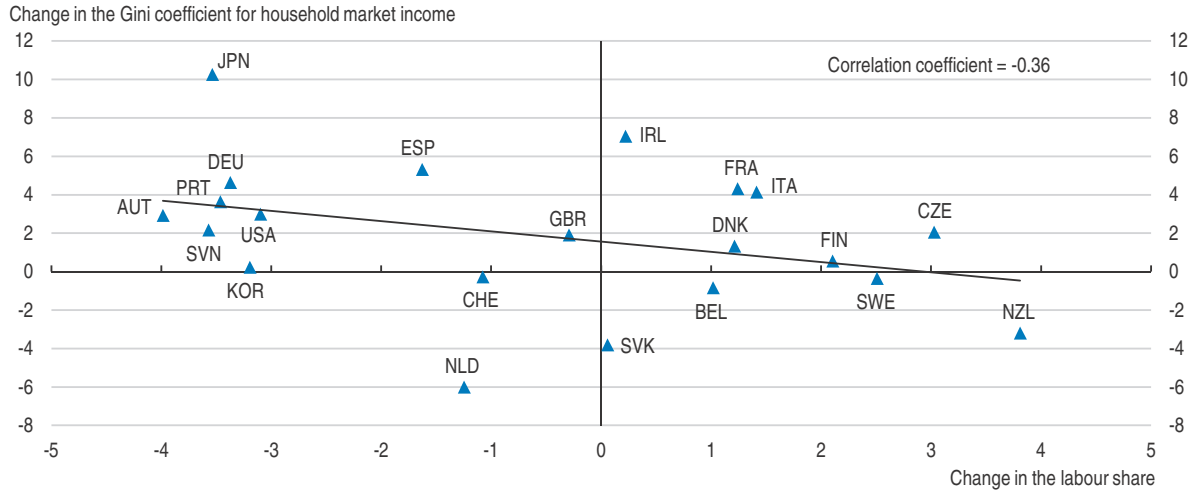
1. See Figures 3.7 to 3.9 for the definition of respectively the labour share, the household capital income share (gross terms), and the household secondary income share. GDP and the various components are expressed in current prices. For 2013, data refer to 2014 for Czech Republic, Denmark, Finland, Italy, the Netherlands, Portugal and Sweden; 2012 for New Zealand and Switzerland. For Chile and Korea, the component "Operating surplus" includes mixed income. For panel C, 1999 instead of 1995 for Hungary, Ireland, Spain, the United Kingdom and New Zealand and 1998 for the United States.

Source: OECD, *National Accounts Database*.

StatLink http://dx.doi.org/10.1787/888933324070

Figure 3.11. **Developments in the labour share and in market income inequality[1]**

Nominal terms, percentage points, 1995-2012



1. See Figure 3.7 for a definition of the labour share. Inequality is measured by the Gini index coefficient for pre-tax and transfer income (market income). The values of the Gini coefficient range between 0, in the case of "perfect equality" (i.e. each share of the population gets the same share of income), and 1, in the case of "perfect inequality" (i.e. all income goes to the individual with the highest income). For 1995, data refer to 1998 for the United States, 1999 for Hungary, Ireland, Spain, New Zealand and the United Kingdom. For 2012, data refer to 2011 for Canada, Denmark, France, Germany, Japan, the United Kingdom, New Zealand, Switzerland and Sweden.

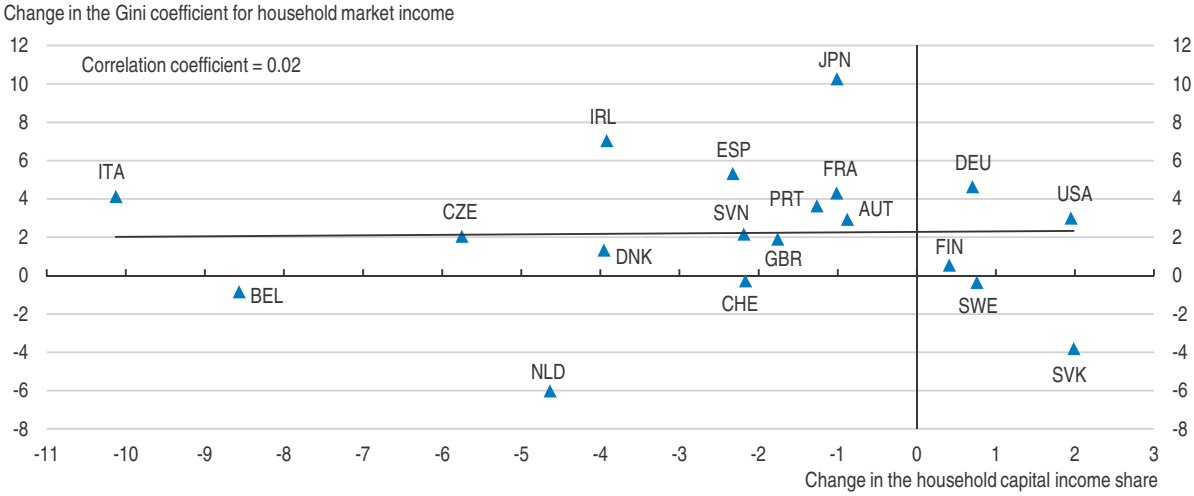
Source: OECD, *National Accounts and Income Distribution Databases*.

StatLink http://dx.doi.org/10.1787/888933333811

shares and increases in inequality of market incomes (Figure 3.12). This is likely to reflect measurement limitations associated with household capital income, such as the non-recording of capital gains in national accounts. Measurement limitations also apply to Gini coefficients. Generally computed on household surveys, they tend to under-estimate top incomes and thus the dispersion of capital incomes.

Figure 3.12. **Developments in the household capital income share and in market income inequality[1]**

Nominal terms, percentage points, 1995-2012



1. See Figure 3.8 for a definition of the household capital income share and Figure 3.11 for the Gini index. For 1995, data refer to 1998 for the United States, 1999 for Hungary, Ireland, Spain, New Zealand and the United Kingdom. For 2012, data refer to 2011 for Canada, Denmark, France, Germany, Japan, the United Kingdom, New Zealand, Switzerland and Sweden.

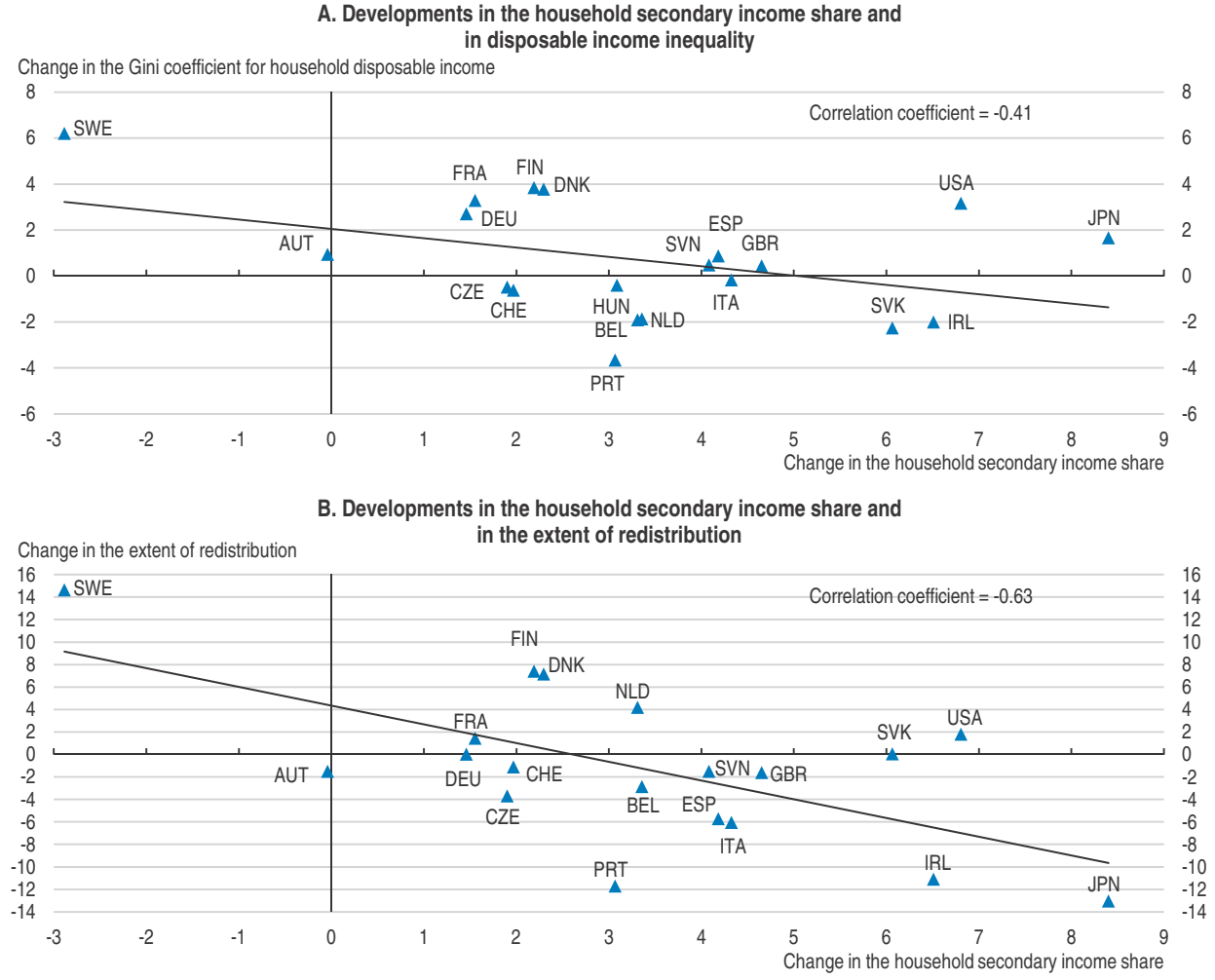
Source: OECD, *National Accounts and Income Distribution Databases*.

StatLink http://dx.doi.org/10.1787/888933333824

Secondary or redistribution income allows for moving from market income to disposable income, i.e. market income net of current income taxes paid and transfers received by households from the government. The association between developments in the household secondary income share of GDP and in inequality of household disposable income is negative and relatively strong (Figure 3.13, Panel A). Redistribution income is indeed meant to reduce the impact of market income inequality on disposable income inequality. Nevertheless, the redistributive effect of taxes and transfers is heterogeneous across OECD countries: for a given rise in secondary income accruing to the average household, countries are more (e.g. Portugal) or less (the Netherlands) successful at moderating the transmission from market income inequality to disposable income inequality (Figure 3.13, panel B).

Figure 3.13. **Developments in the household secondary income share and in income inequality**[1]

Nominal terms, percentage points, 1995-2012



1. See Figure 3.9 for a definition of household secondary income share and Figure 3.11 for the Gini index. The extent of redistribution is defined as the difference between the Gini coefficients for disposable and market income, relative to the value of the Gini coefficient for market income. It is measured in terms of the change over the period 1995- 2012. For 1995, data refer to 1998 for the United States, 1999 for Hungary, Ireland, Spain, New Zealand and the United Kingdom. For 2012, data refer to 2011 for Canada, Denmark, France, Germany, Japan, the United Kingdom, New Zealand, Switzerland and Sweden.

Source: OECD, *National Accounts and Income Distribution Databases*.

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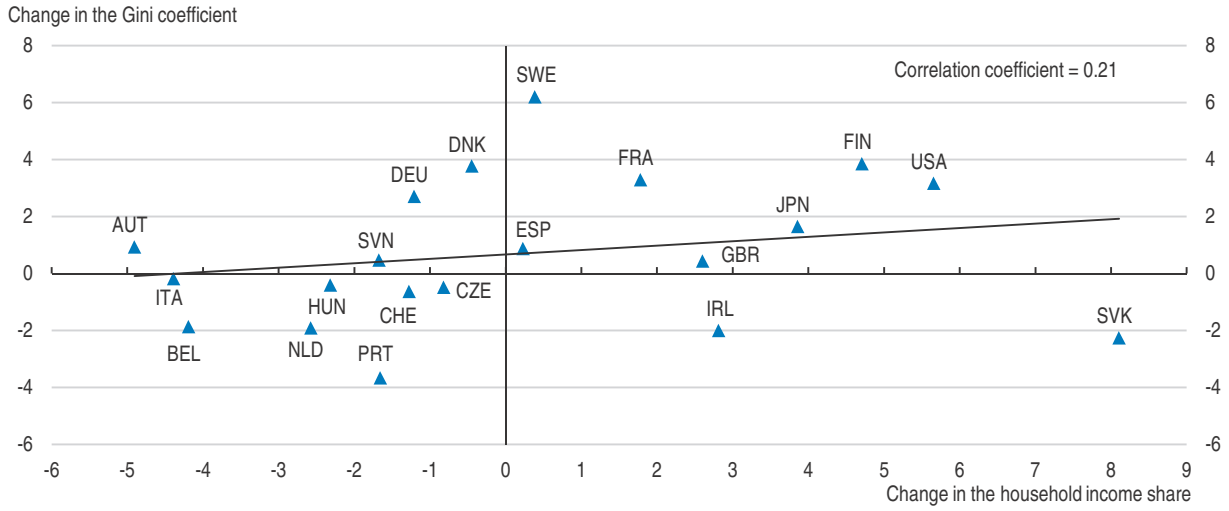
A Wrap-up on income distribution

Wrapping-up on the different components of household income, i.e. labour, capital and secondary income, changes in the overall household income share of GDP are positively but weakly correlated with changes in disposable income inequality (Figure 3.14). This would imply that as the household sector receives a larger share of GDP, income dispersion across the household sector increases, a somewhat counter-intuitive finding. This is more likely to reflect that income distribution between the household and non-household sectors of the economy has little information value about income distribution within the household sector, as it largely ignores the major drivers of dispersion at the level of market incomes: inequality between workers and non-workers and inequality among workers, as well as taxes and transfers as a major source of income and a redistributive tool to mitigate market income inequality.

Figure 3.14. **Wrapping-up: developments in the household income share and in disposable income inequality**[1]

Nominal terms, percentage points, 1995-2012



1. Household income and Gross domestic product (GDP) are expressed in current prices. Inequality is measured by the Gini coefficient for post-tax and transfer income (disposable income). See Figure 3.11 for a definition of the Gini index. For 1995, data refer to 1998 for the United States, 1999 for Hungary, Ireland, Spain, New Zealand and the United Kingdom. For 2012, data refer to 2011 for Canada, Denmark, France, Germany, Japan, the United Kingdom, New Zealand, Switzerland and Sweden.

Source: OECD, *National Accounts and Income Distribution Databases*.

StatLink http://dx.doi.org/10.1787/888933333848

Notes

1. Stiglitz et al. (2009), Atkinson, (2012, 2015), OECD, (2008), (2011a), (2011b), (2015), *OECD Better Life Initiative*, *OECD Inclusive Growth Initiative*, Piketty (2013), Causa et al. (2014a, 2014b).
2. See also Atkinson, (2012), OECD, (2011a), *OECD Better Life Initiative*, *OECD Inclusive Growth Initiative*, Causa et al. (2014a).
3. Empirical evidence on income distribution and on the influence of growth-oriented policies on income distribution is relatively rich. See Causa et al. (2014a, 2014b), OECD, (2011b), Braconier and Ruiz-Valenzuela (2014), Fournier and Koske, (2012), Joumard et al. (2012), Koske et al. (2012), Jaumotte and Osorio Buitron (2015). This has allowed for progressively incorporating income inequality among the objectives of policymaking, for instance among the policy recommendations formulated in *Going for Growth* reports.

4. This paper relies on a comprehensive use of the SNA and its guide (Lequiller and Blades, 2014). The SNA defines six institutional sectors: households (S14); non-financial corporations (S11); financial corporations (S12); general government (S13); non-profit institutions serving households (S15); and the rest of the world (S2).
5. An estimate of income derived from the underground (or hidden) economy is included in the SNA and represents a large share of GDP in many countries (for example around 11% in Spain). See Lequiller and Blades (2014). Household income in the SNA consistently includes income derived from hidden activities. The majority of hidden activities are related to small enterprises. As a consequence, the main part of the adjustment ends up in output and value added of households (for example in self-employment income).
6. See Atkinson (2009) and (2012) for a discussion and the definition of "spendable income".
7. Consumption of fixed capital is defined as the reduction in the value of the fixed assets used in production. At the household level, the most important fixed asset is usually housing. Under the SNA framework, consumption of fixed capital is estimated by applying a depreciation rate to the current value of each capital asset, *i.e.* its current market price. The depreciation rate varies across countries and depends on the assumption about assets' service lives (*i.e.*, how long the asset is assumed to be used; for example in the United States it is assumed that the service life of a dwelling is 80 years). Depreciation functions may be geometric (US assumption for dwellings) or linear. On average across OECD countries for which data are available, consumption of fixed capital represents 5% of net adjusted household disposable income.
8. There are well-known measurement issues in the estimation of households' consumption of fixed capital, suggesting that gross adjusted disposable income may be more appropriate for cross-country comparison purposes. The correlation between them is close to one (0.99).
9. Self – employment income corresponds to the SNA item "mixed income": so-called because this category includes both the remuneration of labour and that of capital.
10. This pattern is in line with recent OECD work on inequality trends during the crisis, where it is shown that taxes and social transfers alleviated the effects on disposable incomes of falling market incomes during the crisis (OECD, 2013c).
11. Many OECD countries have been raising their standard VAT rate, in particular between 2009 and 2014. The OECD average standard VAT rate reached 19.1% in January 2014, from 17.6% in January 2009. Ten OECD countries now have a standard rate above 22% versus four in 2009. See OECD (2014).
12. For example, household income includes -- while GDP excludes -- the wages and salaries of workers who are resident in a country but working in neighbouring countries; conversely, household income excludes, while GDP includes, the wages and salaries of workers who are non-resident of a country where they have come to work.
13. GNI is not affected by the activity of multinationals and therefore the allocation of value added and profits across countries. In the SNA, all profits end up in the country of residence of the multinational, via the item "reinvested earnings on foreign direct investment" in the business accounts: see Chapter 7 in Lequiller and Blades, (2014).
14. The same diagnosis applies to the household income share of GNI (not shown).
15. This finding confirms earlier results by Causa et al. (2014b).
16. See Causa et al. (2014b) for a discussion.
17. For instance companies may defer cash dividends distribution because the cyclical or institutional context makes it more attractive to accumulate cash or retain earnings for investment purposes. The part of household capital income that accrues in the form of capital gains is *de facto* excluded from the SNA.
18. See OECD, (2012) for a recent in-depth assessment and policy analysis., see also *inter alia* Arpaia et al. (2009); Azmat et al. (2012), Bentolila and Saint-Paul (2003), Checchi and Garcia-Penalosa, (2008, 2010), De Serres at al. (2002), Elsby et al. (2013), European Commission, (2007), Frydman and Saks, (2010), Harrison, (2002), Jaumotte and Tytell, (2007); more recent papers have analysed the concomitant rise in the capital share: see Karabarbounis and Neiman (2014), Piketty (2013), Piketty and Zucman (2014), Rognlie (2015).
19. Trend rises in the aggregate capital share of GDP among high-income countries since the post war area have been documented and received growing attention among researchers and policymakers, not least reflecting associated inequality implications (Piketty, 2013). See Karabarbounis and Neiman (2014), Piketty (2013), Piketty and Zucman (2014), Rognlie (2015). The most recent period is

however characterized by a marked decline in the investment rate hence in capital per worker as discussed for instance in Chapter 3 of OECD (2015a). The impact on the functional income distribution is likely to depend on number of factors such as substitutability between capital and labour. The impact on the household capital income share is likely to materialize with a lag and will depend on companies' profits and their redistribution strategies.

20. Capital income of general government is null by construction, because the output of the general government sector consists of non-market output and is valued "at cost", meaning that value added is equal to labour costs (i.e. compensation of civil servants, which is included in the aggregate labour share).

21. In Italy, unincorporated enterprises with more than five employees are considered as "quasi-corporations" and are therefore classified in the corporate sector. This implies an overestimation of the profit share hence an underestimation of the labour share. See Guidetti and Pionnier, (2015) for a detailed assessment.

22. This conclusion is based on findings reported in Guidetti and Pionnier (2015).

23. These results pre-date the crisis: similar conclusions are reached for the period 1995-2013.

24. OECD (2015b), Chapter 6.

25. The finding of positive effects from housing assets is also emphasized in recent OECD work on household wealth: OECD (2015b) shows that rising house prices have been a key factor leading to higher household wealth in some OECD countries such as Australia, Belgium, Canada, Spain and the UK. In the SNA, the household income account does not allow for directly capturing capital gains associated with rising house prices – unless indirectly reflected in rising actual and imputed rents.

26. This argument remains tentative since the National Accounts data do not cover the income distribution. See OECD (2015b), Chapter 6 for a recent focus on household wealth and its distribution.

27. The authors develop a model-based explanation for these trends: that is, a global decline in the cost of capital, which has induced firms to shift away from labour and towards capital, financed in part by an increase in corporate savings.

28. OECD (2014).

29. The higher the dispersion of capital relative to labour income and the higher the correlation between the two income sources, the most likely will the decline in labour share result in higher inequality.

30. See OECD (2012), Checchi and Garcia Penalosa (2008, 2010).

Bibliography

Andrews, D. and C. Criscuolo (2013), "Knowledge-Based Capital, Innovation and Resource Allocation", *OECD Economics Department Working Papers* 1046, OECD Publishing Paris, *http://dx.doi.org/10.1787/5k46bh92lr35-en*.

Arpaia, A., E. Prez and K. Pichelmann (2009), "Understanding Labour Income Share Dynamics in Europe", *European Economy Economic Papers* No. 379, European Commission, Brussels, May.

Atkinson, A.B, T. Piketty, and E. Saez, (2011), "Top incomes in the long run of history", *Journal of Economic Literature*, American Economic Association, Vol. 49(1), pages 3-71, March.

Atkinson, A.B. (2009), "Factor shares: the principle problem of political economy?" *Oxford Review of economic policy,* Vol. 25, No. 1, pp. 3-16.

Atkinson, A.B. (2012), "Putting people first and macro-economic policy", paper prepared for the OECD New Approaches to Economic Challenges Group Meeting, October 2012.

Atkinson, A.B. (2015), *Inequality: what can be done?* Harvard University Press.

Azmat, G., A. Manning and J. van Reenen (2012), "Privatization and the decline of labour's share: international evidence from network industries", *Economica*, Vol. 79 Issue 315, pp. 470-492.

Bassanini, A. and T. Manfredi (2012), "Capital's Grabbing Hand? A Cross-country/Cross-industry Analysis of the Decline of the Labour Share", *OECD Social, Employment and Migration Working Paper*, OECD Publishing, Paris.

Bentolila, S. and G. Saint-Paul (2003), "Explaining Movements in the Labor Share", *Contributions to Macroeconomics*, Vol. 3, No. 1.

Blanchard, O. and F. Giavazzi (2003), "Macroeconomic effects of regulation and deregulation in goods and labor markets", *Quarterly Journal of Economics*, Vol. 115, pp. 879-907.

Bonnet, O., P.H. Bono, G. Chapelle and E. Wasmer (2014), "Does housing capital contribute to inequality"? A comment on Thomas Piketty's Capital in the 21st Century", *Sciences Po Economics Discussion papers* 2014-07.

Causa, O. , A. Cavaciuti, N. Ruiz and Z. Smidova, (2014a) "GDP and Income Distribution Developments Across OECD Countries", *OECD Economics Department Working Paper*, No. 111, OECD Publishing Paris, *http://dx.doi.org/10.1787/5jz5m89dh0nt-en*.

Causa, O., A. De Serres and N. Ruiz (2014b) "Can Pro-growth policies lift all boats? An analysis based on household disposable income", *OECD Economics Department Working Papers* No. 1180, OECD Publishing Paris, *http://dx.doi.org/10.1787/5jxrh8dh5wg7-en*.

Checchi, D. and C. Garcia-Peñalosa (2008), "Labour Market Institutions and Income Inequality", *Economic Policy*, Vol. 23, No. 56, pp. 601-649.

Checchi, D. and C. Garcia-Peñalosa (2010), "Labour Market Institutions and the Personal Distribution of Income in the OECD", *Economica,* Vol. 77, No. 307, pp. 413-450.

Corrado, C. , J. Haskel, Jona-Lasinio, C. and M. Iommi (2012), "Intangible Capital and Growth in Advanced Economies: Measurement Methods and Comparative Results", Intan Invest.

Dew-Becker, I. and R. J. Gordon (2005), "Where did the productivity go? Inflation dynamics and the distribution of income", *NBER Working Paper* 11842.

Elsby, M. W, Honijin, B. and A. Sahin (2013), "The decline of the US labour share", *Brookings papers on Economic Activity*, Fall 2013, p. 51-63.

European Commission (2007)," The Labour income Share the European Union," Chapter 5 of *Employment in Europe 2007,* Directorate-General for Employment, Social Affairs and Equal Opportunities, Brussels.

Fernandes, N., M.A. Ferreira, P. Matos and K.J. Jenter (2009), "The pay divide: (why) are us top executives paid more?", *ECGI Working Paper* No. 255/2009.

Fournier, J.-M. and I. Koske (2013), "The Determinants Of Earnings Inequality: Evidence from Quantile Regressions", OECD Journal: Economic Studies, Vol. 2012/1, *http://dx.doi.org/10.1787/eco_studies-2012-5k8zs3twbrd8*

Frydman, C. and D. Jenter (2010), "CEO Compensation", *Annual Review of Financial Economics*, Vol. 2, No. 1, pp. 75-102.

Giovannoni, O. (2014) "What do we know about the labor share and the profit share? Part III: measures and structural factors", *Economics Working Paper Archive* wp_805, Levy Economics Institute.

Guidetti and Pionnier (2015), "Comparing profit shares in value-added in four OECD countries: towards more harmonised National Accounts", *OECD Statistics Directorate Working Paper* No.61, OECD Publishing, Paris.

Harrison, A. (2002), "Has globalization eroded labor's share? Some cross-country evidence", Paper presented at the Joint Conference of the IDB and the World Bank: The FDI Race: Who Gets the Prize? Is it Worth the Effort? October.

ILO (2012), *Global Wage Report 2012/2013: Wages and equitable growth*, Geneva.

Jaumotte, F and C. Osorio Buitron (2015), "Inequality and labour market institutions", *IMF Staff Discussion note SDN/15/14*.

Jaumotte, F. and I. Tytell (2007), "How has the globalization of labor affected the labor income share in advanced countries?", *IMF Working Paper*, No. 07/298.

Joumard, I. , M. Pisu and D. Bloch (2012), "Tackling income inequality: the role of taxes and transfers", *OECD Journal: Economic Studies*, Vol. 2012.

Karabarbounis, L. and B. Neiman (2014), "The global decline of the labour share", *The Quarterly Journal of Economics* 129 (1), p. 61, 103.

Koh, D., R. Santaeulalia-Llopis, and Y. Zheng (2015), "Labour share decline and the capitalization of intellectual property products", *Washington University in Saint-Louis Working Paper*

Koske, I., J. Fournier and I. Wanner (2012), "Less Income Inequality and More Growth – Are They Compatible? Part 2. The Distribution of Labour Income", OECD Economics Department Working Papers, No. 925, OECD Publishing, Paris, *http://dx.doi.org/10.1787/5k9h2975rhhf-en*

Lequiller, F. and D. Blades (2014), *Understanding national accounts*: Second Edition, OECD Publishing, Paris.

OECD (2008), *Growing Unequal? Income distribution and poverty in OECD countries*, OECD Publishing, Paris, *http://dx.doi.org/10.1787/9789264044197-en*.

OECD (2011a), *How's Life? Measuring well-being*, OECD Publishing, Paris, *http://dx.doi.org/10.1787/9789264121164-en*.

OECD (2011b), *Divided we stand: why inequality keeps rising*, OECD Publishing, Paris, *http://dx.doi.org/10.1787/9789264119536-en*

OECD (2012), "Labour losing to capital: what explains the declining labour share?", Chapter 2 of *Employment Outlook 2012*, OECD Publishing, Paris, *http://dx.doi.org/10.1787/empl_outlook-2012-4-en*.

OECD (2014), *Consumption Tax Trends 2014: VAT/GST and excise rates, trends and policy issues*, OECD Publishing, Paris, *http://dx.doi.org/10.1787/ctt-2014-en*.

OECD (2015a), *OECD Economic Outlook Volume 2015/1*, OECD Publishing, Paris, *http://dx.doi.org/10.1787/eco_outlook-v2015-1-en*.

OECD (2015b), *In it together: why less inequality benefits all*, OECD Publishing, Paris, *http://dx.doi.org/10.1787/9789264235120-en*.

Piketty, T. (2013), *Le capital au XXIème siècle*, ed. Seuil, Paris.

Piketty, T. and G. Zucman (2014), "Wealth and inheritance in the long-run", *CEPR discussion paper No.DP10072*.

Rognlie, M. (2015) "Deciphering the fall and rise in the net capital share", *Brooking Chapters on Economic Activity*, BPEA Conference Draft, March 19-20, 2015.

Ruiz, N. and N. Woloszo (2016), "What Do Household Surveys Suggest about the Top 1% incomes and Inequality in OECD Countries?", *OECD Economics Department Working Papers,* No. 1265, *http://dx.doi.org/10.1787/5jrs556f36zt-en*.

De Serres, A., Scarpetta, S. and C. de la Maisonneuve (2002), "Sectoral shifts in Europe and the United States: how they affect aggregate labour shares and the properties of wage equations", *OECD Economics Department Working Papers* No 326, OECD Publishing, Paris, *http://dx.doi.org/10.1787/763626062738*

Stiglitz, J.E., A. Sen and J.-P. Fitoussi (2009), *Report by the Commission on the Measurement of Economic Performance and Social Progress, www.stiglitzsenfitoussi.fr/documents/rapport_anglais.pdf*.

APPENDIX 3.1

Policy drivers of the labour share: a brief literature overview

Declines in the labour share have been documented over the past decades, even though the magnitude of such a decline has been the object of controversies.[1] A wide array of research has investigated the drivers of this trend, focusing in particular on the role of globalisation along with that of changing policies and institutions. The main conclusions from this literature can be summarised as follows:

- Empirical evidence has pointed to negative effects of technical change and skill-biased technical change embodied in ICT capital on the labour share, reflecting extensive automation of production and substitution between capital and labour.[2]
  - Technical change is becoming disembodied to the extent that it reflects the accumulation of knowledge-based capital (KBC, including output from R&D, better management, etc.). This also favours high-skilled workers, for instance because the accumulation of KBC reflects productive improvements associated with highly-qualified personnel.
  - However, disembodied technical change and the rising share of KBC have uncertain effects on the aggregate labour share. First, in net as opposed to gross terms, the process is not necessarily capital-augmenting once the higher depreciation rates for KBC are accounted for; second, the process is likely to exacerbate wage inequality between low- and high-skilled workers, reducing the labour share of the low-skilled relative to that of the high-skilled, with ambiguous aggregate effects.[3]
- Evidence on the effect of globalisation on the labour share is not clear cut. Foreign competition may reduce the bargaining power of workers in exposed industries, which would not nevertheless necessarily imply a decline in the aggregate labour share. This is likely to reflect the aggregate interplay between multiple confounding channels and factors, such as differences in trade-induced reallocation between high and low-labour share industries and differential effects between high and low-skilled workers.[4] Robust findings for advanced countries can be summarised as follows (OECD, 2012, Bassanini and Manfredi, 2012):
  - Rising offshoring of intermediate stages of production tends to reduce the labour share.
  - Competition from foreign firms in domestic market induces structural changes that have different effects on the aggregate labour share, that is: i) greater import penetration prompts reallocation of resources away from affected industries and towards either domestic industries or countries with lower labour costs; and ii) growth

of import penetration appears more important in industries that are typically characterised by a high labour share. The resulting larger trade-induced reallocation away from these industries contributes to reduce the aggregate labour share, although available evidence points to a small effect.[5, 6]

- Evidence on product market liberalisation pertains to the network industries, as most reforms have been taking place in these industries during the 1990s.
  - Privatisation of SOEs tends to reduce the labour share within liberalised industries and as a result the aggregate labour share.
  - Reductions in barriers to entry have no significant effect on the labour share. This is likely to reflect the interplay between counter-balancing effects of pro-competitive reforms: i) on the one hand, these reforms may erode firms' rents and squeeze profits hence increase the labour share;[7] ii) on the other hand, these reforms may erode the bargaining power of the average worker hence reduce the labour share.
- Available studies have been largely silent on reform-driven price effects and associated effects on the labour share. Workers generally benefit from increased competition in the form of gains in real wages. For example, trade liberalisation reforms that reduce barriers to import competition should reduce consumption prices relative to GDP prices. The descriptive analysis reported in this chapter suggests that relative price effects have a large impact on real household developments. Proper identification of reform-driven relative price developments is a challenging task for future research.
- Empirical evidence on the effects of labour market policies on labour shares is mixed. This probably reflects the differential effects across categories of workers, such as across low and high-skilled workers (European Commission, 2007).[8] The main conclusions can be summarised as follows:
  - Trends in the labour share cannot be strictly related to the nature of collective bargaining or to its evolution (OECD, 2012).[9] This likely reflects the important and confounding role of globalisation, increased competition and financial liberalisation, which have: i) reduced the collective bargaining power of workers across the board, that is, irrespective of wage bargaining regimes, and ii) at the same time, catalysed wage bargaining reforms towards either more decentralisation or more centralisation and co-ordination,[10] ultimately delivering wage moderation.[11]
  - Increases in the statutory minimum wage relative to the median tend to reduce the labour share, but the quantitative effect is estimated to be very small (OECD, 2012). This could reflect that firms are induced to invest in labour-saving innovation prompted by the need to contain the rise in labour costs. This finding would suggest that large increases in minimum wage could reduce the labour share, even though such increases might reduce wage inequality in the lower-half of the wage distribution and in-work poverty. Indeed, empirical evidence based on European countries suggests that higher minimum wages increase low-skilled labour shares and reduce medium-skilled labour shares, resulting in a small negative effect at the aggregate level (European Commission, 2007).
  - Stepping-up job search support and active labour market policies (ALMPs) while reducing the generosity of unemployment benefits has been found to increase the labour share of low-skilled workers across European countries (European Commission, 2007). Well-designed and targeted activation and training policies primarily induce an increase in employment of low-skilled workers, who are

overrepresented among the pool of unemployed. The evidence suggests that this compensates any potential moderating effect on wages. The overall effect of higher spending on ALMP on the aggregate labour share has been found insignificant, reflecting a negative effect on the labour share of medium-skilled workers by contrast to the effect on low-skilled workers; while that of higher UB replacement rates has been found negative, reflecting a concomitant negative effect on the labour share of low and medium-skilled workers.

- Relaxing job protection has not been found to trigger any significant change in the aggregate labour share, even though it has been found to boost aggregate productivity growth. This neutrality may reflect the interplay of differential effects of job protection between industries and workers. Empirical evidence based on European countries suggests that stricter job protection increases high-skilled labour shares and reduces medium-skilled labour shares, resulting in a small negative effect at the aggregate level (European Commission, 2007). Non-standard employment has become the predominant source of job creation in many OECD countries since the mid-nineties (OECD, 2015, Chapter 4). More recent forms of non-standard employment such as on-call work, subcontracted work and zero-hours contracts in e.g. the United Kingdom and the United States certainly favour hiring flexibility for firms and in principle also for workers who need it. However, in practice, for workers, they have been associated with more wage variability and reduced firms' obligations to ensure standard benefits and protection; as well as with low career and training opportunities. Policy changes of this type may reduce workers' bargaining power and as a result, their wages, especially for those with low skills.

- The high growth of the financial sector has also been highlighted as a potential cause of declining labour shares, even though direct empirical evidence is scarce.[12] The deregulation of financial markets may have lowered workers' bargaining power by pressuring firms to reduce costs; hence to focus on core activities while sub-contracting labour-intensive activities in order to reduce debt while at the same time generate high short-term profits.

Notes

1. See OECD, (2012) for a recent in-depth assessment and policy analysis., see also *inter alia* Arpaia et al. (2009); Azmat et al. (2012), Bentolila and Saint-Paul (2003), Checchi and Garcia-Penalosa, (2008, 2010), De Serres at al. (2002), Elsby et al. (2013), European Commission, (2007), Frydman and Saks, (2010), Harrison, (2002), Jaumotte and Tytell, (2007); more recent papers have analysed the concomitant rise in the capital share: see Karabarbounis and Neiman (2014), Piketty (2013), Piketty and Zucman (2014), Rognlie (2015).
2. Karabarbounis and Neiman (2014), Koh et al. (2015), OECD (2012), Arpaia et al. (2009), European Commission (2007), Jaumotte and Tytell (2007).
3. This reflects differences in substitutability between capital and low skilled as opposed to high skilled labour, because different degree of substitutability between capital and labour have different implications on the effect on the labour share of a change in the relative price of labour. When the elasticity of substitution between capital and labour is smaller than 1, the labour share will increase if the capital-labour ratio increases. In this context, the price effect will dominate the quantity effect. This implies that a reduction in workers' bargaining power leading to a decline in the real wage will reduce the labour share if the elasticity of substitution between labour and capital is smaller than 1. Given that it is generally assumed that high skilled labour is complementary to capital while low skilled labour is substitutable to capital, capital deepening can increase the labour share of high skilled workers and reduce the labour share of low skilled workers.

4. See OECD (2012) for a discussion.
5. The finding of a small reallocation effect is in line with that of the documented negligible role of reallocation in explaining changes in the aggregate labour share. See Bassanini and Manfredi (2012).
6. European Commission (2007) finds a negative effect of openness on the labour share of medium-skilled workers, and this drives a negative effect at the aggregate level.
7. This is the well-known prediction of a standard theoretical model with homogenous firms and workers (Blanchard and Giavazzi, 2003).
8. Again, this is due to differences in the elasticity of substitution between capital and different types of labour (e.g. low and high skilled). Reform effects are also likely to depend on the elasticity of substitution in industries most affected by the reforms.
9. European Commission (2007) finds a negative effect of union density on the labour share of low-skilled workers and a positive effect on the labour share of high-skilled workers. The authors interpret this along the lines of complementarity between high-skilled work and capital and substitutability between low-skilled work and capital. Union density is however a very crude and partial measure which in isolation falls short of capturing the nature of wage bargaining.
10. Such pro-decentralisation reforms have largely aimed at increasing the flexibility to negotiate at firm level. See OECD (2012) for an in-depth qualitative discussion of wage bargaining reforms.
11. See Box 3.5 in OECD (2012) for a summary of empirical studies on globalisation and increased competition on workers' bargaining power.
12. OECD (2012), ILO (2012).