

OECD Taxation Working Papers No. 12

Trends in Personal Income Tax and Employee Social Security Contribution Schedules

Carolina Torres,

Kirsti Mellbye,

Bert Brys

https://dx.doi.org/10.1787/5k95qw9633vf-en

OECD

OECD CENTRE FOR TAX POLICY AND ADMINISTRATION

OECD TAXATION WORKING PAPERS SERIES

This series is designed to make available to a wider readership selected studies drawing on the work of the OECD Centre for Tax Policy and Administration. Authorship is usually collective, but principal writers are named. The papers are generally available only in their original language (English or French) with a short summary available in the other.

The opinions expressed and arguments employed in these papers are the sole responsibility of the author(s) and do not necessarily reflect those of the OECD or of the governments of its member countries.

Comments on the series are welcome, and should be sent to either ctp.contact@oecd.org or the Centre for Tax Policy and Administration, 2, rue André Pascal, 75775 PARIS CEDEX 16, France.

Applications for permission to reproduce or translate all, or part of, this material should be sent to OECD Publishing, rights@oecd.org or by fax 33 1 45 24 99 30.

Copyright OECD 2012

ABSTRACT

Trends in personal income tax and employee social security contribution schedules

Policymakers cannot directly adjust the tax burden of labour income, but they can reform the statutory elements of the tax system, which ultimately determine average and marginal tax rates. To shed light on the determinants of average and marginal personal tax rates, this paper discusses historical and cross-country trends in statutory personal income tax rates, the income thresholds where personal income tax and employee social security contribution rates apply, and other statutory provisions that shape the tax burden on labour income in OECD countries. Trends in the difference between statutory, average and marginal personal income tax rates are also analysed and graphically illustrated. The impact of employee social security contributions on top marginal personal tax rates is also discussed. The most pronounced trend that emerged from 2000 to 2010 in OECD countries is a reduction in top statutory personal income tax rates. This trend was accompanied by reductions in the threshold where the top rate applies, as well as reductions in the statutory rate applicable at average wage earnings.

JEL classification: H24, H55, H71

Keywords: personal income tax, social security contribution, statutory tax rate, surtax, tax exemption

RÉSUMÉ

Évolution des barèmes des impôts sur le revenu des personnes physiques et des cotisations de sécurité sociale

Les responsables politiques ne sont pas en mesure d'ajuster directement la charge fiscale des revenus du travail mais ils ont la possibilité de réformer les aspects du système fiscal qui sont définis par la loi, et qui déterminent en définitive les taux moyens et marginaux d'imposition. Afin de mettre en lumière les déterminants des taux moyens et marginaux d'imposition des revenus des personnes physiques, ce document étudie, dans une optique rétrospective et internationale, l'évolution des taux légaux de l'impôt sur le revenu des personnes physiques, les seuils d'application de l'impôt sur le revenu et des cotisations salariales de sécurité sociale, ainsi que les autres dispositions légales qui influent sur la charge fiscale des revenus du travail dans les pays de l'OCDE. L'évolution de la différence entre les taux légaux, moyens et marginaux de l'impôt sur le revenu des personnes physiques est également analysée et représentée graphiquement. Par ailleurs, ce document examine l'impact des cotisations salariales de sécurité sociale sur les taux marginaux maximums d'imposition des revenus des personnes physiques. La tendance la plus nette qui se dégage dans les pays de l'OCDE entre 2000 et 2010 est la réduction des taux légaux maximums de l'impôt sur le revenu des personnes physiques. Cette évolution s'est accompagnée de réductions du seuil d'application du taux maximum, ainsi que de réductions du taux légal applicable au salaire moyen.

Classification JEL: H24, H55, H71

Mots clés: impôt sur le revenu des personnes physiques, cotisations de sécurité sociale, taux légal d'imposition, surtaxe, exonération fiscal

FOREWORD

This paper is also published as the Special Feature of the 2011 edition of *Taxing Wages* (www.oecd.org/ctp/taxingwages). Dominique Paturot provided statistical assistance. The paper also draws on input from Delegates to Working Party No. 2 on Tax Policy Analysis and Tax Statistics of the Committee on Fiscal Affairs of the OECD.

TRENDS IN PERSONAL INCOME TAX AND EMPLOYEE SOCIAL SECURITY CONTRIBUTION SCHEDULES

Carolina Torres, Kirsti Mellbye and Bert Brys[1]

1. Introduction

Taxes on labour income – including personal income taxes and social security contributions – account for roughly one half of total tax revenue, on average, across OECD countries. High reliance on labour income taxation often results in high tax burdens on workers. Tax burdens can be measured with several alternative indicators, including marginal and average personal tax rates. Marginal personal tax rates, which indicate the tax payable on an additional currency unit of earnings, affect incentives to increase work effort, to follow training or to look for a better-paid job. Average personal tax rates, which indicate the share of gross earnings spent on taxes, may affect incentives to participate in the labour market. Average personal tax rates that increase with income imply that the amount of tax paid is related to an individual's capacity to pay, and that the tax and benefit system is progressive. Average and marginal personal tax rates on wage income are determined by the interaction of provisions that define the tax base, statutory tax rates, and tax credits that are deducted after the application of tax rates to the tax base. The *Taxing Wages* series presents these and other key tax burden indicators annually for OECD member countries. To shed light on the underlying differences in average and marginal personal tax rates, this paper takes a close look at statutory personal income tax (PIT) rates, the income thresholds where PIT and employee social security contribution (SSC) rates apply, and other statutory provisions that shape the average and marginal personal tax burden on labour income.

While statutory tax rates are only one of the components that determine average and marginal personal tax rates, they are of great importance for various reasons. First, given that policymakers cannot directly adjust average and marginal tax rates, changes to statutory rates are a powerful policy tool to indirectly change tax burdens and modify incentives to work and build human capital. Second, while average and marginal tax rates involve complex calculations that must rely on a variety of assumptions, statutory rates are defined by legislation and do not require computation. As such, they can be easily known by the general public. Third, due to their unambiguous nature, statutory rates, and particularly top statutory PIT rates, are often cited as a relevant indicator of taxation in international comparisons.

In conjunction with statutory rates, other elements of the tax system defined in the legislation determine average and marginal personal tax rates. For example, lump sum or tapered basic allowances reduce average tax rates for taxpayers who claim them and create a positive relationship between average tax rates and income. Personal income surtaxes are additional taxes on income that is already subject to tax; as such, they increase marginal tax rates. Social security contributions sometimes reduce marginal personal income tax rates when PIT relief is provided for them, but also increase the combined PIT and employee SSC ("all-in") marginal tax rates, affecting the progressivity of the tax system as a whole. More generally, all tax reliefs that vary with income (such as in-work tax credits) affect marginal (and average) personal income tax rates, creating a gap between marginal and statutory tax rates, and all lump-sum reliefs

[1] Carolina Torres and Kirsti Mellbye are Tax Economists, and Bert Brys is Senior Tax Economist, at the OECD Centre for Tax Policy and Administration. The authors may be reached by e-mail at Carolina.Torres@oecd.org, Kirsti.Mellbye@oecd.org and Bert.Brys@oecd.org.

(such as most basic personal allowances) affect average personal income tax rates, contributing to the gap between average and statutory tax rates.

Among the statutory provisions presented in this paper, the most well-defined trend across OECD countries has been towards a reduction in top statutory PIT rates, inclusive of surtaxes and sub-central income taxes. In fact, the OECD-wide average top statutory PIT rate decreased significantly in each of the last three decades, from 1980 to 2010. This does not, however, imply that all countries have continuously reduced their top rates – for example, six countries increased their top rate in 2010 signalling a trend reversal that continued in 2011 and 2012. From 2000 to 2010, top "all-in" rates fell in most OECD countries along with top statutory PIT rates, though PIT rate cuts were partly offset by increases in SSC rates or thresholds in some countries.

Other clear trends that emerged from 2000 to 2010 include a reduction in the income threshold where the top statutory PIT rate applies (minimizing the impact of the top statutory rate cuts), and a reduction in the statutory rate applicable at average wage earnings (in line with the reduction in the average personal tax rate for average earnings). In contrast, over the same time period, OECD countries diverged in their policies regarding changes to the bottom statutory rate and the threshold where a single earner begins to pay income tax, with little change observed in the corresponding OECD-wide averages.

During the 1980's, the number of central-level statutory tax brackets strongly declined in most of the 22 OECD countries for which data are available. However, this marked trend has no longer been observed after 1990. Comparing 2000 to 2010, no clear trend emerges either regarding the direction of changes in the number of central-level tax brackets. It appears that changes in the number of tax brackets have been, with exceptions, not a policy goal in itself but rather a tool to reduce or increase tax burdens, particularly at high income levels. Indeed, the number of central level personal income tax brackets, the top statutory PIT rate, and the income threshold at which this rate applies tended to move in the same direction over the last decade.

This paper is organized as follows: Section 2 describes the basic features of PIT schedules in OECD countries in 2010 as well as trends since 2000 (or 1981, where possible). The PIT features described are the number of statutory tax brackets and rates, the top and bottom statutory rates, the statutory rate applicable to average earnings, surtaxes and provisions that exempt from tax an initial portion of income. Statutory tax rates in this report refer to *effective* statutory rates, that is, they take into account applicable surtaxes or deductions for other income taxes paid. Section 3 provides context for the statutory rates described in Section 2 by presenting the income level at which taxpayers begin to pay income tax and the threshold at which they become subject to the top statutory PIT rate. Section 4 discusses the difference between marginal, average and statutory PIT rates, as well as changes from 2003 to 2010. These differences are described graphically in the Annex. Section 5 describes the earnings level at which taxpayers begin or stop paying employee SSC, and the impact of employee SSC rates on the top "all-in" marginal personal tax rate. Section 6 concludes by summarizing the main trends described in the previous sections. The data underlying the discussion and graphs in this paper are available electronically in spreadsheet format through the *StatLink* hyperlinks shown in the Special Feature of the 2011 *Taxing Wages* publication, available online at www.oecd.org/ctp/taxingwages.

2. Description of Personal Income Tax Schedules

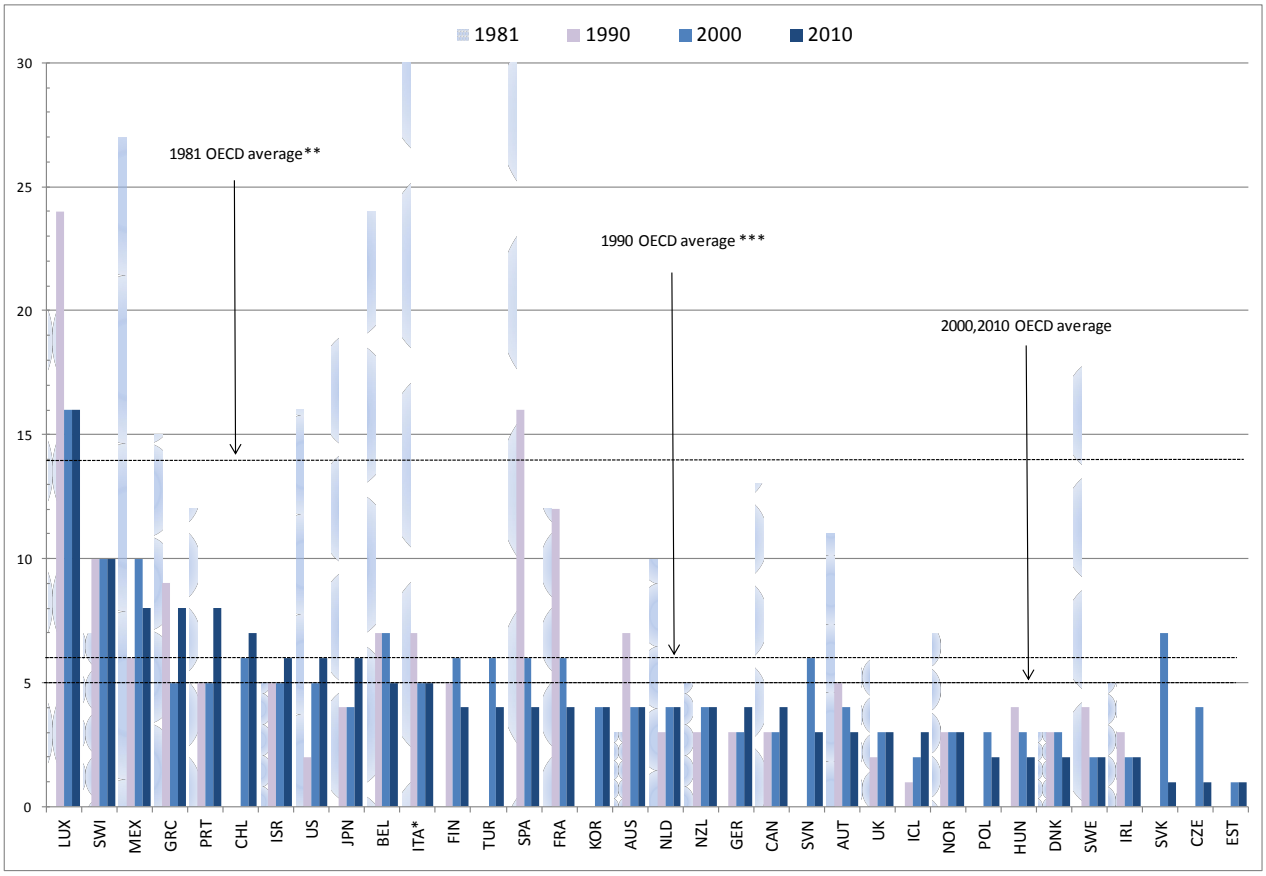
2.1 Statutory Personal Income Tax Rates

2.1.1 Trends in the Number of Personal Income Tax Brackets

By 2010, personal income tax schedules in OECD countries contained relatively few tax brackets compared to the early 1980's (See Figure 1). In 1981 it was common for OECD countries to have ten or more tax brackets and no OECD country had a single-rate PIT structure. Among the 22 OECD countries for which 1981 data is available, 5 of them had more than 20 (non-zero) income tax brackets – Italy (32), Spain (30), Mexico (27), Belgium (24) and Luxembourg (21) – and 9 other countries had 10 or more brackets – Japan (19), Sweden (18), the United States (16), Greece (15), Canada (13), France (12), Portugal (12), Austria (11) and the Netherlands (10). In contrast, by 2010, only 2 of the 34 OECD countries had 10 or more tax brackets – Luxembourg (16) and Switzerland (10) – and 3 countries had a single PIT rate – the Czech Republic, Estonia and the Slovak Republic.

The number of brackets decreased most significantly during the 1980's. On average across OECD countries, there were 14 PIT brackets in 1981, falling to 6 by 1990. These averages must be compared with caution as 1981 data are not available for four countries included in the 1990 sample. Among the 22 OECD countries for which 1981 and 1990 data are both available, 15 countries had fewer brackets in 1990 than in 1981, and only Australia, Luxembourg and Switzerland ended the decade with more tax brackets than in 1981.

Figure 1. **Number of Central Personal Income Tax Brackets** [1,2]



1. Number of non-zero central government statutory income tax rates on different taxable income ranges. Zero-rate brackets are excluded for comparability with countries with basic personal allowances or tax credits which effectively result in zero-tax rates on an initial range of income. In Germany, the PIT schedule is formula-based. Figures for Germany indicate the number of distinct formulas that apply to different income ranges. The Norwegian and Swedish two-tiered surtaxes are treated as two additional tax brackets when applicable.
2. Countries are ranked by decreasing number of tax brackets in 2010.
* In 1981 Italy had 32 non-zero central tax brackets.
** *22-country average*. The number of tax rates is not applicable in the Czech Republic, Estonia, Hungary, Poland, the Slovak Republic, Slovenia, and not available for Chile, Finland, Germany, Iceland, Korea and Turkey.
*** *26-country average*. The number of tax rates is not applicable in the Czech Republic, Estonia, Poland, the Slovak Republic, Slovenia, and not available for Chile, Korea and Turkey.
Source: OECD Tax Database Table I.1 (www.oecd.org/ctp/taxdatabase).

The trend towards fewer PIT brackets decelerated in the 1990's and was no longer observed during the 2000's. As a result, the average number of tax brackets in OECD countries has remained fairly stable since the 1990's.

On average across OECD countries, there were five central PIT brackets in 2000, compared to six in 1990. These averages must also be compared with caution, as 1990 data are not available or applicable for eight OECD countries included in the 2000 sample (e.g., Eastern European OECD member countries). Among the 26 OECD countries for which 1990 and 2000 data are available, 10 countries – Australia, Austria, France, Greece, Hungary, Ireland, Italy, Luxembourg, Spain, Sweden – had fewer brackets in 2000 than in 1990, and 7 countries – Finland, Iceland, Mexico, the Netherlands, New Zealand, the United Kingdom and the United States – increased the number of tax brackets over the same period. The remaining 8 countries – Belgium, Canada, Denmark, Germany, Israel, Japan, Portugal, Norway and Switzerland – had the same number of brackets at the beginning and end of the decade.

Comparing 2000 to 2010, no clear trend emerges. Roughly a third of OECD countries reduced their number of tax brackets, one third kept them constant and just under one third introduced new tax brackets. As a result, the average number of central PIT brackets across OECD countries in 2010 remained at five, unchanged from 2000. Countries that eliminated tax brackets did so mainly during the middle of the decade. In contrast, the addition of new tax brackets is a more recent phenomenon corresponding to recent fiscal consolidation efforts.

Among countries that reduced their number of tax brackets, the Slovak Republic and the Czech Republic implemented single-rate schedules in 2004 and 2008, respectively. Hungary and Poland cut their number of brackets from three to two in 2005 and 2009, respectively. France reduced its number of tax brackets from six to four in 2007. Several OECD countries reduced their number of tax brackets twice during the decade. By 2010, Belgium had five brackets after having eliminated a bracket in 2002 and then in 2003; Finland had four brackets after eliminating one in 2001 and another one in 2007; Spain had four brackets after eliminating one in 2003 and another one in 2007; Slovenia had three brackets after eliminating two in 2005 and then one in 2007; and Turkey had four brackets after eliminating one in 2005 and another one in 2006. Mexico decreased and increased its number of tax rates five times during the decade, starting with 10 brackets in 2000 and ending with eight in 2010.

Among countries that introduced tax brackets during the 2000's, Canada increased its number of brackets from three to four in 2001 and the United States increased its number of brackets from six to seven in the same year. Chile added a tax bracket in 2002, raising the total to seven. Israel added two tax brackets in 2002, but only one of them remained in place in 2003. Japan added two tax brackets in 2007, raising the total to six. Germany modified its formula-based structure and introduced a fourth distinct formula, corresponding to a new top statutory rate, in 2007. Greece, Iceland and Portugal added tax brackets in 2010 as part of their fiscal consolidation strategies. Greece converted its three-bracket PIT structure into an eight-bracket structure. Iceland moved from a single-rate structure to a three-bracket structure, and Portugal introduced one additional tax bracket, raising the total to eight.

Australia, Estonia, Ireland, Italy, Korea, Luxembourg, the Netherlands, New Zealand, Sweden, Switzerland and the UK had the same number of tax brackets in 2000 and in 2010. This does not imply a lack of changes in the number of brackets over the past ten years. For example, the UK reduced its number of brackets from three to two in 2008, but added a third bracket again in 2010. New Zealand had four tax brackets every year during the decade, except for 2008, when it had seven brackets.

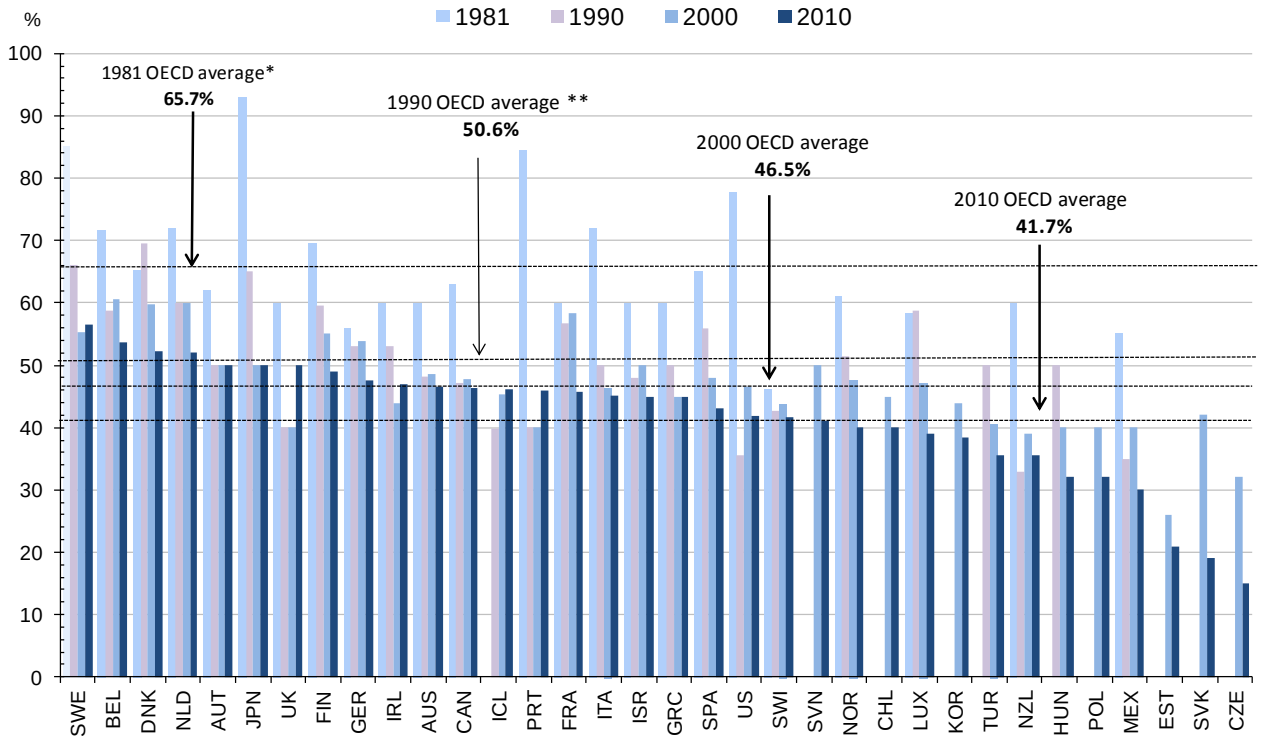
While reductions in the number of tax brackets over the past decade have generally been accompanied by reductions in top statutory PIT rates, there have been some exceptions where the top rate did not change – namely Hungary and Slovenia in 2005, and Turkey in 2006. Likewise, increases in the number of tax brackets tended to be accompanied by increases in top statutory rates, though not always. Among countries that increased their number of tax brackets from 2000 to 2010, Germany, Greece, Iceland, Japan and Portugal increased their top statutory rates when introducing new brackets. In contrast, Chile and the United States reduced their top statutory rate when they added tax brackets, and Canada held its top rate constant.

2.1.2 Trends in Top Statutory Personal Income Tax Rates

Along with a general reduction in the number of tax brackets over the last three decades, OECD countries have seen a general reduction in their top statutory PIT rates. Like with the number of tax brackets, the reduction in top statutory PIT rates was most pronounced during the 1980's. Across OECD countries for which data are available, the average combined central and sub-central top statutory rate (including surtaxes and taking into account the deductibility of sub-central or other income taxes from the central tax base) declined by more than 15 percentage points, from 65.7% in 1981 to 50.6% in 1990. But

unlike the number of tax brackets, top statutory rates have continued to display a pronounced declining trend well after the 1980's. The average top statutory rate across OECD countries declined by about four percentage points in the 1990's (to 46.5% in 2000), and then by almost five percentage points in the 2000's (to 41.7% in 2010; see Figure 2). Changes in the average top rate across OECD countries must be interpreted with caution because rates are not available or applicable for ten countries in 1981 and for seven countries in 1990. However, if these countries were excluded from the analysis, the top rate would still display a declining trend (see Table 1).

Figure 2. **Top Combined Statutory Personal Income Tax Rate** [1,2]



1. The sum of the central and sub-central top rates in PIT rate schedule, inclusive of surtaxes and adjusted for the deductibility of sub-central or other income taxes from the central tax base where applicable.
2. Countries are ranked by decreasing top statutory rates in 2010.
* *24-country average.* The top rate is not applicable in the Czech Republic, Estonia, Hungary, Poland, the Slovak Republic, Slovenia, and not available for Chile, Iceland, Korea and Turkey.
** *27-country average.* The top rate is not applicable in the Czech Republic, Estonia, Poland, the Slovak Republic, Slovenia, and not available for Chile and Korea.
Source: OECD Tax Database Tables I.1, I.2 and I.3 (www.oecd.org/ctp/taxdatabase).

Table 1. **Average Top Combined Statutory Personal Income Tax Rate in OECD Countries**

	1981	1990	2000	2010
Countries for which rates are available for 1981 and later years	65.7%	50.7%	48.9%	45.8%
Countries for which rates are available/ applicable for 1990 and later years		50.6%	48.2%	44.9%
All OECD countries			46.5%	41.7%

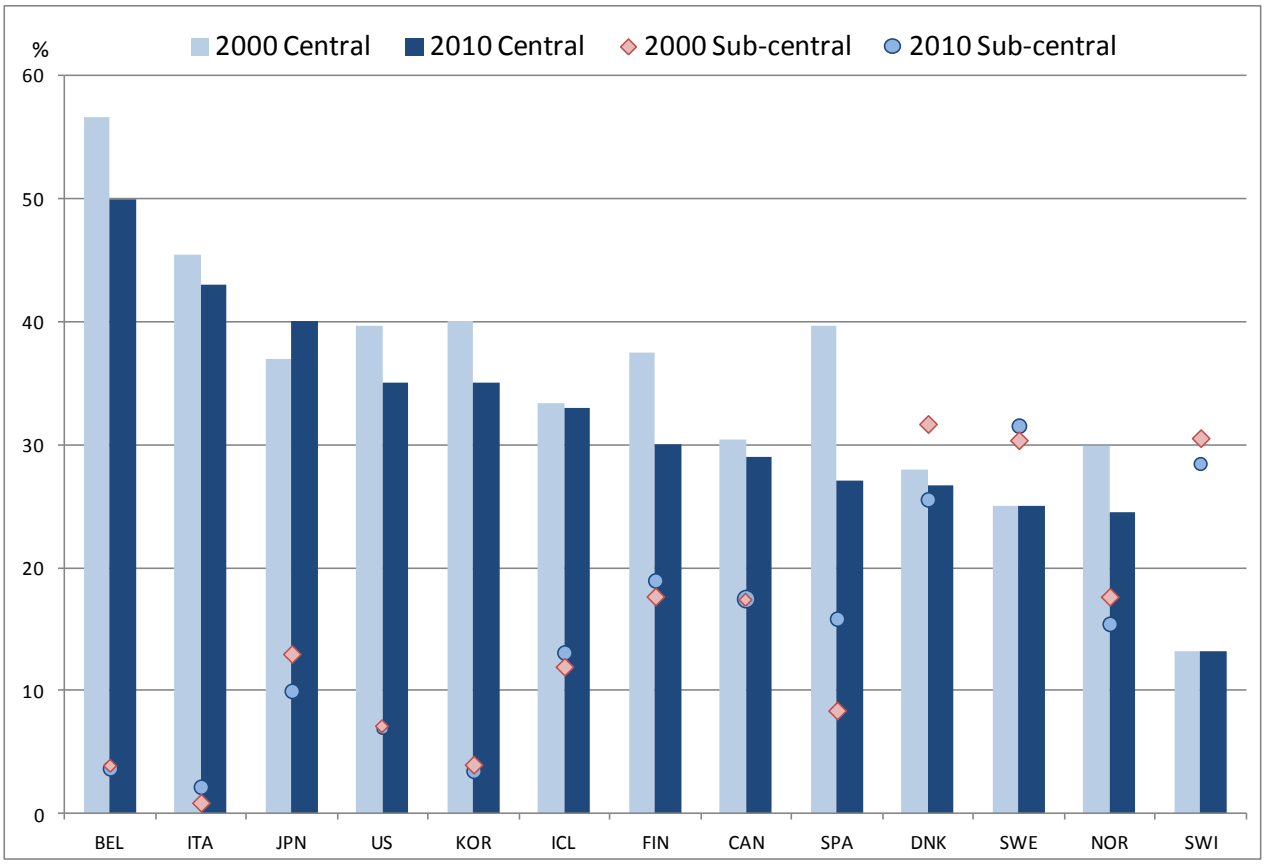
Relative to 2000, five countries had higher top statutory PIT rates by 2010 – Iceland, Ireland, Portugal, Sweden and the UK. Three countries – Austria, Greece and Japan - had identical top rates at the beginning and end of the decade. The remaining 26 OECD countries had lower top statutory rates by the end of the decade. The largest decline in the top statutory rate over the past ten years was observed in the Slovak Republic, where the top rate of 42% in 2000 declined to 38% in 2002, and then to 19% in 2004 when the country moved to a single-rate PIT structure. The Czech Republic also drastically reduced its top statutory rate, from 32% to 15%, when it adopted a single-rate PIT schedule and broadened the tax base in 2008. In France, the top statutory rate (including the universal social contribution and the contribution to the reimbursement of social debt) decreased by more than 12 percentage points, from 58.27% in 2000 to 45.78% in 2010. In Mexico, although the top statutory rate of 30% is now lower than it was in 2000 (40%), it was temporarily raised from 28% as a fiscal consolidation measure in 2010.

The largest increase in the top statutory rate was observed in the United Kingdom, where the top rate was raised from 40% to 50% in 2010 as a fiscal consolidation measure. Prior to 2010, the top rate in the UK had not been higher than 40% since 1987. However, the income threshold at which the 50% rate applies (i.e., gross earnings of 4.3 times the average wage) is considerably higher than the threshold where the top rate of 40% previously applied (1.3 times the average wage), which highlights the difficulties in drawing conclusions about tax burdens and the impacts of taxation on incentives by focusing merely on statutory tax rates. Indeed, the threshold at which the top rate begins to apply changed in real earnings terms in most OECD countries over the last decade, as will be discussed in Section 3.1.

The trend towards lower top statutory rates from 2000 to 2010 is pronounced with regards to central taxation but less clear in the context of sub-central taxation (see Figure 3). Central (and combined) top statutory tax rates declined in 10 of the 13 OECD countries with sub-central taxation – Belgium, Canada, Denmark, Finland, Iceland, Italy, Korea, Norway, Spain and the United States – and increased in only one of them (Japan). On the other hand, the representative sub-central top statutory rates declined in seven OECD countries – Belgium, Denmark, Japan, Korea, Norway, Switzerland and the United States– and increased in five countries – Finland, Iceland, Italy, Spain and Sweden. Except for Denmark, Iceland, Japan and Switzerland, changes in top sub-central rates have been smaller in magnitude than changes in top central rates. Therefore, in the remaining countries, trends in top combined rates have been driven by changes in top central rates.

The difference in trends at the central and sub-central level may be partly due to the fact that in countries with sub-central personal income taxes, central tax schedules have multiple tax brackets but sub-central tax schedules tend to consist of a single tax rate (except in Canada, Spain and Switzerland). Thus, sub-central governments have traditionally had less manoeuvrability to reduce their top statutory rate without implementing broad-based PIT cuts. At the same time, some sub-central governments have been able to raise their top statutory rates to take up fiscal room resulting from central level tax cuts. For example, cuts to the central top rate were accompanied by increases to the sub-central top rate in Finland, Iceland (until 2005) and Spain. The reverse trend occurred in Japan in 2007, when a three percentage point reduction in the top sub-central rate was introduced along with an increase of the same magnitude in the top central rate.

Figure 3. **Top Statutory Central and Sub-Central Personal Income Tax Rates** [1]



1. Countries are ranked by decreasing top central tax rates in 2010.
Source: OECD Tax Database Tables I.1, I.2 and I.3 (www.oecd.org/ctp/taxdatabase).

2.1.3 Trends in Statutory Personal Income Tax Rates Levied at the Average Wage

While much attention is devoted to top statutory rates in international tax comparisons, top rates in many countries are relevant for a relatively small segment of the population with high incomes (see Section 3.1). The statutory income tax rate levied at average gross wage earnings is the tax rate that applies to the last (marginal) currency unit of taxable income which corresponds to average gross wage earnings, assuming that the only source of income is wage earnings. This tax rate includes surtaxes where applicable. In most OECD countries, the taxable income which corresponds to the average wage is lower than the average wage as a result of basic and work-related tax allowances. However, in Australia, Canada, Ireland, Israel and New Zealand, taxable income equals earnings for people earning the average wage as long as no family-related or non-standard allowances are claimed (i.e., allowances other than a basic personal allowance or general work-related allowances available to all workers). In 2010, taxable income was higher than the corresponding average wage for single taxpayers claiming standard allowances in the Czech Republic, Hungary and the Netherlands. This is due to the inclusion of employer social security contributions in the tax base of the Czech Republic and Hungary, and the inclusion of income-based tax credits in the tax base of the Netherlands.

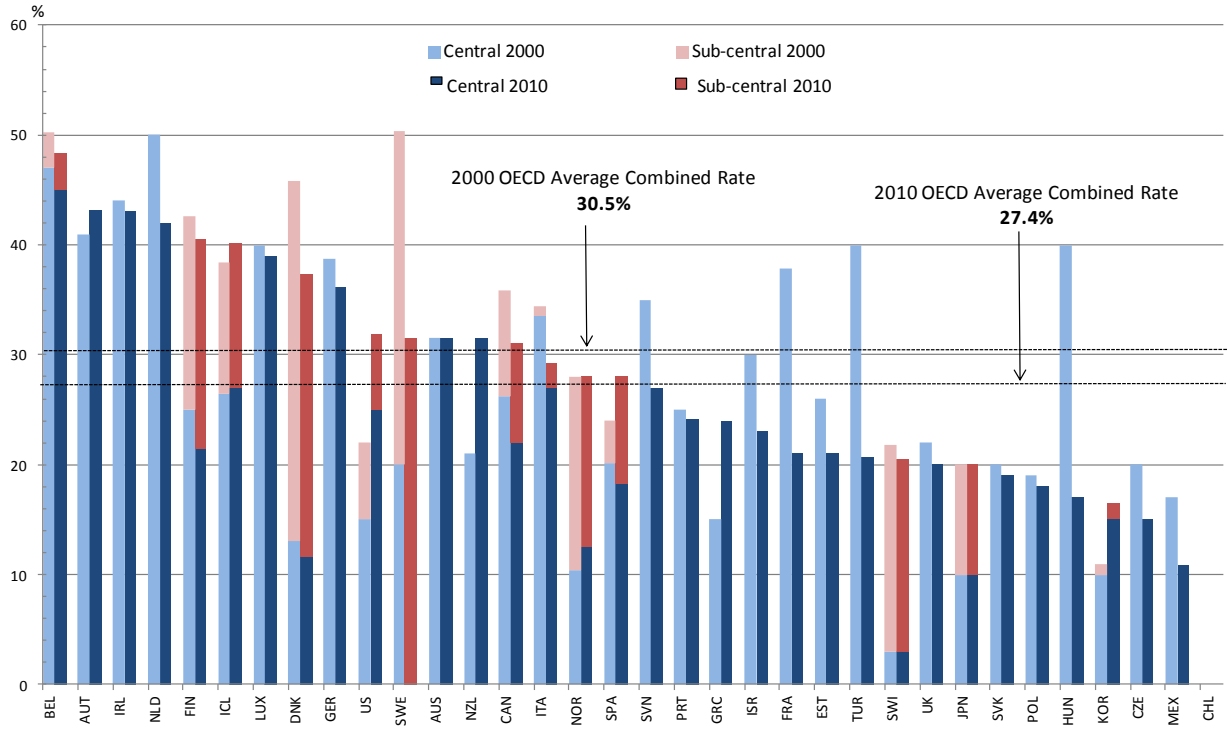
Figure 4 shows the average combined central and sub-central statutory rate on average gross wage earnings for single individuals who claim generally available allowances in OECD countries in 2000 and 2010. The underlying average earnings are shown in Table II.10 of the 2011 *Taxing Wages* report, available online at www.oecd.org/ctp/taxingwages (see methodology and limitations). Figures for prior

years are not presented because average wage estimates for years prior to 2000 are not available. Non-standard allowances are excluded from the analysis for conceptual comparability across countries. In practice, the statutory tax rate on average earnings could be lower for individuals claiming non-standard allowances. Thus, a narrow tax base that relies on highly targeted allowances results in different individuals with similar earnings levels facing different statutory tax rates on their last marginal unit of earnings.

From 2000 to 2010, the average combined central and sub-central statutory tax rate on average wage earnings for single individuals across OECD countries declined by about three percentage points, from 30.5% to 27.4%. This decline reflects a reduction in the statutory tax rate on the average wage in 23 OECD countries. The combined statutory rate applicable to average earnings did not change in four countries – Chile, Japan, Norway and Australia – and increased in seven countries – Austria, Greece, Iceland, Korea, New Zealand, Spain and the United States. In Chile, the statutory rate on average earnings was zero in 2000 and 2010 as a result of basic personal allowances that exceeded the average wage in both years, reducing taxable income to zero. Changes over time in the statutory tax rate on average wage earnings may stem from changes to statutory tax rates, changes to standard and work-related tax allowances that affect the relationship between gross wage earnings and taxable income, and the difference between the growth rate of the average wage and the indexation factors that apply (if any) to tax bracket thresholds and tax allowances. For example, in New Zealand the average wage rose by about 37% from 2000 to 2010 while the threshold where the third statutory rate begins to apply grew by 26% over the same period. As a result, the taxable income of an average full-time earner moved from the second tax bracket to the third tax bracket, explaining the sharp increase in the statutory rate applicable at the average wage.

In countries where sub-central taxation applies, the statutory central rate has in some cases moved in a different direction than the statutory sub-central tax rate (see Figure 4). For example, in Spain the central tax rate on average wage earnings declined from 20.17% to 18.27% from 2000 to 2010, but the sub-central rate increased from 3.83% to 9.73% over the same period, resulting in an overall increase in the combined statutory tax rate on average wage earnings. In Norway, the combined central and local statutory PIT rate was set at a maximum of 28% throughout the period. However, the local rate at average wage earnings declined from 17.65% to 15.45% while the central rate increased from 10.35% to 12.55%. In Sweden, while the central rate applying to the average wage dropped to zero, the average sub-central rate increased slightly, from 30.38% to 31.56%. Those earning the average wage had taxable income slightly above the threshold for the zero-rate central tax bracket in 2000 but slightly below the threshold in 2010, which resulted in a large drop in the central statutory rate levied at average earnings. This change occurred (in spite of base broadening measures) because the initial portion of income exempt from tax (i.e., the sum of the basic allowance and the zero-rate bracket threshold) grew faster than the taxable income associated with the average wage.

Figure 4. **Statutory Personal Income Tax Rate at Average Wage Earnings** [1, 2]



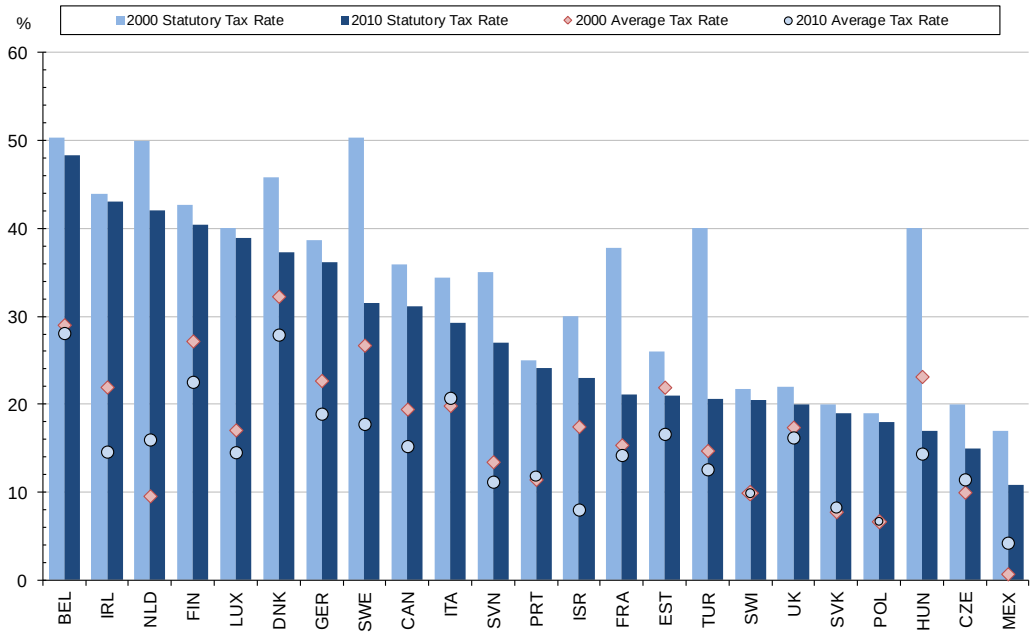
1. The statutory tax rate that applies to the last marginal unit of taxable income corresponding to average wage earnings, inclusive of surtaxes where applicable.
2. Countries are ranked by decreasing combined tax rates in 2010.
Source: OECD Tax Database Tables I.1, I.2, I.3 (www.oecd.org/ctp/taxdatabase), OECD calculations, Taxing Wages model.

Statutory tax rates on average earnings tend to be higher than the *average personal income tax rate* on average earnings, except under a system with a flat tax rate and no allowances or tax credits. Even in countries with a single statutory rate – the Czech Republic, Estonia and the Slovak Republic – the average tax rate is lower than the statutory tax rate on the average wage as a result of basic personal allowances or tax credits. Figures 5 and 6 illustrate the difference between the statutory and average personal income tax rate applicable on average wage earnings for a single childless individual claiming standard tax reliefs. The graphs show that in this basic scenario the average tax rate is lower than the statutory tax rate on average earnings in all OECD countries, although the magnitude of the difference varies significantly across countries. On average across the OECD, the average tax rate was less than half the statutory rate in both 2000 and 2010. Tax filers who are married or have children, or single taxpayers claiming non-standard tax reliefs could face different average and statutory rates than those shown in the graphs, although their average tax rates would also tend to be lower than their statutory rates due to progressive features of income tax systems.

On average across countries, the average personal income tax rate on average earnings decreased from 16% to 14.5% from 2000 to 2010. In many OECD countries, reductions in the statutory tax rate applicable on the average wage have been consistent with reductions in the corresponding average tax rate (Figure 5). Likewise, increases in the statutory tax rate have been consistent with increases in the average tax rate (Figure 6). However, changes in statutory rates alone do not explain changes in tax burdens. In fact, from 2000 to 2010, noticeable increases in the average tax rate on average earnings took place in Mexico and the Netherlands in spite of reductions in the statutory rate. The average tax rate also increased or remained relatively stable while the statutory rate decreased in the Czech Republic, Italy, Poland, Portugal, the

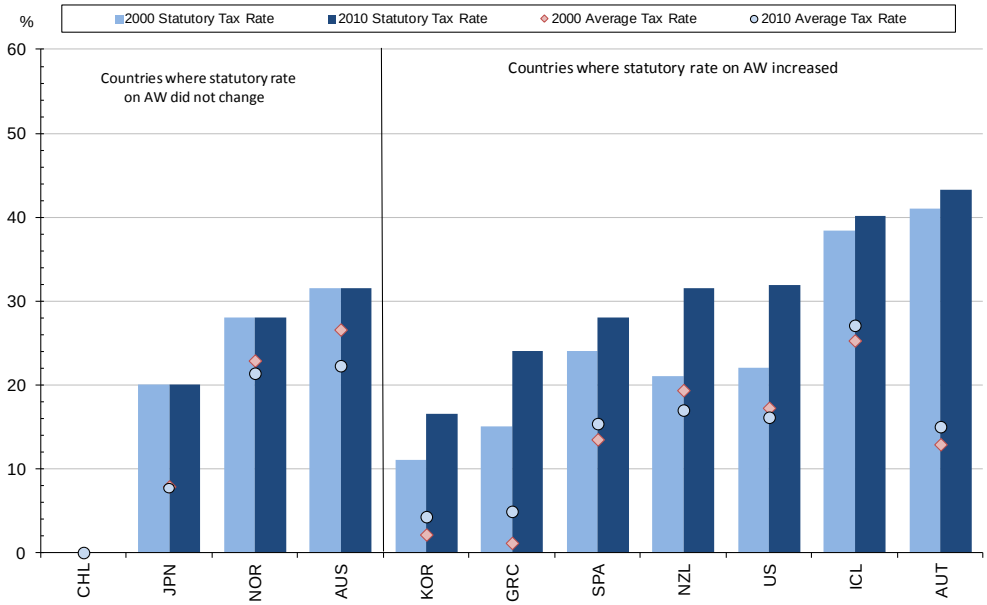
Slovak Republic and Switzerland. In contrast, in New Zealand and the United States the average tax rate fell even though the statutory tax rate increased.

Figure 5. **Combined Personal Income Tax Rates Levied at the Average Wage in countries where the statutory rate decreased** [1]



1. Countries are ranked by decreasing statutory tax rates in 2010.
Source: OECD Tax Database Tables I.1, I.2, I.3 (www.oecd.org/ctp/taxdatabase), OECD calculations, Taxing Wages model.

Figure 6. **Combined Personal Income Tax Rates Levied at the Average Wage in countries where the statutory rate did not decrease** [1]



1. For each group, countries are ranked by increasing statutory tax rates in 2010.
Source: OECD Tax Database Tables I.1, I.2, I.3 (www.oecd.org/ctp/taxdatabase), OECD calculations, Taxing Wages model.

Inconsistencies in the direction of change between statutory tax rates and average income tax rates may stem from changes in the level of basic or other work-related allowances, changes in bracket thresholds due to indexation or other policy changes, changes in the statutory tax rates levied on the portion of income below the threshold where the statutory tax rate on average earnings begins to apply, or changes in tax credits (which affect the average tax rate but not the statutory rate). In general, the average tax rate is more sensitive to changes in the tax structure than the statutory rate (see Table 2). For example, in Australia the average tax rate on the average wage decreased by more than four percentage points from 2000 to 2010 while the statutory tax rate remained constant. The average tax rate declined because the income threshold at which the second non-zero bracket begins to apply increased by more than the average wage, and the statutory rate on the first non-zero tax bracket was reduced. Neither of these changes affected the statutory tax rate on average earnings, which corresponds to the second non-zero bracket rate.

Table 2. **Factors Influencing Average and Statutory Personal Income Tax Rates Levied at the Average Wage** [1]

Impact of…	**… on the Statutory Tax Rate**	**… on the Average Tax Rate**
A reduction in the statutory tax rate on taxable income corresponding to the AW	Reduction	Reduction
An increase in the basic personal allowance (non-tapered)	Reduction *if* taxable income moves into a lower tax bracket	
An increase in other non-income related allowances		
An increase in income-related allowances (e.g., social security contributions)		
An increase in the upper threshold of tax bracket(s) below the taxable income corresponding to the AW		
A reduction in the statutory tax rate(s) on the tax bracket(s) below the taxable income corresponding to the AW	No impact	
An increase in non-income related tax credits		
An increase in income-related tax credits		
Indexation of tax bracket thresholds	Reduction *if* taxable income grows at a slower pace than the indexation factor and taxable income moves into a lower bracket	Reduction *if* taxable income grows at a slower pace than the indexation factor and initial income is above the first bracket threshold

[1] These impacts assume that the average personal income tax rate is positive before changes to the tax structure are implemented. The statutory tax rate refers to the rate associated with the taxable income that corresponds to the average wage.

2.1.4 Trends in Bottom Statutory Personal Income Tax Rates

Several OECD countries have PIT schedules that begin with a zero-rate tax bracket. As will be discussed in section 2.3, as an alternative, countries can exempt from tax an initial tranche of taxable income by using tax allowances or tax credits. For this reason, a more appropriate comparison of statutory rates at the bottom of the taxable income scale consists in comparing the lowest non-zero statutory rate in the PIT schedule, which is defined here as the bottom statutory personal income tax rate. The bottom rate often interacts with basic allowances and income-based tax reliefs to determine marginal and average tax rates at the bottom of the income scale. But the bottom statutory rate ultimately affects all taxpayers, not only those with lower incomes, through its impact on average tax rates. A reduction in the bottom rate, while holding the first non-zero bracket threshold constant, reduces taxes for all taxpayers.

Figure 7 shows the bottom combined statutory personal income tax rate in OECD countries, defined as the lowest possible non-zero effective statutory PIT rate, inclusive of surtaxes and sub-central taxes if applicable. It is the statutory tax rate that corresponds to the first unit of taxed earnings of a single taxpayer not claiming non-standard reliefs and whose income is too high to benefit from standard tax reliefs that are tapered with income. In most countries with sub-central taxation, the bottom rate is the sum of the lowest non-zero rate and the lowest non-zero sub-central rate, or in the case of Belgium and Korea, the lowest non-zero central rate augmented by the sub-central surtax rate. However, in Canada, Finland, Japan, Sweden, Switzerland and the United States, the lowest combined rate consists only of the lowest sub-central rate, given that the central PIT schedules have zero-rate tax brackets, allowance or tax credits such that no central tax is due on the first unit of earnings that is subject to sub-central tax. In contrast, in Denmark (in 2010) the bottom rate is just the first statutory rate in the central rate schedule; a lump sum allowance for social security contributions reduces the sub-central tax and health tax base but not the central tax base.

Comparisons of bottom statutory PIT rates across countries and over time must be made with caution, since the income level at which a taxpayer becomes subject to this statutory rate may vary significantly. Generally, this income level is the threshold where a single individual first starts to pay income tax (see Section 3.2). However, this is not always the case. For example, in 2010 in Mexico, the first unit of earnings of a high-income taxpayer was subject to the first statutory rate in the PIT schedule (1.92%, the bottom rate), while a lower-income single taxpayer who earned 70% of the average wage – the threshold where the tax liability first turns positive – was subject to the third statutory rate in the PIT schedule (10.88%). The difference arises because only the lower-income taxpayer is exempt from tax on the first MXN 61 000 of income as a result of the income-based employment subsidy credit and work-related allowances. In Ireland, Japan and the United States, the bottom statutory rate does not correspond to the statutory rate payable at the income threshold where a single taxpayer begins to pay tax either.

In 2010, the highest bottom rate was observed in Iceland (37.22%). The bottom combined statutory rate also exceeded 25% in Austria (36.5%), Sweden (31.56%, on average), Norway (28%) and Belgium (26.85%). At the other end, the lowest (representative) bottom statutory rate was levied in Mexico (1.92%), followed by the Netherlands (2.3%), the United States (2.5%, the local rate in Detroit), Switzerland (4.38%, the rate in Zurich) and Chile (5%).

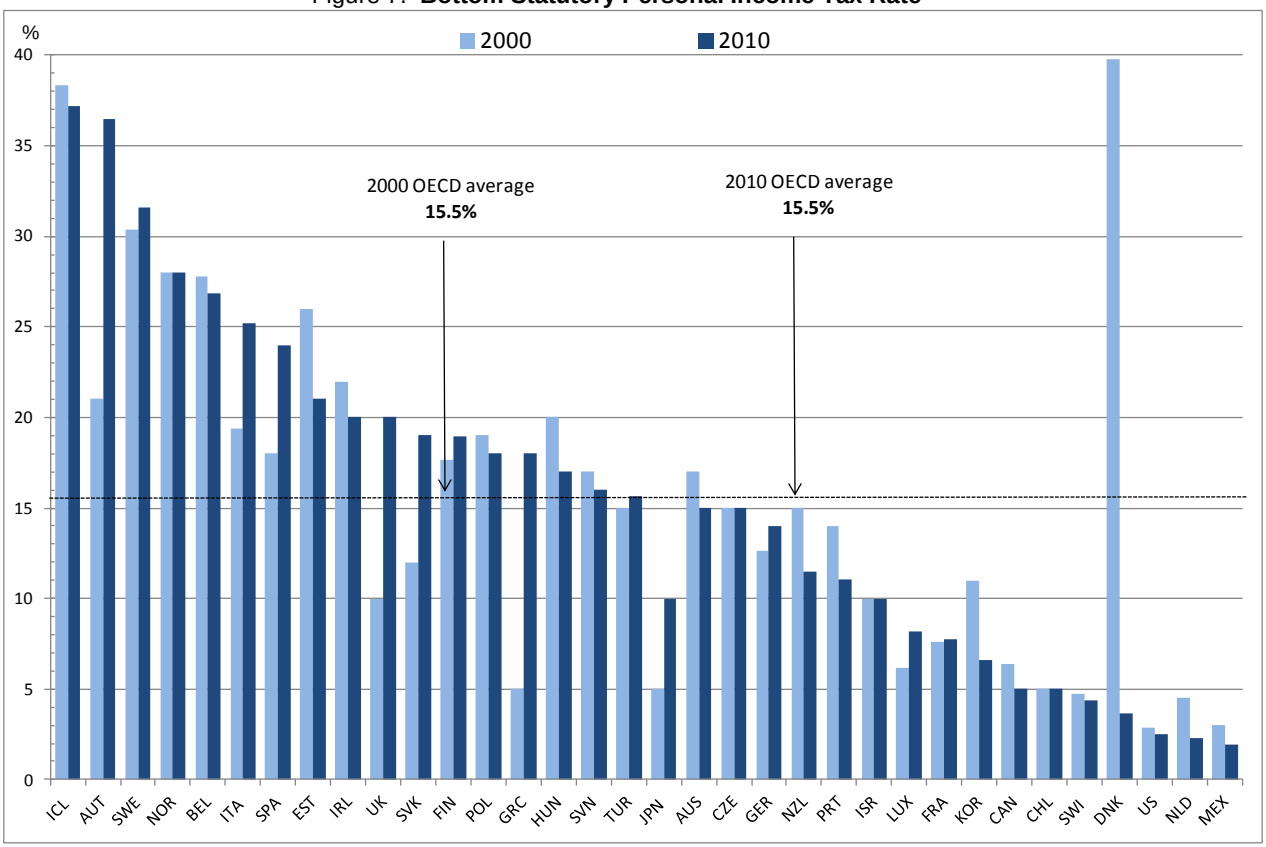
Unlike the top statutory rate and the statutory rate applicable to the average wage, the average bottom statutory PIT rate across OECD countries did not follow a clear trend over the past decade. The bottom rate decreased in 17 OECD countries, increased in 13 OECD countries, and remained constant in 4 countries. A comparison of the 2000 and 2010 (unweighted) average bottom rate in OECD countries could be misleading due a small number of countries where large changes occurred.

The sharpest increase occurred in Austria, where the bottom statutory rate increased from 21% in 2000 to 36.5% in 2010. However, this increase in the tax rate was accompanied by a substantial increase in the threshold where the first non-zero bracket rate begins to apply – from about 12% of the average wage in 2000 to about 28% of the average wage in 2010. In Greece, the bottom tax rate increased from 5% in 2000 to 18% in 2010. Throughout the decade the bottom rate changed several times in Greece, reaching a high of 29% in 2007. The bottom rate also increased by five percentage points or more in the United Kingdom (from 10% to 20%), the Slovak Republic (from 12% to 19%), Spain (from 18% to 24%) and Japan (from 5% to 10%).

Relative to the large increases observed in some countries, reductions in the bottom rate were modest in most countries where they took place. The sharpest reduction was observed in Denmark, where the bottom rate dropped from 39.8% to 3.67%. This was a result of a base broadening reform that took effect in 2002 at the central government level (lump sum SSCs are no longer deductible). Thus, the first unit of

taxed earnings is now subject to the central tax at the lowest rate of 3.67% (i.e., excluding the health tax), while previously the bottom rate was the sum of the central and sub-central rates. However, although the bottom rate dropped significantly, the income range where it applies is relatively short (see charts in the Annex).

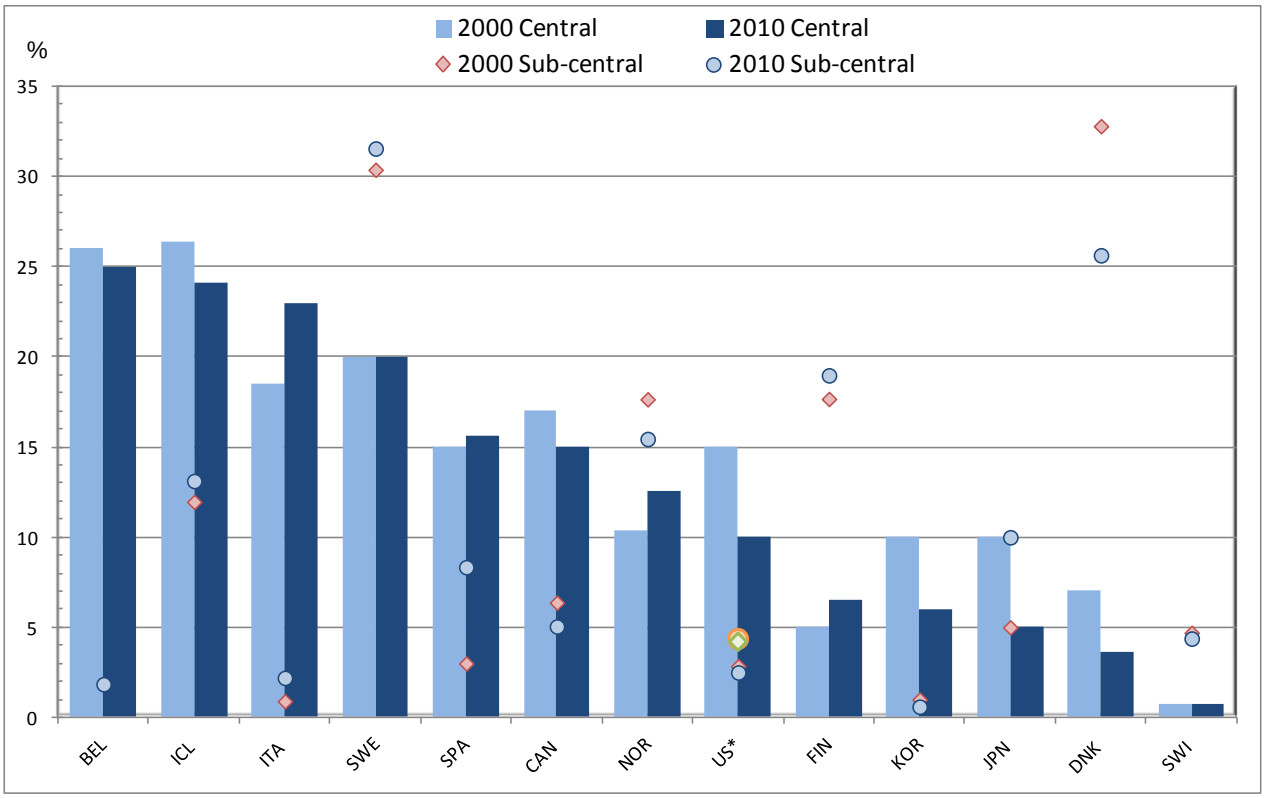
Figure 7. **Bottom Statutory Personal Income Tax Rate** [1, 2]



1. The lowest non-zero effective statutory PIT rate, including surtaxes and sub-central taxes where applicable.
2. Countries are ranked by decreasing bottom tax rates in 2010.
Source: Tax Database, Tables I.1, I.2, I.3 (www.oecd.org/ctp/taxdatabase), OECD calculations, Taxing Wages model.

In countries where sub-central income taxation applies, the lowest non-zero statutory rate can vary significantly between the central and representative sub-central levels (see Figure 8). For example, the lowest sub-central rates are significantly below the lowest rates at the central level in Belgium, Italy and Korea. In Belgium and Korea there is no statutory sub-central tax rate; instead, the local tax is calculated as a surtax on the central income tax. For 2010, this corresponded to an effective lowest rate of 1.85% on average across municipalities in Belgium and of 0.6% at the local level in Korea, both significantly below the lowest central rates of 25% and 6%, respectively. In Italy, while the lowest central rate in 2010 was 23%, the lowest sub-central rate in Rome (the most representative city) was 2.2%.

Figure 8. **Lowest Statutory Central and Sub-Central Personal Income Tax Rates** [1, 2]



1. The lowest non-zero PIT rates at the central and sub-central levels, including surtaxes where applicable. In the case of Korea and Belgium, where sub-central taxes are calculated as a surtax on central income tax, the effective statutory rate corresponding to the lowest central tax rate is shown.
2. Countries are ranked by decreasing lowest central rates in 2010.
Source: Tax Database, Tables I.1, I.2, I.3 (www.oecd.org/ctp/taxdatabase).
* The lower set of sub-central rates refers to tax rates in the representative city of Detroit while the upper set refers to tax rates in the representative state of Michigan.

In contrast, in 2010, the lowest sub-central statutory rate was higher than the lowest central rate in Japan, Switzerland and Scandinavian countries. In Denmark, Finland, Norway and Sweden the lowest sub-central statutory rate was considerably higher than the lowest central statutory rate. Indeed, the lowest sub-central rate in Denmark (25.64%) and Sweden (31.56%) was higher than the lowest central rate in most OECD countries, including those without sub-central taxation. In Denmark, the bottom local tax rate was 25.64% on average while the bottom central rate was 3.67% in 2010. The difference was larger in 2000, when the bottom local rate was 32.8% on average and the bottom central rate was 7%. The gap between the bottom central and sub-central rate narrowed partly because the county tax previously levied at the sub-central government level was replaced in 2008 with an 8% health care tax levied by the central government. A similar trend is observed in Norway, where the gap between the bottom local rate and the bottom central rate narrowed from 7.3 percentage points in 2000 to 2.9 percentage points in 2010, with the combined rate being held constant.

Shifts from sub-central towards central taxation at the bottom of the income scale are limited to Denmark and Norway. In most other countries, sub-central bottom rates moved in the same direction as central bottom tax rates over the past decade. However, Iceland and Japan saw a reverse trend, from central towards sub-central taxation. In 2007, Japan replaced its progressive sub-central rate structure (with rates ranging from 5% to 13%) with a single (10%) rate structure, while at the same time introducing a new bottom bracket and rate at the central level. In Sweden and Switzerland, the representative lowest sub-central rates changed slightly while the lowest central rates remained constant.

2.2 Surtaxes

A personal income surtax, or surcharge, is an additional tax on income that is also taxed through the regular PIT rate schedule. This may include payments that are identified by governments as separate taxes but which are levied on a similar tax base as the regular personal income tax. In 2010, seven OECD countries – Australia, Denmark, France, Germany, Ireland, Luxembourg and Turkey – levied surtaxes at the central government level and some Canadian provinces levied sub-central surtaxes. Single-rate surtaxes are in place in Denmark, France, Luxembourg and Turkey. Multi-tiered surtaxes are in place in Australia, Germany, Ireland, and in the Canadian province of Ontario.

A surtax can be levied in several different ways. For example, it can be calculated as a percentage of the PIT liability net of refundable tax credits, as is done in Germany, or gross of non-refundable tax credits, as is done in Luxembourg. In Canada, the central government surtax in place until 2000 was based on the PIT liability net of non-refundable tax credits but gross of refundable tax credits, as is the surtax currently in place in Ontario, the representative Canadian province considered in this report (most other Canadian provinces do not levy surtaxes). The impact of non-refundable tax credits is magnified when the surtax is applied to the tax liability net of these tax credits. That is, tax credits reduce not only the general tax liability but also the surtax liability.

Surtaxes can also be levied on a tax base that is broader or narrower than the taxable income base that applies to the regular PIT rate schedule. If the surtax base is broader, it could be argued that it entails a separate tax rather than a surtax. For example, France's Universal Social Contribution (CSG) and Social Debt Contribution (CRDS), and Turkey's stamp tax on wages are levied on gross pay. The Irish income levy is levied on gross family income. These payments, which are not categorized as social security contributions, are considered personal income surtaxes to the extent that gross pay is also taxed through the regular PIT rate schedule.

In some countries, one or more additional statutory tax rates are levied on the same tax base that is subject to the basic or standard PIT schedule. While countries may label these as separate taxes – the Medicare Levy in Australia, the Health Care Tax in Denmark, the Ontario Health Premium in Canada – they are effectively surtaxes as long as the tax base is the same (or narrower) as the standard PIT base. Furthermore, these surtaxes could potentially be incorporated into the regular PIT schedule to improve simplicity and transparency, although this might require shifts in the tax burden of some taxpayers. This reform has been initiated in Denmark, where the Health Care Tax will be gradually incorporated into the lowest statutory central PIT rate between 2012 and 2019. In Norway, the additional graduated tax rates on labour (and pension) income are considered a surtax in the context of a dual income tax system and in Sweden the additional graduated rates on taxable income in place in 1990 were considered a surcharge. However, for the purposes of the *Taxing Wages* report, these Norwegian and Swedish rates are not considered surtaxes because they can be smoothly incorporated into the labour income tax schedule as additional tax brackets (as reflected in Figure 1).

Surtaxes in place in OECD countries in 1990, 2000, and 2010 are described in Table 3. While surtaxes are sometimes introduced as temporary revenue raising measures, they often become long-term features of the PIT system. For example, the German Solidarity Surcharge was introduced in 1991 as a 12-month measure to help cover the costs of German re-unification. It was subsequently re-introduced in 1995 and continues to be levied. In 1993, Belgium introduced the Complementary Crisis Contribution as a deficit reduction measure to meet the entry requirements for the European Economic and Monetary Union. The surtax was only abolished in 2003.

Apart from Belgium, the only other country to eliminate a surtax in the past 10 years was Canada, which eliminated its central-level surtax in 2001 following a period of budgetary surpluses. Denmark and

Ireland, on the other hand, introduced central-level surtaxes in 2008 and 2010, respectively, to support their fiscal consolidation efforts.

Table 3. **Central and Sub-Central Government Surtaxes and Additional Personal Income Taxes on Labour Income [1,2]**

	1990		2000		2010	
Australia	**Taxable Income**	**Medicare Levy**	**Taxable Income**	**Medicare Levy**	**Taxable Income**	**Medicare Levy**
	11 745 –12 528 (singles) 23 245 – 24 794 (couples)	20% (singles) 20% (couples)	13 550 – 15 941 (singles) 22 865 – 26 900 (couples)	10% (singles) 10% (couples)	18 488 – 21 750 (singles) 31 196 – 36 701 (couples)	10% (singles) 10% (couples)
	> 12 528 (singles) > 24 794 (couples)	1.25% of TI [a]	> 15 941 (singles) > 26 900 (couples)	1.5% of TI [a]	> 21 750 (singles) > 36 701 (couples)	1.5% of TI [a]
Belgium			**Family Taxable Income**	**Complementary Crisis Contribution**		
			0 – 800 000	1% of TI		
			800 000 – 850 000	1%+ 1%*(TI-800 000)/50 000		
			850 000 – 1 200 000	2% of TI		
			1 200 000 – 1 250 000	2%+ 1%*(TI – 1200 000)/50 000		
			> 1 200 000	3%		
			Family Taxable Income	**Special Annual SSC**		
			750 000 – 850 000	9%		
			850 000 – 2426924	1.3%		
Denmark					**Taxable Income**	**Health Care Tax**
					No limit	8% of TI
Canada (Central)	**Basic PIT (after credits)**	**Surtax**	**Basic PIT (after credits)**	**Surtax**		
	No limit	5%	> 15,500	5%		
	> 15 000	3%				
Canada- Ontario (Sub-central)			**Basic PIT (after credits)**	**Surtax**	**Basic PIT (after credits)**	**Surtax**
			3 561 – 4 468	20%	4 006 – 5 127	20%
			> 4 468	56%	> 5 127	56%
France			**Gross Pay**	**CSG**	**Gross Pay**	**Universal Social Contribution (CSG)**
			No limit	7.125% of GP	No limit	7.275% of GP
			Gross Pay	**Social Debt Contribution (CRDS)**	**Gross Pay**	**Social Debt Contribution (CRDS)**
			No limit	0.475% of GP	No limit	0.485% of GP
Germany			**PIT**	**Solidarity Surcharge**	**PIT**	**Solidarity Surcharge**
			918 – 1 170 (singles) 1 836 – 2 340 (couples)	20% (singles) 20% (couples)	972 – 1 239 (singles) 1 944 – 2 478 (couples)	20% (singles) 20% (couples)
			> 1 170 (singles) > 2 340 (couples)	5.5% of PIT [a]	>1 239 (singles) > 2 478 (couples)	5.5% of PIT [a]
Ireland					**Gross Family Income**	**Income Levy**
					Up to 75 036	2%
					75 036 – 174 980	4%
					> 174 980	6%
Luxembourg	**PIT**	**Solidarity Surtax**	**PIT**	**Solidarity Surtax**	**PIT**	**Solidarity Surtax**
	No limit	5% of PIT	No limit	2.5% of PIT	No limit	2.5% of PIT
Turkey			**Gross Pay**	**Stamp Tax**	**Gross Pay**	**Stamp Tax**
			all	0.006% of GP	all	0.66% of GP

Note: Norway's two-tiered surtax is not presented here as it is treated as two additional brackets in this report.

[1] For each year and country, the surtax base is shown in the left column and the surtax rate and name are shown in the left column. Unless otherwise noted, when a surtax is multi-tiered, rates in the right column apply to the income/tax/gross pay range in the corresponding column to the left.

[2] Surtax base values refer to the national currency of each country in the given year.

[a] Surtax rate applies to all taxable income in Australia or all PIT in Germany (not just the range shown to the left).

GP= Gross Pay; PIT= Personal Income Tax; TI= Taxable Income

Sources: Taxing Wages 2009-2010; Taxing Wages 2000-2001; The Tax/Benefit Position of Production Workers 1987-1990.

The impact of surtaxes on top statutory rates varies across OECD countries. In 2010, they added less than one percentage point to the top combined statutory rate in Luxembourg (increasing it from 38% to

38.95%) and Turkey (from 35% to 35.66%); between one and five percentage points in Australia (from 45% to 46.5%), Germany (from 45% to 47.48%) and Ireland (from 41% to 46%); and more than five percentage points in Canada (from 40.16% to 46.41%), Denmark (from 44.31% to 52.54%, on average) and France (from 40% to 45.78%). In some countries, surtaxes also affect the bottom (non-zero) statutory personal income tax rate. For example, surtaxes increase the lowest statutory central rate in France (from 5.5% to 7.76%), Ireland (from 20% to 22%), Luxembourg (8% to 8.2%) and Turkey (15% to 15.66%).

The fact that surtaxes affect the bottom statutory rate in some countries reflects that although surtaxes are sometimes associated with high incomes, the threshold at which a taxpayer begins to pay surtax is not always high. For example, individuals are subject to the stamp tax in Turkey and the Universal Social Contribution and Social Debt Contribution in France on their first unit of earnings. The Australian Medical Levy is payable by single individuals who earn 28% of the average wage (for families the threshold at which the levy begins to be paid is higher, depending on the number of adults and dependent children). However, even if the income level at which a taxpayer becomes subject to surtax is low, a surtax can increase the progressivity of the personal income tax system if the surtax itself displays progressive features (e.g., if an initial income band is exempt from surtax). Progressivity may increase in particular when the surtax consists of a multi-tiered schedule (e.g., Ireland), if it is phased in with income (e.g., Australia and Germany), or when it is levied as a percentage of an already progressive basic income tax (e.g., Luxembourg).

2.3 Zero-Rates, Basic Allowances and Basic Tax Credits

All OECD countries have basic provisions in place that exempt an initial level of earnings from personal income tax (although not necessarily from certain surtaxes or social security contributions) regardless of family circumstances such as marital status or number of children. The rationale for these provisions may vary: it may be argued that a minimum amount of income should be exempt because it is generally spent on basic necessities, which is analogous to exempting basic food and shelter from VAT, or that it should be exempt because it must be spent to generate income (e.g., commuting expenses). Alternatively, the primary purpose of a basic allowance may be to increase the progressivity of the tax system, particularly when there is a single or few tax brackets.

Exempting an initial level of income can be achieved with a zero-rate bracket, a basic personal allowance, or a basic personal tax credit. A zero-rate bracket applies a zero tax rate to the portion of taxable income below the tax bracket threshold. A basic personal allowance removes a portion of gross income from the tax base by reducing taxable income. Finally, a tax credit offsets the tax liability associated with a portion of income. Thus, an initial level of income can be exempted from tax at any stage in the calculation of taxes payable – when the tax base is determined (through an allowance), when tax on taxable income is calculated (through a zero statutory rate), or when net tax is calculated (through tax credits).

Zero-rate tax brackets result in a zero tax liability on the units of taxable income below the bracket threshold, which is effectively an exemption on that portion of taxable income. For example, if the upper threshold for the zero-rate bracket is 10 000 currency units, all taxpayers are exempt from tax on 10 000 units of their *taxable income* (which in the absence of any allowances would equal 10 000 units of gross earnings*)*. A universal basic allowance of 10 000 currency units achieves a similar result by exempting from tax 10 000 currency units of *gross earnings*. Individuals earning 10 000 or less are exempt from tax on all their earnings under both policy tools. For those earning more than 10 000, the tax allowance and zero-rate bracket result in identical average tax rates if the taxable income thresholds for all the tax brackets over the zero-rate bracket are shifted by 10 000 currency units relative to the bracket thresholds

under the basic allowance. Under this set of conditions, a reform that replaces a flat basic allowance with a zero rate would be neutral.

Such type of reform was implemented in Greece in 2009. The basic personal allowance was eliminated and a zero-rate bracket was introduced; its upper threshold was identical to the former basic allowance. As a result, the first EUR 12 000 of income were exempted from tax before and after the reform. However, the tax bracket thresholds for the non-zero rate brackets were not shifted by the amount of the basic allowance. In the absence of any other changes, this would have raised the tax burden of taxpayers whose taxable income was in the second non-zero rate bracket or higher. However, the Greek reform also reduced the first and second non-zero statutory rates, creating an offsetting effect.

When the value of a basic personal allowance varies with income, zero-rate brackets and basic allowances no longer produce the same result for all taxpayers, even if bracket thresholds are properly adjusted. The basic allowance is tapered with income in the Slovak Republic, Slovenia and the United Kingdom. In the Slovak Republic, the basic allowance is gradually reduced when earnings exceed 1.9 times the average wage and is fully eliminated when earnings reach 3.8 times the average wage. In Slovenia, those claiming the maximum allowance (earning less than 62% of the average wage) are exempt on almost twice the earnings as those claiming the minimum allowance (i.e., those earning more than 71% of the average wage). In the UK, taxpayers earning more than 3.2 times the average wage do not enjoy an exemption on any portion of their income. In Ireland, the low income exemption and the marginal relief tax rate for those who earn less than twice the amount of exempt income are similar to a tapered basic allowance. In Norway, the basic allowance increases with income for some income levels, with a lower and upper limit. Income-based basic personal allowances cannot be replaced with zero-rate brackets in a neutral way, that is, without affecting the tax liability of at least some taxpayers.

An alternative method of exempting an initial level of income from tax is to provide a basic non-refundable (wastable) tax credit similar to a basic allowance. A basic tax credit of 10 000 currency units multiplied by the lowest non-zero statutory rate effectively exempts the first 10 000 of *taxable income*. For taxpayers whose taxable income is subject only to the first non-zero statutory rate, this tax credit has the same result as a basic allowance of 10 000 currency units. However, for those with higher taxable incomes, the tax credit reduces the tax liability by less than an allowance of the same amount because the allowance is valued at the taxpayer's marginal tax rate but the tax credit is valued at a fixed and lower rate. In other words, while a basic allowance exempts the *last* 10 000 currency units of taxable income, the tax credit in this example exempts the *first* 10 000 units of taxable income (see Table 4).

A basic refundable (non-wastable) tax credit not only exempts an initial level of income, like a basic non-refundable tax credit, but also provides a negative tax (subsidy) for low-income individuals with small or no personal income tax liabilities. Refundable tax credits in OECD countries are generally targeted rather than provided broadly to all tax filers. Many refundable tax credits available regardless of family status are employment-related (e.g., Mexico's employment subsidy credit, the earned income tax credits in Finland and Sweden, etc). Whether employment-related or not, in most cases the exemption is provided only to taxpayers with total income under certain thresholds as a result of provisions that reduce the value of the tax credit as income rises.

Table 4. **Example of the Equivalence between Zero-Rate Brackets, Basic Allowances and Basic Tax Credits**

	10 000 Zero Rate Bracket		**10 000 Basic Allowance**		**10 000 Basic Tax Credit** (valued at the lowest PIT rate)	
Personal Income Tax Schedule						
	Taxable Income	**Rate**	**Taxable Income**	**Rate**	**Taxable Income**	**Rate**
	0 - 10,000	0%	0 - 10,000	10%	0 - 10,000	10%
	10,000- 20,000	10%	> 10,000	20%	> 10,000	20%
	>20,000	20%	N/A		N/A	
Case Examples (assuming no other allowances)						
Gross Earnings	**Taxable Income**	**PIT Liability**	**Taxable Income**	**PIT Liability**	**Taxable Income**	**PIT Liability**
10,000	10,000	(10,000 *0%)=**0**	10,000 –10,000 = 0	(0*10%) = **0**	$10,000	(10,000*10%) – (10,000*10%) = **0**
20,000	20,000	(10,000 *0%) + [(20,000 – 10,000)*10%] = **100**	20,000 – 10,000 = 10,000	(10,000*10%) = **100**	$20,000	(10,000*10%) +[(20,000 – 10,000)*20%] – (10,000*10%) = **200**

Provisions that exempted an initial level of income from tax in OECD countries in 2000 and 2010 are summarized in Table 5. In countries with dual income tax systems (Finland, Norway and Sweden) they refer to exemptions that reduce the earned income tax liability. Nine OECD countries have PIT schedules with a zero-rate tax bracket – Australia, Austria, Finland, France, Germany, Greece, Luxembourg, Sweden and Switzerland. Fourteen OECD countries provide basic personal allowances (or equivalent "exempt income" levels) – Belgium, Chile, Estonia, Ireland, Japan, Korea, Norway, Portugal, the Slovak Republic, Slovenia, Spain, Sweden, the United Kingdom, and the United States. Eleven OECD countries have non-refundable basic personal tax credits – Australia, Canada, the Czech Republic, Denmark, Iceland, Ireland, Israel, Italy, the Netherlands, Poland and Portugal. From 2000 to 2010, the only countries that have replaced the policy tool used to exempt an initial level of earnings have been the Netherlands and the Czech Republic, which replaced their basic allowances with wastable tax credits when they implemented base broadening reforms in 2001 and 2008, respectively.

Hungary, Mexico, New Zealand and Turkey have provisions that exempt an initial portion of *employment* income but, unlike other countries without dual income tax systems, do not extend this relief to other sources of income. For example, the Mexican employment subsidy credit (a refundable tax credit that is tapered with income) in combination with the holiday bonus and end-of-year bonus (standard work-related tax reliefs) results in a zero (or negative) tax liability for workers earning up to 70% of the average wage. Hungary, New Zealand and Turkey exempt an initial portion of employment income for lower income workers through non-refundable tax credits; these are tapered with income in the first two countries. Work-related lump sum allowances or tax credits, whether tapered with income or not, also exist in most other OECD countries. Like generally available basic reliefs and zero-rate brackets in Table 5, work-related provisions affect the income threshold where taxpayers begin to pay income tax (see Section 3.2).

Table 5 Central level Zero-Rate Brackets, Basic Allowances and Basic Tax Credits as a Percentage of the Average Wage [a,b,c]

	2000		2010	
	Measure	**Amount (% of AW)**	**Measure**	**Amount (% of AW)**
Australia	Zero-rate bracket	15%	Zero-rate bracket	9 %
	Wastable tax credit (t)	2%	Wastable tax credit (t)	13%
Austria	Zero-rate bracket	12%	Zero-rate bracket	29%
Belgium	Basic allowance	16%	Basic allowance	15%
Canada	Wastable tax credit	19%	Wastable tax credit	23%
Chile	Basic allowance	120%	Basic allowance	111%
Czech Republic	Basic allowance	22%	Wastable tax credit	43%
Denmark	Wastable tax credit	12%	Wastable tax credit	11%
Estonia	Basic allowance	16%	Basic allowance	18%
Finland	Zero-rate bracket	30%	Zero-rate bracket	38%
France [d]	Zero-rate bracket	15%	Zero-rate bracket	17%
Germany	Zero-rate bracket	20%	Zero-rate bracket	19%
Greece	Zero-rate bracket	71%	Zero-rate bracket	59%
Hungary [e]				
Iceland	Wastable tax credit	41%	Wastable tax credit	42%
Ireland	Wastable tax credit	21%	Wastable tax credit	23%
Ireland			Basic allowance (t)	13% [f]
Israel	Wastable tax credit	49%	Wastable tax credit	49%
Italy			Wastable tax credit	28%
Japan	Basic allowance	8%	Basic allowance	8%
Korea	Basic allowance	3%	Basic allowance	4%
Luxembourg	Zero-rate bracket	19%	Zero-rate bracket	23%
Mexico [g]				
Netherlands	Basic allowance	13%	Wastable tax credit	13% [h]
New Zealand [e]				
Norway	Basic allowances (i)	20%	Basic allowances (i)	16%
Poland	Wastable tax credit	10%	Wastable tax credit	9%
Portugal			Basic allowance	24%
	Wastable tax credit	12%	Wastable tax credit	14%
Slovak Republic	Basic allowance	25%	Basic allowance (t)	43%
Slovenia	Basic allowance	12%	Basic allowance (t)	36%
Spain	Basic allowance	19%	Basic allowance	21%
Sweden	Zero-rate bracket	88%	Zero-rate bracket	101%
	Basic allowance (i) (t)	3%	Basic allowance (i) (t)	5%
	Non-wastable tax credit (t)	3%		
Switzerland	Zero-rate bracket	25%	Zero-rate bracket	18%
Turkey	Basic allowance	4%	e	
United Kingdom	Basic allowance	18%	Basic allowance (t)	19%
United States	Basic allowance	22%	Basic allowance	13%

[a] Standard reliefs generally available to all taxpayers (work-related standard reliefs are excluded). These may be higher for taxpayers with a spouse or dependent children. Additional reliefs may further raise the income threshold at which a single taxpayer becomes subject to central tax.
[b] When the relief varies with income, the amount shown refers to the relief available to a taxpayer with one unit of earnings. For comparability with zero-rate brackets and basic allowances, the amounts shown for basic tax credits refer to the value of the credit divided by the bottom central statutory rate, as a percentage of the average wage. For the Czech Republic the value is also adjusted to reflect the inclusion of employer SSC in the tax base.
[c] The average wage refers to annual average gross earnings for a single worker as shown in Table II.10 of the 2011 Taxing Wages report.
[d] Applies to the basic income tax but not to the Universal Social Contribution or the Contribution to the Reimbursement of Social Debt.
[e] Although no standard relief is generally available to all taxpayers, a wastable employment-based lump-sum tax credit is provided.
[f] Assumes no deductions from gross income are claimed in the calculation of total income.
[g] Although no standard relief is generally available to all taxpayers, a non-wastable employment-based lump-sum tax credit is provided.
[h] Refers to the portion of the general tax credit that is corresponds to PIT (rather than SSC).
(t) Amount is tapered with income.
(i) Amount increases with income (up to a limit).
Sources: Tax Database, Table I.1 (www.oecd.org/ctp/taxdatabase); OECD Calculations.

From 2000 to 2010, the value of basic exemptions (tax allowances, tax credits or zero-rated brackets) expressed as a share of the average wage increased by at least two percentage points in 12 countries, decreased in 6 countries, and did not significantly change in 13 OECD countries. The largest increase was observed in Italy, followed by Portugal, Slovenia, the Czech Republic, the Slovak Republic and Austria. In these countries, the value of the exemption as a percentage of the average wage increased by more than 15 percentage points. In Italy and Portugal this was due to the introduction of new provisions; in others cases it was the result of an enhancement of the basic provisions, which generally accompanied major changes to statutory tax rates. For example, Austria, the Czech Republic, and the Slovak Republic enhanced their basic provisions as they reduced the number of tax brackets and increased the bottom statutory rate. Over the same decade, the value of the basic exemption declined the most (by at least eight percentage points) in Greece, Chile and the United States. In these countries, though the basic exemptions increased in terms of national currency, they decreased as a share of the average wage, which grew at a faster pace.

3 Income Thresholds Associated with the Top and Bottom Statutory Tax Rates

3.1 Income Threshold where Single Individuals Start Paying the Top Statutory Rate

A key difficulty in comparing top statutory rates across OECD countries is that the threshold at which the top combined statutory personal income tax rate begins to apply varies significantly across countries. In particular, the threshold tends to be lower in countries with fewer tax brackets and higher in countries with a large number of tax brackets. The value of personal allowances also affects the threshold at which the top rate begins to apply, if the threshold is measured in terms of gross earnings. Holding tax bracket thresholds constant, an increase in tax allowances translates into higher gross income thresholds at which the top statutory rate is levied. Figure 9 shows the income threshold where a single individual who claims standard reliefs starts facing the top combined statutory PIT rate, expressed as a percentage of a full-time worker's average wage.

Not surprisingly, in countries with a single statutory tax rate – the Czech Republic, Estonia and the Slovak Republic – the income threshold where the top statutory rate begins to apply is considerably lower than in all other OECD countries. (In these countries this is also the threshold where a single taxpayer first begins to pay tax, which is in turn higher in the Czech Republic and the Slovak Republic than in most other OECD countries.) Although there is only one statutory rate in these countries, the threshold for the top rate is greater than zero as a result of basic personal allowances or credits. In the Czech Republic, while the top statutory rate theoretically applies to the first unit of earnings, in practice taxpayers do not start paying tax before earning 43% of the average wage as a result of the basic personal tax credit.

In contrast, the threshold at which the top statutory rate begins to apply is highest in countries with a larger number of tax brackets. In Chile, the top rate of 40% affects individuals whose earnings are more than 16.4 times the average wage. This high threshold is the result of a personal tax structure with seven tax brackets and a generous basic allowance that exceeds the average wage. The income threshold is also high in Portugal, where there are eight tax brackets, and in the United States, where there are six. In Portugal, the top rate of 45.88% begins to apply when earnings exceed 9.7 times the average wage. In the United States, the top combined rate of 41.9% begins to apply when earnings exceed 8.4 times the average wage.

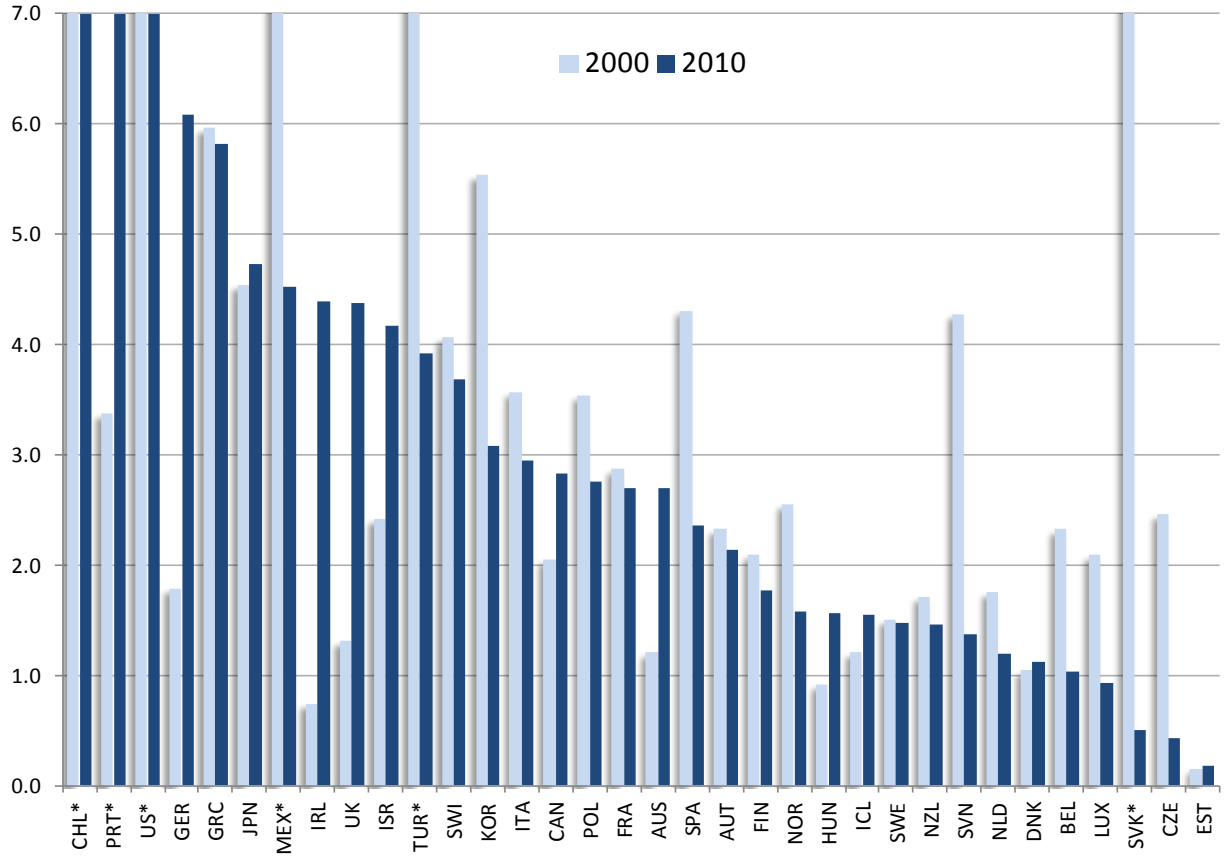
A country-by-country comparison of Figure 1 (in Section 2.1) and Figure 9 reveals the connection between changes in the number of tax brackets and changes in the income threshold at which the top

statutory rate is levied. Comparing 2000 to 2010, the threshold for the top combined rate decreased in 11 of the 13 countries where the number of central tax brackets was reduced (Austria, Belgium, the Czech Republic, Finland, France, Mexico, Poland, the Slovak Republic, Slovenia, Spain and Turkey). And among the nine countries where the number of central tax brackets increased, the threshold for the top combined rate increased in six of them (Canada, Germany, Iceland, Israel, Japan and Portugal).

However, changes in the threshold at which the top statutory rate begins to apply have not been driven only by changes to the number of tax brackets. Overall, from 2000 to 2010, the gross income threshold at which the top statutory rate begins to apply (expressed as a multiple of the average wage) decreased in 20 OECD countries, increased in 11 countries and remained relatively stable in 3 countries. As shown in Figure 9, changes were radical in some countries and subtle in others.

In absolute terms, the largest reduction in the income threshold at which the top rate begins to apply was observed in Mexico. There, the threshold at which the top rate of 40% began to apply in 2000 was 49.8 times the average wage. By 2010, the threshold at which the top rate of 30% began to apply had fallen to 4.5 times the average wage. This drastic reduction was the result of reforms that gradually reduced the top statutory rate between 2002 and 2007, and a subsequent reform that increased the threshold for the top rate while introducing new tax brackets. By 2010, Mexico's PIT schedule consisted of eight tax brackets with significantly lower rates and thresholds (as a multiple of AW) than the ten-bracket schedule in 2000. The two other countries that greatly reduced the threshold at which the top PIT rate begins to be levied are those that implemented reforms that instituted a single-rate tax structure within the decade – the Czech Republic and the Slovak Republic. In these countries, the threshold dropped by more than 80%, from 2.5 to 0.4 times the average wage in the Czech Republic, and from 7.9 to 0.5 times the average wage in the Slovak Republic. The threshold declined by more than 60% in Slovenia and Turkey, and by more than 40% in Belgium, Korea, Luxembourg and Spain.

Figure 9. **Income Threshold where the Top Combined Statutory Personal Income Tax Rate is Levied (Multiple of the Average Wage)** [1,2]



1. Multiple of the average wage where the top combined central and sub-central personal income tax rate begins to apply for a single individual claiming only standard tax allowances. For the Czech Republic, the 2010 figure denotes the threshold where a single taxpayer begins to pay tax.
2. Countries are ranked by decreasing threshold in 2010.
*Values not shown: Chile 2010: 14.0; Chile 2000: 16.3; Portugal 2010: 9.7; US 2010: 8.4; US 2000: 8.9; Mexico 2000: 49.8; Turkey 2000: 11.5; Slovak Republic 2000: 7.9.
Source: OECD Tax Database Table I.7 (www.oecd.org/ctp/taxdatabase).

Negligible changes occurred in Greece, Japan and Sweden. Small changes in the threshold at which the top rate applies may be caused by governments' indexation policies, which may be explicit or consist of ad hoc increases every few years. Tax allowances and top bracket thresholds that are not indexed annually to earnings growth are likely to grow at a slightly different pace than the average wage, leading to small changes in the value of the top income threshold expressed as a multiple of the average wage. On the other hand, seemingly small changes in the threshold over the ten year period may also reflect the cumulative impact of various policy changes with offsetting effects.

Large increases in the income threshold where the top statutory rate begins to apply have often been led by policy changes concerning the top statutory tax rate. Among the countries that increased their top statutory rates at some point over the last ten years, Germany, Greece, Iceland, Israel, Portugal, and the United Kingdom did so by introducing additional tax brackets at the top end of the PIT schedule, while Ireland introduced a multi-tiered surtax. Consequently, the threshold at which the top rate applies more than doubled over then ten year period in Germany (from 1.8 to 6.1 times the average wage), Ireland (from 0.7 to 4.4 times the average wage), Portugal (from 3.4 to 9.7 times the average wage) and the United Kingdom (from 1.3 to 4.4 times the average wage), and increased by more than 70% in Israel (from 2.4 to 4.2 times the average wage).

Indeed, top statutory rates and the thresholds where they begin to apply have tended to move in the same direction (along with the number of tax brackets). Among the 26 countries where the top combined statutory rate fell from 2000 to 2010 (see Section 2.1.2), the threshold for the top rate declined in 19 of them. The exceptions are Australia, Canada, Denmark, Estonia, Germany, Hungary and Israel, where the threshold increased while the top rate decreased. Among them, the threshold increased the most in Australia, where it more than doubled within the decade. Among the five countries where the top combined rate was higher in 2010 than in 2000, the threshold increased in all of them except Sweden, where it remained constant.

The fact that top statutory rates and the thresholds where they begin to apply have tended to move in the same direction among OECD countries means that conclusions about trends in the tax burden of high income earners cannot be derived by simply comparing top statutory rates. Moreover, though outside the scope of this report, the overall income tax burden of high income earners is also affected by their eligibility for non-standard PIT reliefs and changes in capital income taxation.

3.2 Income Threshold where Single Individuals Start Paying Income Tax

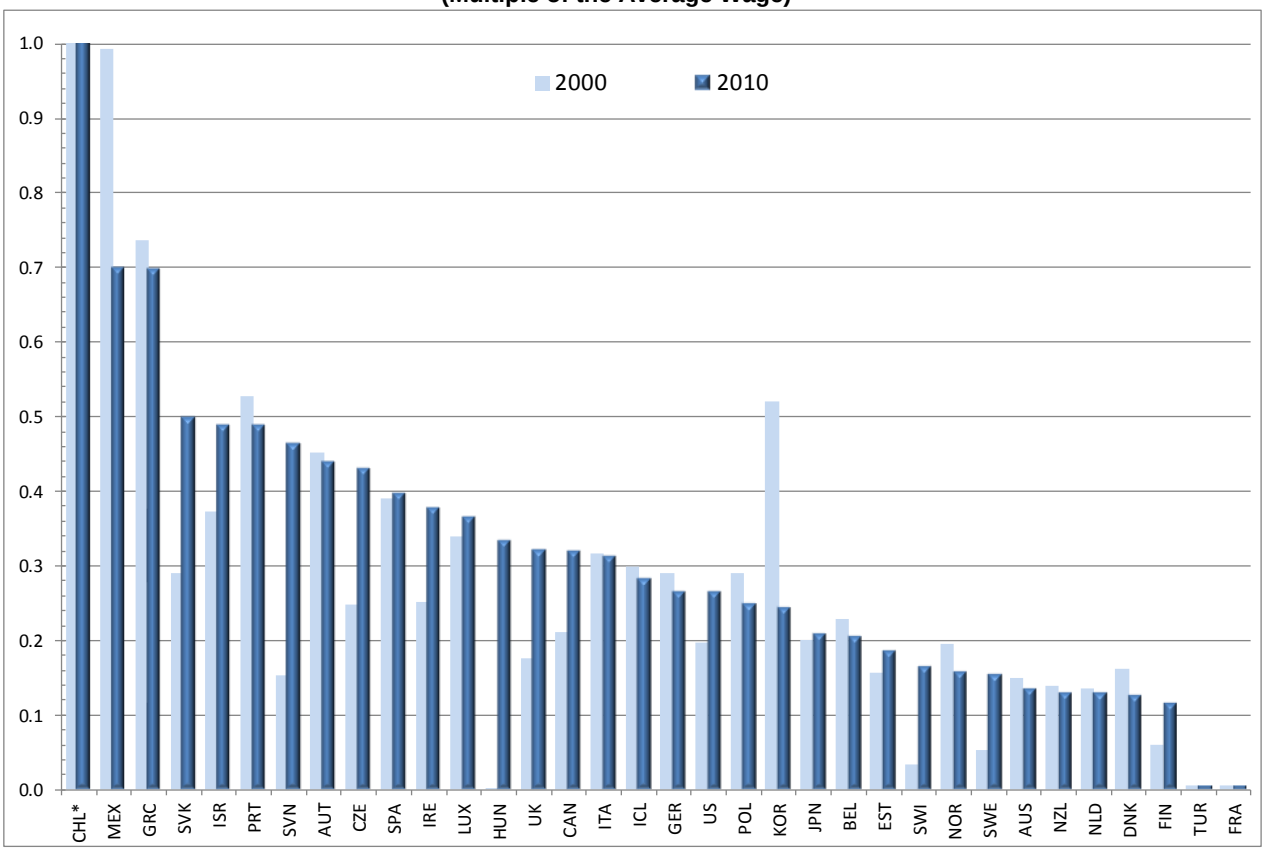
Zero-rate brackets, basic allowances and basic personal tax credits described in section 2.3 imply that individuals are generally not subject to tax on the first unit of earnings, introducing progressivity in the PIT rate schedule. Thus, statutory tax rates generally lead to a positive tax liability only once a taxpayer has earned income exceeding a given threshold. Exceptions include the French Universal Social Contribution (CSG) and the Social Debt Contribution (CRDS) and the Turkish stamp tax on wages, which apply on the first unit of earnings.

Figure 10 shows the income threshold, as a multiple of the average wage, where a single taxpayer begins to pay income tax. This threshold is defined here as the gross income level where the combined central and sub-central tax liability, net of refundable tax credits, *first* becomes greater than zero for a single individual who claims only standard reliefs (i.e., basic allowances and general work-related allowances available to all workers). The threshold may be different for tax filers who are married, have children or claim non-standard allowances. The threshold at which a single taxpayer becomes subject to income tax is calculated according to tax provisions and may in some cases be smaller than the 12-month legal minimum wage for a full-time employee. Note that to the extent that countries provide cash benefits comparable to refundable tax credits, the income thresholds at which the tax liability net of subsidies first becomes positive may be higher than the thresholds presented here.

The statutory rate that corresponds to the earnings level where a single taxpayer becomes subject to income tax is generally the bottom statutory rate as defined in Section 2.1.5. However, in 2010 this was not the case in Ireland, Japan, Mexico and the United States. In Japan, lump sum local taxes result in a positive tax liability before taxable income and the statutory tax rate turn positive. In the other three countries, provisions targeted at low-income taxpayers raise their tax-free income level above the upper threshold for the bottom statutory rate.

On average across OECD countries, individuals begin to pay income tax when they earn roughly one third of the average wage. However, the threshold varies considerably across countries. In 2010, French taxpayers were subject to income tax (CSG and CRDS) on their first unit of earnings, as were Turkish taxpayers. However, in the absence of surtaxes, a single employee claiming standard tax reliefs would have been able to earn free of tax 50% of the average wage in France or 24% of the average wage in Turkey. In contrast, Chilean taxpayers could earn 140% of the average wage before they began to pay income tax in 2010, mainly due to a generous basic personal allowance.

Figure 10. **Income Threshold where a Single Individual Starts Paying Income Tax (Multiple of the Average Wage)** [1, 2]



1. Multiple of the average wage where the average combined central and sub-central personal income tax liability first becomes positive for single taxpayers without children claiming (only) standard tax reliefs.
2. Countries are ranked by decreasing threshold in 2010.
*The value for Chile is 140% of the AW in 2010 and 149% of the AW in 2000.
Source: OECD calculations, Taxing Wages model.

From 2000 to 2010, the earnings threshold where single taxpayers become subject to income tax increased on average across OECD countries, from 30% of the average wage to 33% of the average wage. The threshold decreased in 13 countries, remained relatively stable in 7 countries, and increased in the remaining 14 countries.

While the threshold decreased in various countries, the decline was only materially significant in Korea (from 52% to 24% of the average wage) and Mexico (from 99% to 70% of the average wage). In Korea, the change was mainly driven by the fact that the first KRW 5 000 000 of employment income were previously fully deductible whereas in 2010 only 80% of this amount could be deducted as an allowance. In Mexico, a reduction in the value of both the employment subsidy credit and the fiscal subsidy reduced the threshold in gross earnings terms.

Among the OECD countries where the threshold increased, it increased the most in Hungary (from the first unit of earnings to 34% of the average wage), followed by Slovenia (from 15% to 46% of the average wage), the Slovak Republic (from 29% to 50% of the average wage) and the Czech Republic (from 25% to 43%). In Hungary, the increase was due to an enhancement of the employee tax credit, which previously reduced the tax liability and now exempts an initial portion of income for lower income workers. In Slovenia, the threshold increased primarily with the introduction of additional general allowances for low income people in 2008. In the Slovak Republic and the Czech Republic, the threshold

where tax becomes payable increased as a result of the reforms that replaced their multi-rate PIT schedule with a single tax rate and a significantly higher basic allowance or basic tax credit.

In countries with sub-central personal income taxes, the income threshold at which the combined central and sub-central tax liability becomes positive may differ from both the income threshold at which central taxes begin to apply and the threshold at which sub-central taxes begin to apply (see Table 6). This is the case when either the central or sub-central government offers refundable tax credits that effectively offset some of the tax liability imposed by the other level of government. For example, Canada, Finland, Sweden, the United States offer central level refundable in-work tax credits. Beyond reducing the central tax liability to zero, these tax credits notionally offset some of the sub-central tax liability in these four countries. That is, in the absence of central government taxes and credits, the income threshold at which sub-central taxes begin to be paid would be lower than otherwise.

Table 6. **Income Threshold Where a Single Individual Starts Paying Personal Income Tax, by level of government, 2010 (as a multiple of the Average Wage)**

Countries with national EITCs and sub-central taxes	Central Tax [a]	Sub-central Tax [b]	Combined Central and Sub-central Tax [c]
Canada	0.324	0.308	0.319
Finland	0.64	0.09	0.12
Sweden	1.67	0.05	0.15
United States	0.38	0.06	0.27

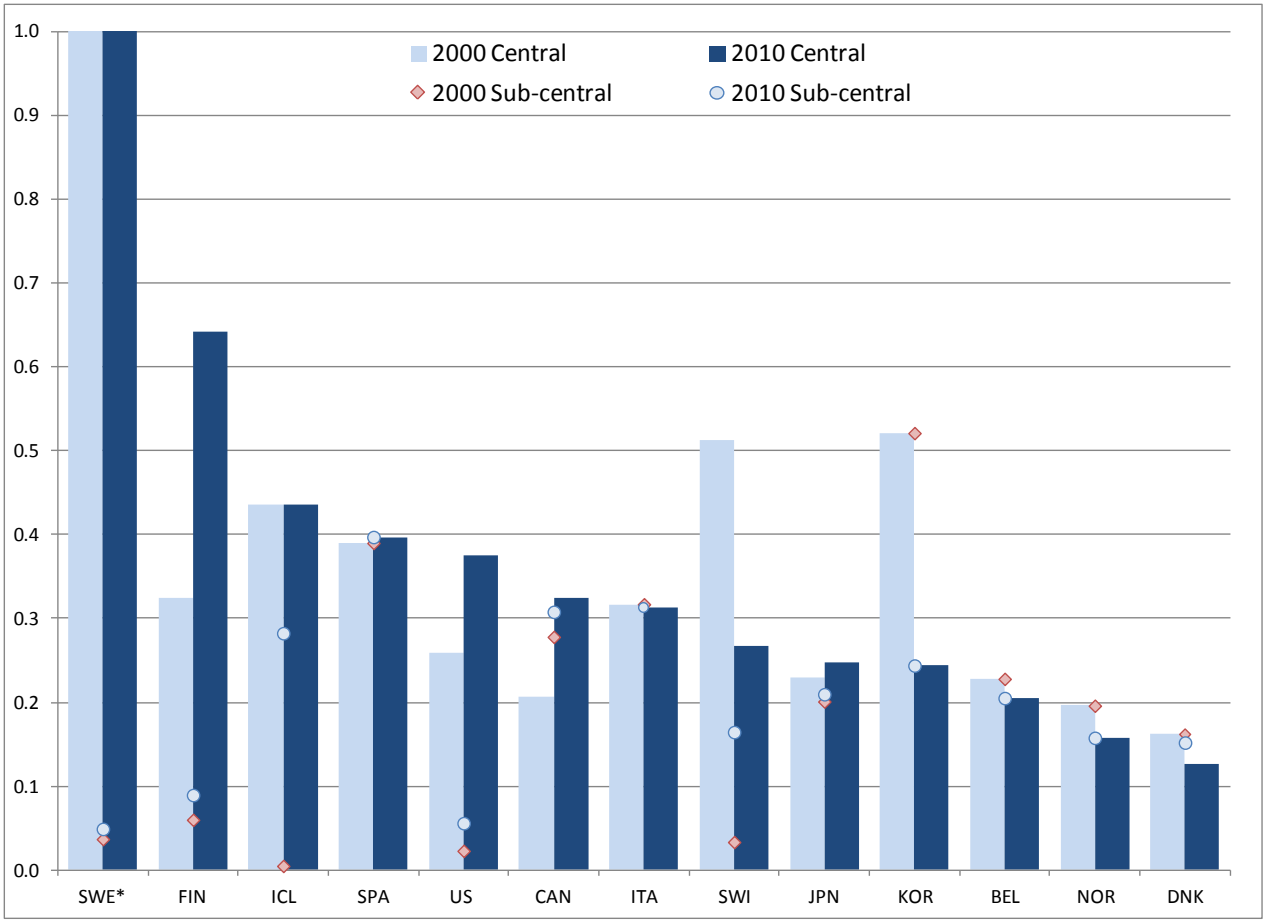
a) Income threshold ignoring sub-central taxes.
b) Income threshold ignoring central taxes.
c) Income threshold where the combined central and sub-central liability first becomes positive.
Source: OECD calculations, Taxing Wages model.

In other countries with sub-central taxation, the threshold at which the combined central and sub-central tax liability first becomes positive is the lesser of the threshold at which central taxes begin to apply and the threshold at which sub-central taxes begin to apply, as is the case in Denmark, Iceland, Japan and Switzerland. In the remaining countries with sub-central taxation (Belgium, Italy, Korea, Norway and Spain) the threshold is identical at the central and sub-central levels.

In Belgium and Korea, sub-central taxes are calculated as a percentage of central tax liability, and therefore begin to apply at the same income levels as central taxes. In 2010, the sub-central threshold also equaled the central threshold in Italy, Norway and Spain. Except for these five countries, the threshold at which a single taxpayer begins to pay income tax can vary significantly at the central and sub-central level (see Figure 11). The sharpest contrast is observed in Sweden, where in 2010 taxpayers began paying municipal taxes when they earned 5% of the average wage but were not subject to central income tax until they earned more than 167% of the average wage. The threshold at which Swedish municipal taxes begin to apply is low as a result of a relatively small income-tested basic personal allowance, which ranged from 0.03 to 0.09 times the average wage in 2010. While the central government provides the same basic allowance, its PIT schedule also contains a long zero-rate bracket with an upper taxable income threshold that is slightly above the average wage.

In 2010, the threshold at which a taxpayer begins to pay sub-central income tax was also lower than the threshold at which central tax begins to be paid in Canada, Finland, Iceland, Japan, Switzerland and the United States. The income threshold where sub-central tax begins to be paid was higher than the threshold for central taxes only in Denmark (in 2010), where lump-sum unemployment insurance contributions were deducible from the sub-central tax base but not from the central tax base.

Figure 11. **Income Threshold Where a Single Individual Start Paying Central or Sub-Central Income Tax (Multiple of the Average Wage)** [1, 2]



1. Multiple of the average wage where the average combined central and sub-central personal income tax liability first becomes positive for single taxpayers without children.
2. Countries are ranked by decreasing central threshold in 2010.
* In Sweden, the threshold for paying central tax was 167% of the AW in 2010 and 107% of the AW in 2000.
Source: OECD calculations, Taxing Wages model.

From 2000 to 2010, the threshold at which sub-central taxes begin to apply increased drastically in Iceland (where the first unit of earnings was previously subject to tax), and to a lesser extent in Switzerland. The threshold for local taxes declined the most in Korea, paralleling the decline in the threshold for central taxes.

Like in Korea, the earnings level where sub-central taxes begin to apply has moved in the same direction as the threshold where central taxes first become payable in most of the 13 OECD countries with sub-central taxation. The exception is Switzerland, where the sub-central threshold increased while the central threshold decreased in the past decade. In Canada, while both the central and sub-central thresholds increased, the central threshold now exceeds the sub-central threshold as a result of the introduction of a refundable earned income tax credit at the national level.

4. Statutory Personal Income Tax Schedules in Relation to Marginal and Average Tax Rates

Statutory tax rates are among the main tools governments possess to determine the tax burden at different levels of income. However, comparisons of statutory PIT rates between countries or over time must be interpreted with care. For instance, two countries with identical statutory personal income tax rate

schedules can display significant differences in the actual tax burden their populations face due to different tax reliefs and the definition of the tax base. Also, the replacement of a zero rate bracket or basic allowance with a basic personal tax credit (e.g., as in the Czech Republic) could give the impression that the tax burden has increased for lower income taxpayers if only statutory rates are considered. A more complete comparison should thus consider average and marginal tax rates as well as statutory tax rates.

As a result of allowances, exemptions and tax credits, statutory PIT rates do not generally coincide with average personal income tax rates (i.e., personal income taxes as a percentage of gross earnings). This particularly applies to low income levels, as most countries implement tax relief measures mainly targeted at low income earners. At higher income levels, statutory rates tend to be higher than average tax rates as a result of tax reliefs provided without income limits (e.g., universal basic allowances) and, in most OECD countries, graduated rate schedules. In the presence of tax reliefs that vary with income, statutory tax rates also differ from marginal personal income tax rates (i.e., personal income tax paid on an additional unit of gross earnings). This tends to be the case at income levels where targeted income-based tax relief is being phased in or phased out (tapered), or when social security contributions or non-tax compulsory payments are deductible from the PIT base.

To compare average, marginal and statutory PIT rates, the graphs in the Annex show personal income tax rates by level of gross income expressed as a percentage (0% to 500% or 1,000%) of the average wage, as defined in Table II.10 of the 2011 edition of *Taxing Wages*, available online at www.oecd.org/ctp/taxingwages (see methodology and limitations). There are two graphs for each country, the first showing the statutory tax rate and the average tax rate in 2003 and 2010. The year 2003 was chosen because it is the earliest year for which the Taxing Wages model can derive statutory rate schedules. The second graph displays personal income tax rates in 2010, and shows the marginal tax rate in addition to the statutory tax rate and the average tax rate. The graphs apply to a single taxpayer without children claiming only standard reliefs available to all wage earners. It is assumed that this taxpayer works full-time regardless of income. As a result, tax rates shown for low income levels should be interpreted with caution in the presence of minimum wage legislation (which is ignored here) or tax relief based on number of hours of work. It is assumed that gross income consists entirely of wage earnings and, where applicable, taxable benefits or taxable tax credits granted generally to all wage earners meeting the income requirements. All tax rates refer to combined central and sub-central tax rates, including surtaxes where applicable. For 2010, the threshold where a single taxpayer begins to pay income tax (Figure 10) can be identified in the Annex as the gross earnings level where the average PIT rate first turns positive. The threshold where a single taxpayer begins to face the top statutory PIT rate (Figure 9) can also be observed in the Annex charts.

For better comparability between countries and over time, the statutory tax rates shown in the Annex reflect the equivalence between zero-rate brackets and basic personal allowances by placing gross earnings rather than taxable income on the horizontal axis. The statutory rate for any given gross earnings level refers to the rate applicable to the corresponding level of taxable income. This means that for countries with a basic allowance, the statutory PIT schedule (as defined in terms of taxable income) is shifted by the amount of the allowance (when defined in terms of gross earnings). Thus, the statutory rate on the first unit of gross earnings is 0% in countries with basic or work-related lump-sum allowances, and in countries with zero-rate tax brackets. In contrast, the rate is positive in countries with basic personal tax credits, which limits the comparability of charts between countries with tax credits and those with standard allowances and/or zero-rated brackets.

While this section focuses on personal income tax systems, it is important to remember that social security contributions also affect the overall personal tax burden of individuals. Thus, while some countries may have lower marginal and average income tax rates than others because social security contributions are deductible, their net personal average and marginal tax rates (encompassing PIT and employee SSC)

may ultimately be higher than in countries without such deductions or with lower or no SSCs. Net personal average and marginal tax rates for 2011, as well as the separate contributions of PIT and employee SSC towards them, are shown in the country graphs of Part I of this report.

4.1 Average Income Tax Rates Compared to Statutory Tax Rates

From 2003 to 2010, there was a trend across OECD countries towards reduced statutory and average tax rates, at least for some income intervals. In most countries where the average tax rate decreased from 2003 to 2010, the statutory rate was cut at least for some brackets. Indeed, reductions in average tax rates can be at least partly explained by these cuts to statutory rates, particularly among those with high incomes. However, at low income levels reductions can to a greater extent be explained by increased basic allowances and tax credits. Average tax rates have increased in only few countries, though increases have not been significant in any of them.

From 2003 to 2010, 15 countries noticeably cut statutory and average income tax rates, though not necessarily for all tax brackets – Australia, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Israel, Norway, New Zealand, Mexico, Poland, Slovak Republic and Slovenia. There are differences among countries regarding the income levels that benefited from the rate cuts. In some countries, the reductions were targeted at middle-income or high-income earners. In others, they were more general and applied to most of the income distribution. In general, statutory rates did not substantially decrease at low income levels. Reductions in the average tax rate on low incomes have mainly been achieved through more generous basic and work-related reliefs.

.Among the countries that cut their tax rates, nine of them – Australia, Denmark, Estonia, Finland, France, Hungary, Israel, Mexico and Slovenia – implemented statutory rate cuts for almost the entire income distribution, though not necessarily by the same magnitude for all income levels. Statutory rate cuts in most of these countries were accompanied by a reduction in the average tax rate. The most significant reductions in the average tax rate took place in Israel and Australia. In contrast, in France, where statutory rate cuts were significant at most income levels, average tax rates were almost unchanged (except for earnings between 15% and 30% of the average wage) as a result of PIT base broadening.

Countries that targeted statutory rate cuts at high income levels include the Czech Republic, New Zealand, Norway, Poland and the Slovak Republic. The Czech Republic and the Slovak Republic replaced their multiple statutory rate schedule with a single rate structure, in 2008 and 2004 respectively, which led to significant reductions in the statutory rates for high income levels. The Czech Republic simultaneously replaced its basic allowance with a new tax credit, ensuring that the average tax rate for low income earners was either reduced or remained at 0%. In the Slovak Republic the basic allowance was enhanced, and in 2010 taxpayers with up to 50% of the average wage were not subject to PIT. In Norway, a tax reform implemented from 2004 to 2006 reduced the statutory rates for income above the average wage. For income below the average wage the statutory rate was unchanged from 2003 to 2010, but the average tax rate was reduced through enhancements in the basic allowance.

Several countries have targeted tax reductions at low and/or middle-income earners. These cuts have mainly been achieved through more generous basic and work-related reliefs instead of bottom statutory rate cuts, which have not been as widespread as top statutory rate cuts (as discussed in Section 2.1.4). In Sweden, for instance, the average tax rate decreased significantly, especially for low to middle-income earners, while statutory rates remained relatively unchanged from 2003 to 2010. The decrease in the average tax rate was the result of an increase in the tax credit for social security contributions and the introduction of an annual earned income tax credit. However, in Hungary a large reduction in the average tax rate for low and middle-income earners was mainly the result of significant reductions of the statutory rate for these groups.

Average tax rates have not significantly increased in any OECD country, even though a small group of countries increased the statutory rate for some income levels. These include Chile, Korea and the United Kingdom, where the statutory rate increased significantly for some income levels. Statutory rate increases were smaller in Italy, Iceland, Ireland, Japan, Luxembourg, Netherlands, Portugal and Turkey. These countries, except Iceland, also experienced minor increases in the average tax rate. In Spain, several changes to the statutory rate structure, both to the brackets thresholds and statutory tax rates, led to an increase in the average tax rate for low- and middle-income earners.

In some countries, including Austria, Belgium, Canada, France, Switzerland and the United States, statutory and average tax rates did not significantly change, even though some of these countries changed some of their bracket thresholds and/or statutory tax rates. The average tax rate for low income levels (20% to 60% of the average wage) increased slightly in Belgium, while it decreased slightly for income levels below the average wage in the United States. In contrast, the average tax rate in Greece was unchanged for most income levels in spite of the introduction of new tax brackets and rates, except for those earning between 80% and 170% of the average wage, for whom the average rate increased slightly.

Negative average tax rates over some income ranges are observed in Austria, Belgium, Canada, France, Mexico, the Slovak Republic, Sweden, the United Kingdom and United States as a result of work-related non-wastable tax credits. When only personal income tax rates are considered, and not social security contributions, these tax credits result in negative average (and marginal) tax rates for some (low) income levels, though actual tax liability may still be positive when social security contributions are included in the tax burden. In the United Kingdom, the tax credit is conditional on hours worked. The tax rates shown in the graphs in the Annex are based on the assumption that the taxpayer is eligible for this credit at low income levels. However, because taxpayers are unlikely to meet the eligibility criteria at very low income levels, the tax rates shown for the United Kingdom are truncated at -10%. For presentation purposes, the tax rates shown for Mexico are truncated at -30 % even though the average tax rate can be lower at low income levels due to an employment subsidy credit of MXN 4 884.24 (in 2010) that is tapered with income.

4.2 Marginal Income Tax Rates Compared to Statutory Tax Rates

Marginal personal income tax rates differ from statutory rates when tax reliefs vary with income or at very low income levels (where income is not subject to tax). For any given income level, the marginal rate (on gross earnings) is lower than the statutory rate (on the taxable income corresponding to gross earnings) when additional income results in increased tax relief, and higher than the statutory rate when tax relief is reduced with additional income. When the rate at which reliefs are reduced accelerates, the marginal rate increases. As described in section 2.3, in some OECD countries basic allowances and tax credits are gradually reduced (or increased) when income exceeds a given threshold, reaching zero (or a maximum amount) at a given income level. At this income level, where the impact of increasing or decreasing reliefs is exhausted, marginal and statutory tax rates merge (in the absence of other income-related tax relief). In some countries, at least some social security contributions are levied without a ceiling and are partly or fully deductible from taxable income or give rise to tax credits. Unlike other allowances and tax credits, tax reliefs related to these social security contributions often reduce the marginal tax rate below the statutory tax rate for high income as well as for low income earners.

Marginal tax rates differ from statutory rates, at least for some income ranges, in all OECD countries except Mexico. In most countries there is an income interval where the marginal tax rate is lower than the statutory rate. Few countries have marginal rates that are consistently higher than statutory rates, and several countries have uneven marginal rate schedules that peak at various levels of income. Marginal rate schedules tend to be more uneven at the bottom of the income distribution, where income-based standard reliefs for wage earners are of greater significance.

In nine countries – Austria, Belgium, France, Iceland, Japan, Korea, Poland, Slovenia and Switzerland – the marginal tax rate is lower than the statutory rate for almost the entire income distribution, though there are a few minor exceptions in some of the countries. All of these countries provide allowances for some or all social security contributions or non-tax compulsory payments. Since these allowances are not tapered with income and, except in Austria, there are no ceilings on the total amount of social security contributions (or NTCPs), the gap between the marginal and statutory tax rates on high incomes can be fully explained by these deductions. In Austria, the assumption made in the 2010 Taxing Wages publication that 2% of gross earnings are tax-free explains the difference between the statutory and marginal tax rate at high income levels.

At lower income levels, these nine countries provide other allowances and tax credits that also affect the marginal rate. Some of these tax reliefs decrease with income, thus narrowing the gap between the statutory and marginal rate for low income earners. In some cases, tax reliefs that are tapered with income may even lift the marginal rate above the statutory rate. For example, in France the marginal tax rate is higher than the statutory rate for income between 45% and 65% of the average wage as a result of the employment premium, a refundable tax credit that is reduced with earned income and capped at 65% of the average wage. In Belgium, a reduction of individual social security contributions is granted depending on income, in addition to a PIT allowance for social security contributions paid and a PIT allowance for work-related expenses that is calculated as a percentage of income with a decreasing rate. These three provisions result in an uneven ratio between the marginal rate and the statutory rate, though the marginal rate remains lower than the statutory rate for most of the income scale.

Finland, the Netherlands and Portugal also grant uncapped deductions for (some) social security or non-tax compulsory contributions. In these countries the marginal rate is also lower than the statutory rate at high income levels. However, the marginal rate is equal or higher than the statutory rate at some other points of the income distribution.

Another set of countries have marginal rates that differ from the statutory rate at the low to middle income range but eventually merge with the statutory rate at high income levels. These countries are Australia, Canada, Germany, Italy, Luxembourg, New Zealand, the Slovak Republic, Spain, Sweden, Turkey, and the Unites States. In most of these countries, statutory and marginal rates are identical at high income levels because either an allowance is not provided for social security contributions, or these contributions are capped (before income reaches five times the average wage). In contrast, in most of these countries marginal rates have uneven structures relative to the statutory rate at low and/or middle income levels. For example, in Canada, Sweden and the United States, non-wastable in-work tax credits lead to negative marginal tax rates for some low income levels where the statutory rate is positive.

In few countries – Chile, Estonia, Israel and Norway – discrepancies between the marginal and statutory rates are minor. In the United Kingdom, the marginal rate equals the statutory rate at most income levels, with two significant exceptions. At income between 20% and 40% of the average wage and between 280% and 320% of the average wage the marginal rate is considerably higher. The first peak is a result of the reduction of the Working Tax Credit, and the second peak is due to the tapering of the basic personal allowance.

It is not common for the marginal tax rate to be consistently higher than the statutory rate. However, this is the case in the Czech Republic and Hungary, where marginal rates are higher than statutory tax rates for all income levels subject to tax. In these countries the statutory rate is levied on gross earnings augmented with employer social security contributions, leading to a marginal tax rate that is higher than the statutory tax rate.

Overall, while marginal and average personal income rates are strongly influenced by, and tend to evolve together with, statutory tax rates, the graphical comparison of these rates in different countries shows that the definition of the tax base is an equally important factor in shaping tax burdens and work incentives along the income scale.

5. Employee Social Security Contribution Schedules

5.1 Income Threshold Where Single Individuals Start and Stop Paying Employee SSC

In most OECD countries, employee social security contributions are payable by all taxpayers on their first unit of earnings. However, some countries implement minimum income thresholds below which social security contributions are not payable. This is the case with all forms of employee social security contributions in seven countries – Austria, Belgium, Canada, Ireland, Norway, Sweden and the UK – as well as some (but not all) employee SSCs in Hungary (pension contributions) and Luxembourg (dependency insurance).

In most of these countries, the minimum income threshold is a *low-income exemption* that benefits taxpayers with total gross earnings below the threshold. Taxpayers who earn more are usually subject to SSC on their first unit of earnings. For example, this is the case with employment insurance contributions in Canada, and pension contributions in Norway and Sweden. In 2010, low-income exemptions ranged from 4% of the average wage in Canada to 46% of the average wage in Ireland.

Unlike low-income exemption thresholds, *SSC floors* exempt an initial portion income from SSC for all taxpayers, regardless of their income. All taxpayers are exempt from SSC on an initial portion of their income in Austria, Ireland and the United Kingdom, where all SSCs are subject to floors. In Ireland, however, the floor for social insurance is gradually reduced with income, like a tapered SSC allowance.

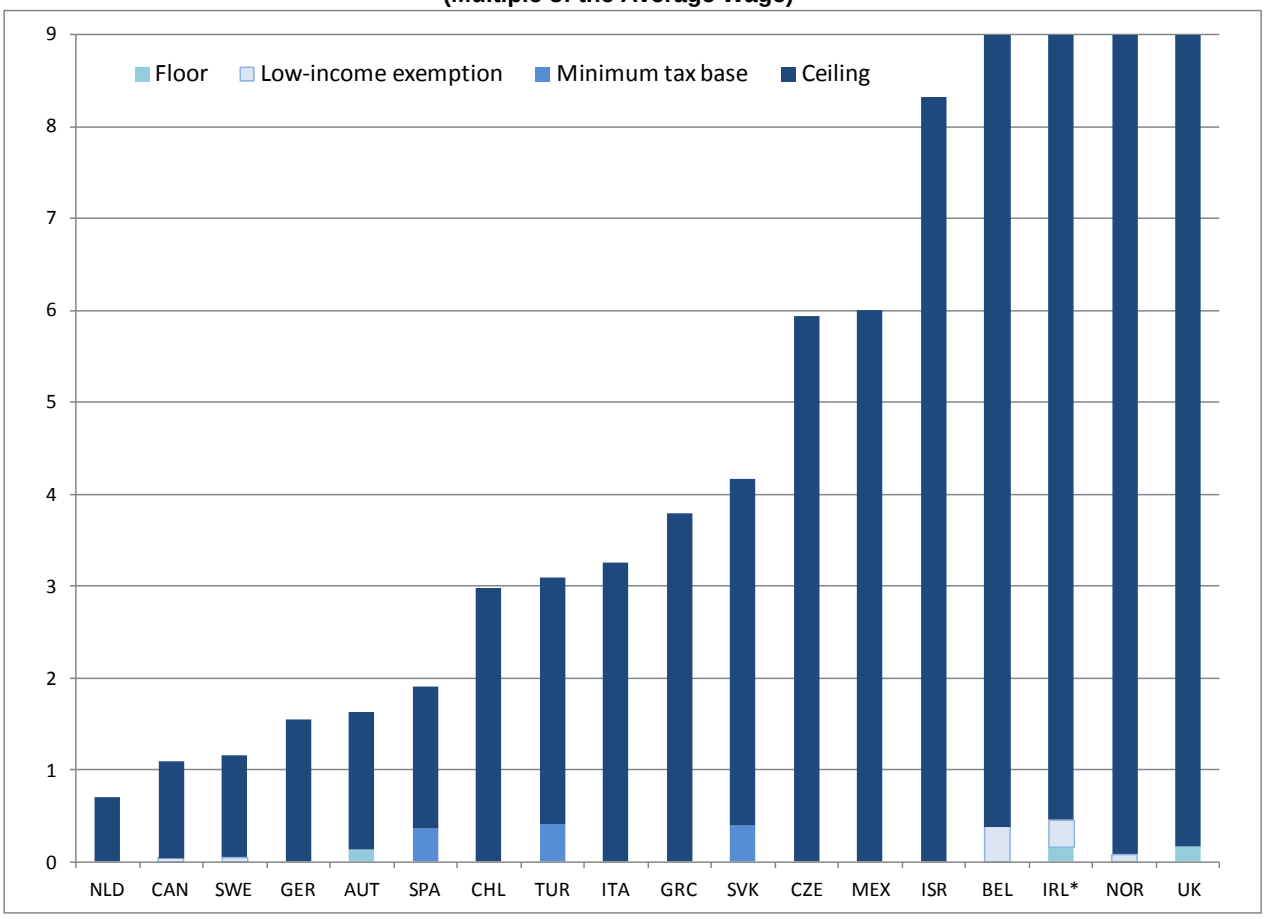
While some countries exempt low incomes from SSCs, others implement *minimum SSC liabilities*. In the Slovak Republic, Spain and Turkey, full-time workers are deemed to earn a minimum amount of income subject to SSC. This minimum SSC tax base tends to correspond to the legal minimum wage. In Denmark, there is also a minimum SSC liability, though rather than calculated as a deemed minimum tax base multiplied by the SSC rate, it is a lump sum charge for unemployment insurance.

SSC ceilings are more common than minimum income thresholds, as can be seen in Figure 12, which shows the value, as a percentage of the average wage, of low-income exemptions, floors, minimum liabilities and ceilings in countries where upper or lower limits are in place for all employee SSCs.

Total employee SSCs are capped at a maximum level when an *income ceiling* is exceeded in 14 OECD countries – Austria, Canada, Chile, the Czech Republic, Germany, Greece, Israel, Italy, Mexico, the Netherlands, the Slovak Republic, Spain, Sweden and Turkey. In some countries, some but not all SSCs are capped at a maximum level (e.g., social insurance in Ireland; pension contributions in Hungary, Japan, Korea and the United States; unemployment insurance contributions in France and Switzerland). In 2010, gross earning ceilings in countries where total SSCs were capped ranged from 0.7 times the average wage in the Netherlands to 8.45 times the average wage in Israel.

In most of the countries where total SSCs are capped, the gross earnings threshold at which the maximum SSC contribution is reached is below the threshold at which the top statutory PIT rate begins to apply, which implies that SSC rates do not increase the marginal personal tax rate (encompassing PIT and employee SSC) beyond the top statutory PIT rate for taxpayers facing this top rate. The exceptions are the Czech Republic, Israel, Italy, Mexico and the Slovak Republic, where taxpayers continue to pay SSC after their income has exceeded the threshold at which the top PIT rate applies.

Figure 12. **Employee Social Security Contribution Thresholds, 2010 (Multiple of the Average Wage)** [1,2]



1 A *floor* is an initial portion of income not subject to SSC, which is equivalent to a universal SSC allowance provided irrespective of income. A *low-income exemption* is the income threshold that determines whether SSC is payable or not. Those with income above the threshold must pay SSC on their total income or, in the presence of a floor, on their income above the floor. A *minimum tax base* are the deemed minimum earnings subject to SSC for full-time workers. A ceiling is the income threshold above which SSCs are no longer payable.

2. Countries are sorted from smallest to largest SSC ceiling in 2010. In Belgium, Ireland, Norway and the UK there are no ceilings on the total amount of SSC. Countries not shown in the graph do not impose lower or upper thresholds on the *total* amount of SSC.

*In Ireland, the floor applies to those whose total gross earnings exceed the low-income exemption. The floor is gradually reduced when gross income exceeds the ceiling for pension and social insurance (EUR 67,357 in 2010).

Source: OECD Tax Database Table III.1 (www.oecd.org/ctp/taxdatabase) and OECD calculations.

5.2 Top All-in Rates

The impact of social security contributions rates on *marginal* tax rates can be summarized by the all-in tax rate (referred to in *Taxing Wages* as the marginal personal tax rate), which is the sum of the combined central and sub-central marginal PIT rate, including applicable surtaxes, and the marginal employee SSC rate(s). The *top all-in rate* is the marginal combined PIT and SSC rate that applies on the first currency unit of gross earnings subject to the top statutory PIT rate. As defined here, the top all-in rate is not necessarily the maximum personal marginal rate, nor the marginal rate that applies on the highest possible income. Instead, it indicates the marginal tax rate for a taxpayer when she or he begins to face the top statutory PIT rate. It reflects the interaction between SSC rates, the top statutory rate and any other provisions that increase or reduce the marginal PIT rate.

The main form of interaction between PIT and SSC is the deductibility of SSC payments from the PIT base (or the inclusion of SSC in the case of the Czech Republic and Hungary). Employee SSCs levied on

gross earnings (as opposed to taxable income) are deductible from the central government PIT base in 20 OECD countries – Austria, Belgium, Denmark, Estonia, Finland (only pension contributions), France, Germany, Greece, Iceland, Italy, Japan, Korea (only pension contributions), Luxembourg (except for dependency insurance), Poland, Portugal, the Slovak Republic, Slovenia, Spain, Switzerland and Turkey. In most of these countries, contributions are fully deductible except in Germany, where there is partial deductibility. In addition, Canada and Sweden provide personal income tax credits for SSCs paid. Due to the interaction between SSC and PIT provisions as well as possible SSC ceilings, the top all-in rate does not generally equal the sum of the top statutory PIT rate and the top (or last applicable) statutory SSC rate (i.e., the statutory SSC rate on the highest possible income that is still subject to SSC).

There are four situations under which the top all-in rate can be lower than the sum of the top statutory PIT rate and the top (or the last applicable) statutory employee SSC rate:

a) An allowance or tax credit is provided for employee SSC contributions that increase with income, and these are either not capped or capped at a ceiling that is higher than the threshold for the top statutory PIT rate. In this case, the allowance or tax credit reduces the top marginal PIT rate. In the absence of other income-related allowances/ credits, the top all-in rate will equal the top marginal PIT rate plus the statutory SSC rate applicable at the gross earnings level at which a person begins to pay the top statutory PIT rate.

   – In 2010, among the 22 countries that provided PIT relief in respect of some or all employee SSCs, contributions were not capped in Belgium, Denmark, Estonia, Finland, France, Iceland, Japan, Korea, Luxembourg, Poland, Portugal, Slovenia and Switzerland; they were capped above the threshold for the top statutory PIT rate in Italy and the Slovak Republic.

b) SSC contributions are capped and the SSC ceiling(s) is (are) lower than the threshold for the top statutory PIT rate. In this case, an allowance or tax credit for SSCs does not reduce the top marginal PIT rate. Unless other income-related allowances/ credits are provided, the top all-in rate will equal the top marginal PIT rate.

   – In 2010, this was the case in Canada, Chile, Germany, Greece, Spain, Sweden and Turkey.

c) Other income-related tax relief is provided to taxpayers subject to the top statutory PIT rate.

   – For example, in 2010, non-tax compulsory payments that increase with income were deductible from the tax base in Iceland and the Netherlands.

d) The statutory SSC rate applicable at the earnings level at which a taxpayer first becomes subject to the top statutory PIT rate is lower than the top (or last applicable) employee SSC rate.

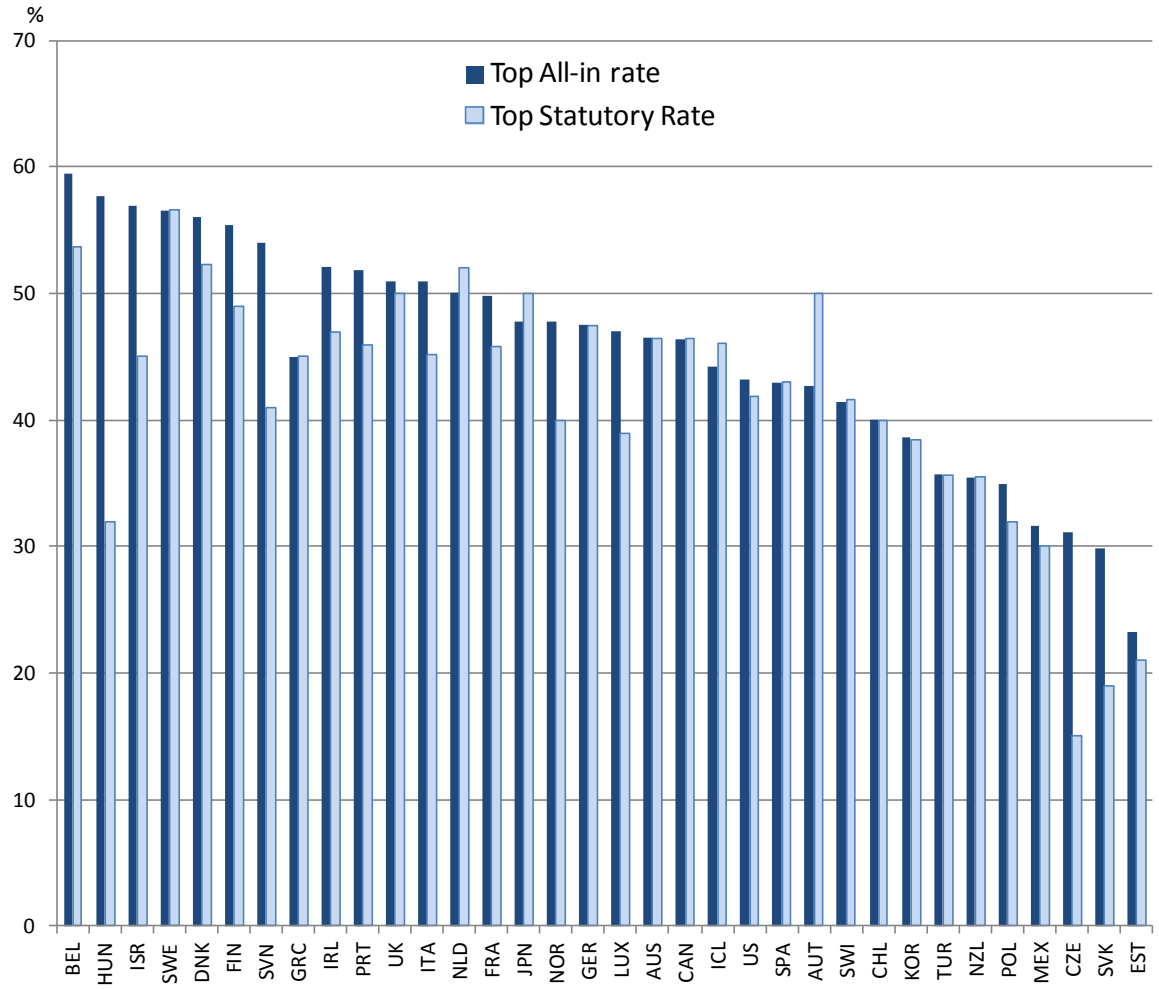
The top all-in rate may even be lower than the top statutory PIT rate. In 2010, for single individuals claiming standard reliefs, this was the case in Austria, Iceland, Japan and the Netherlands. At the other extreme, the top all-in rate may be higher than the sum of the top statutory PIT rate and the statutory SSC rate applicable at the income threshold for the top statutory PIT rate. In 2010, this was the case in the Czech Republic and Hungary.

Figure 13 shows the difference between top statutory PIT rates and top-all in rates faced by single individuals claiming only standard tax reliefs in OECD countries in 2010. Apart from countries with no SSCs (Australia and New Zealand), the top all-in rate was identical to the top statutory rate in the seven countries where the ceiling for employee SSCs was below the threshold for the top statutory PIT rate (Canada, Chile, Germany, Greece, Spain, Sweden and Turkey). The top all-in rate was lower than the top

statutory rate in five countries – Austria, Iceland, Japan, Switzerland and the Netherlands. In the remaining 21 OECD countries, the top all-in rate was higher than the top statutory PIT rate as a result of employee SSCs. In these countries, the difference between the top statutory PIT rate and the top all-in rate may be less than the full statutory SSC rate when tax relief is provided for SSC, which reduces the top marginal PIT rate under the conditions described above.

In 2010, social security contributions had the largest impact on the top all-in rate for single individuals in Hungary (26 percentage points) and the Czech Republic (16 percentage points). This is the result of the inclusion of employer social security contributions in the PIT base (in Hungary, this is done through a 27% gross-up of taxable income), and the fact that employers (and employees) continue to pay contributions on income above the threshold for the top statutory PIT rate.

Figure 13. **Top Combined Statutory and All-in Tax Rates on Wage Income, 2010** [1, 2]



1. The top "all-in" tax rate is the marginal personal tax rate paid by households on the first currency unit of taxable income subject to the top statutory tax rate. The top statutory tax rate is the top combined statutory PIT rate in the tax rate schedule.
2. Countries are ranked by decreasing top all-in rate.
Source: OECD Tax Database Table I.7 (www.oecd.org/ctp/taxdatabase).

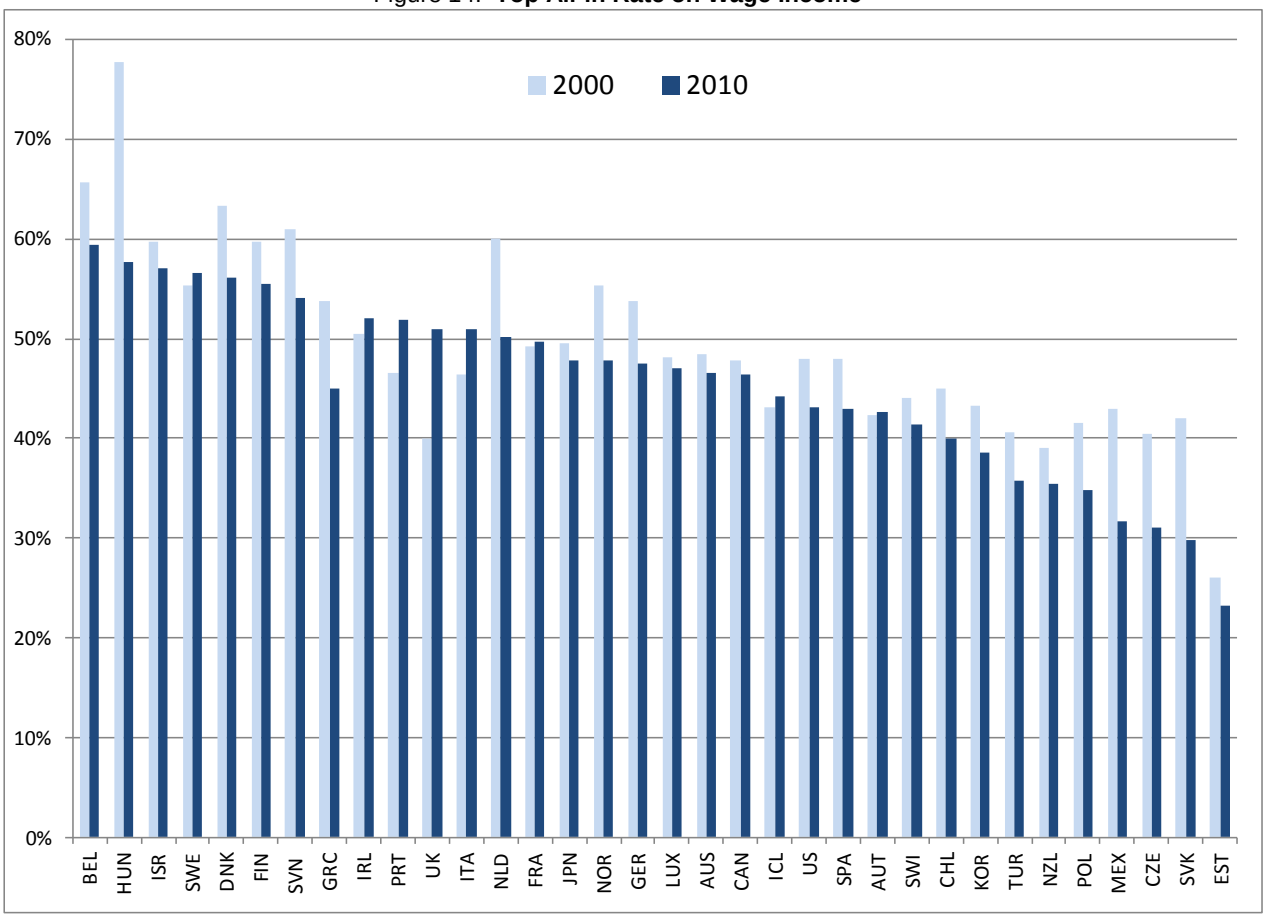
When some or all SSC contributions are capped at a maximum level but their income ceiling is higher than the threshold where the top statutory PIT rate begins to apply, the top all-in rate will tend to be *higher* than the all-in rate applicable on the *highest* possible income. For example, in Italy the top all-in rate of 50.9% applies to earnings of 3 times the average wage (corresponding to the taxable income threshold for the top PIT bracket). However, because SSC are no longer payable on earnings of more than EUR 92 147,

a taxpayer earning 3.3 times the average wage faces a lower all-in rate of 45.2%. A similar situation occurs in Luxembourg, where the top all-in rate of 47% applies to average wage earnings, but the all-in rate drops to 40.4% for taxpayers with more than 2.1 times the average wage. The top all-in rate is also higher than the all-in rate faced by higher income taxpayers in the Czech Republic, the Slovak Republic, Finland, France and Mexico. In the first two countries, this is due to the interaction of single-rated PIT schedules and SSC ceilings. In France and Mexico, (some) social security contributions are capped above the income threshold for the top statutory PIT rate. In Finland, the income level where the top statutory rate kicks in is within the phase-out range of the central earned income tax credit and the local earned income allowance.

The top all-in rate can be *lower* than the all-in rate applicable at *lower* income levels (i.e., below the taxable income threshold for the top PIT bracket). For example, in the United Kingdom, this is the result of a basic allowance that is gradually reduced with income but is fully eliminated before income reaches the threshold for the top PIT bracket. In France, the all-in rate faced by a single worker earning half of the average wage is higher than the top all-in rate due to the phase-out of the in-work tax credit (*prime pour l'emploi*). High SSC rates on contributions that are capped at income levels below the threshold for the top PIT rate could produce similar results. The top-all in rate can also be *lower* than the all-in rate applicable at *higher* income levels (over the taxable income threshold for the top PIT bracket). This could be the result of tax relief provisions that are reduced with income and eliminated only after income exceeds the top PIT bracket threshold. The top all-in rate is lower than the all-in rate applicable at higher income levels (at least over some high income intervals) in Belgium and the Slovak Republic.

On average across OECD countries, the top all-in rate fell from 49.4% in 2000 to 45.4% in 2010 (see Figure 14). This trend parallels the decline in the average top statutory PIT rate over the same period. In fact, the drop in top all-in rates was primarily driven by statutory PIT rate cuts, although changes in SSC schedules also played a (smaller) role. The top all-in rate fell in 25 countries, with the most significant declines in Hungary (from 78% to 58%), the Slovak Republic (from 42% to 30%), Mexico (from 43% to 32%) and the Netherlands (from 60% to 50%). The rate increased in nine countries, although the changes were negligible in Austria, Greece, Iceland, Sweden and Turkey. The most significant increase occurred in the United Kingdom, where the top all-in rate increased from 40% to 50% as a result of the introduction of a new top PIT bracket and rate. The only countries where the top all-in rate and top statutory PIT rate moved in different directions are France and Italy, where the top all-in rate increased despite reductions in the top statutory PIT rate.

Figure 14: **Top All-in Rate on Wage Income** [1, 2]



1. The top "all-in" tax rate is the marginal personal tax rate paid by households on the first currency unit of taxable income subject to the top statutory PIT rate.
2. Countries are ranked by decreasing top all-in rate in 2010.
Source: OECD Tax Database Table I.7 (www.oecd.org/ctp/taxdatabase).

This section has shown that social security contributions can have significant impacts on marginal tax rates, even at high income levels in many countries. Relying solely on top statutory PIT rates for international competitiveness analyses would thus present an incomplete picture. Furthermore, while trends in top statutory and marginal PIT rates have been broadly paralleled by top all-in rates, the gap between them has tended to widen over time. This is perhaps not surprising in light of the general trend across OECD countries towards an increased share of employee (and employer) social security contributions in the tax revenue mix.

6. Conclusions

This paper compared statutory personal income tax and employee social security contribution provisions across OECD countries and over time, including statutory tax rates, the income thresholds where they apply, personal income surtaxes and provisions that exempt a minimum amount of income from tax. The relationship and differences between statutory, marginal and average personal income tax rates has also been discussed, as well as the contribution of SSC rates towards top all-in marginal tax rates.

The following trends have been identified:

- The average **number of tax brackets** in OECD countries strongly declined in the 1980's and remained relatively stable throughout the 1990's and 2000's. Over the last decade, reductions in

the number of tax brackets have been generally accompanied by reductions in the top statutory PIT rate. The introduction of new tax brackets, though less common, has generally resulted in higher top statutory PIT rates. It thus appears that changes in the number of tax brackets have been, with exceptions, not a policy goal in itself but rather a tool to reduce or increase tax burdens, particularly at high income levels.

- On average across OECD countries, the **top statutory PIT rate,** inclusive of surtaxes and sub-central taxes, has declined significantly in each of the past three decades. However, Iceland, Ireland, Mexico, Portugal, Sweden and the United Kingdom increased their top PIT rate in 2010, signalling a reversal in the trend at a time of fiscal consolidation.

  – Among the 13 countries with sub-central taxation, the top combined statutory PIT rate declined in 10 of them over the past decade. However, these reductions were mainly driven by changes in top central tax rates (which were usually higher than sub-central rates to begin with). Indeed, some sub-central governments, such as those in Finland and Spain, have been able to raise their top statutory rates to take up fiscal room resulting from central level tax cuts.

  – While some sub-central governments with taxing powers raised their top statutory PIT rates, no previously unitary country (as of 2000) introduced sub-central personal income taxation.

- From 2000 to 2010, the **level of earnings** at which taxpayers become subject to the **top statutory PIT rate** changed alongside the number of tax brackets and the top statutory PIT rate. Reductions in the top statutory PIT rate and/ or in the number of tax brackets have generally been accompanied by reductions in the threshold at which the top rate applies. Conversely, the threshold for the top PIT rate has generally increased in countries that increased their top statutory PIT rate and/ or introduced new brackets.

  – The trend towards lower top PIT rates, lower top thresholds and fewer tax brackets occurred not only in countries that implemented flat tax reforms (the Czech Republic and the Slovak Republic), but also notably in Belgium, Mexico, Slovenia and Turkey.

- In the last decade, the **statutory PIT rate levied on the average wage** of a single worker declined in 23 OECD countries. Among them, the decline generally coincided with a trend towards lower average tax rates on average earnings. Conversely, increases in the statutory PIT rate levied on the average wage have frequently been paralleled by increases in the average personal income tax rate.

- In contrast, there was no clear trend in the **bottom statutory PIT rate** from 2000 to 2010. While it decreased in many OECD countries, it increased in others. The magnitude of the changes varied significantly across countries.

  – Where applicable, drastic changes in the bottom rate have often been accompanied by changes in the gross income range over which it applies, as was the case in Denmark and Austria.

  – Although several countries have targeted tax burden reductions at low and/or middle-income earners, these cuts have mainly been achieved through more generous basic and work-related reliefs.

- The **level of earnings** at which taxpayers **start paying PIT** has not displayed a clear trend either. Over the last decade, it decreased in various countries, most notably in Korea and Mexico, and increased or remained stable in others.

  – In countries with sub-central taxation, the income threshold at which taxpayers begin to pay central taxes may be significantly different from the threshold where they start to pay sub-central taxes. However, refundable tax credits at one level may offset the tax liability at the other level, so that the threshold where the combined tax liability becomes positive is somewhere in between the central and sub-central thresholds.

- Eight OECD countries – Australia, Canada, Denmark, France, Germany, Ireland, Luxembourg and Turkey – levied **surtaxes** or additional income taxes at the central or sub-central level in 2010. The calculation of surtaxes, including the base and number of rates, varies considerably among these countries. Surtaxes create complexity and reduce transparency in the tax system. They may also increase or reduce the progressivity of personal income taxes, depending on their design.

  – Progressivity may increase when the surtax consists of a multi-tiered schedule (e.g., Ireland), if it is phased in with income (e.g., Australia and Germany), or when it is levied as a percentage of an already progressive basic income tax (e.g., Luxembourg). It may be reduced in some cases, when the surtax is similar to a proportional tax.

- All OECD countries exempt an initial portion of earnings from personal income tax through provisions such as **basic personal tax allowances, basic personal tax credits or zero-rate tax brackets**. However, in some countries the exemption is limited to employment income and/or to taxpayers with incomes below a certain threshold.

  – The particular type of tool used to exempt income in each country has tended to remain constant over time, with the exception of the Czech Republic and the Netherlands.

  – The value of the basic exemption, expressed as a share of the average wage, noticeably increased in more than a third of OECD countries and decreased in only six countries over the last decade.

- Statutory tax rates are only one element that helps determine tax liabilities and marginal tax rates. A graphical comparison of **statutory, average and marginal personal income tax rates** along the income distribution shows that these rates often differ from each other in OECD countries.

  – While marginal rates may be higher, lower or equal to statutory tax rates at different stages of the income scale, average tax rates are always lower than statutory rates (for the average single full-time earner) as a result of tax reliefs and, in most countries, graduated PIT schedules.

- **Employee social security contributions** are payable on the first unit of earnings in most OECD countries, but are capped when income exceeds a certain level in 14 countries. Contributions are deductible from the PIT base in 20 OECD countries and may be claimed as a tax credit in 2 countries, thus reducing marginal personal income tax rates in most OECD countries.

  – Among the few countries where minimum income thresholds for employee SSCs apply, three of them impose floors (all taxpayers are exempt from SSC on income below the threshold) and five of them offer low-income exemptions (taxpayers with earnings above the threshold

are liable for SSC on their income exceeding a floor). Three other countries implement minimum SSC liabilities, whereby full-time workers are deemed to earn a minimum amount of income subject to SSC.

- The **top all-in rate** summarizes the impact of employee SSCs on top marginal tax rates. In most OECD countries employee social security contribution rates increase the **top all-in rate**, which is the combined marginal PIT and SSC rate applicable where a taxpayer becomes subject to the top statutory PIT rate. However, the top all-in rate is not always higher than the top statutory PIT rate, for example, if SSCs are capped at lower income levels or if there are income-based tax reliefs available to those with higher incomes. At the other extreme, the top all-in rate may be higher than the sum of the top statutory PIT rate and the corresponding statutory employee SSC rate.

  – In 2010, the top all-in rate was lower than the top statutory PIT rate in Austria, Iceland, Japan and the Netherlands. The two rates were equal in Canada, Chile, Germany, Greece, Spain, Sweden, Turkey, and in countries that do not levy employee SSCs (Australia and New Zealand).

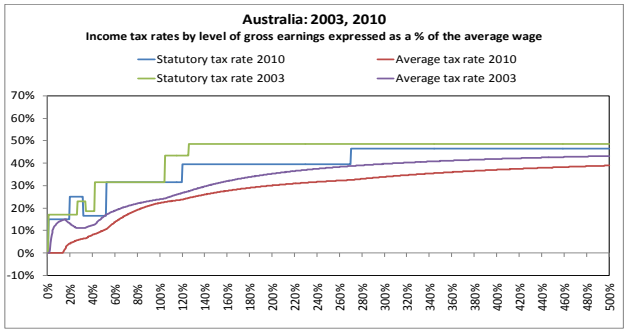
  – In 2010, the top all-in rate in the Czech Republic and Hungary was higher than the sum of the statutory PIT and employee SSC rates as a result of the inclusion of employer SSC in the personal income tax base.

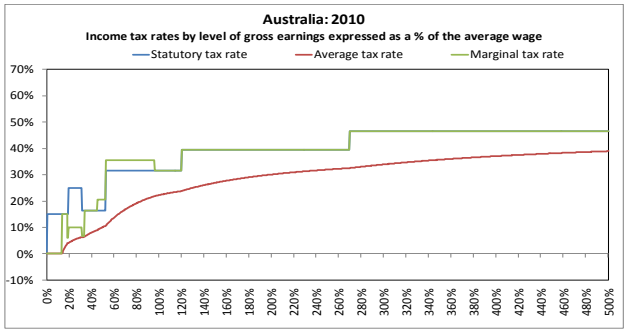
- The **top all-in rate** declined on average across OECD countries from 2000 to 2010, primarily as a result of lower top statutory PIT rates, and to a lesser extent due to changes in SSC schedules. However, the average gap between the top all-in rate and the top statutory PIT rate widened, from 2.9 percentage points to 3.7 percentage points, reflecting the growth of employee SSC as a share of total tax revenues in most countries. Moreover, reductions in the income threshold where the top all-in rate applies that occurred in most OECD countries over the same period have minimized the impact of top all-in rate cuts on the tax burden of high income earners.

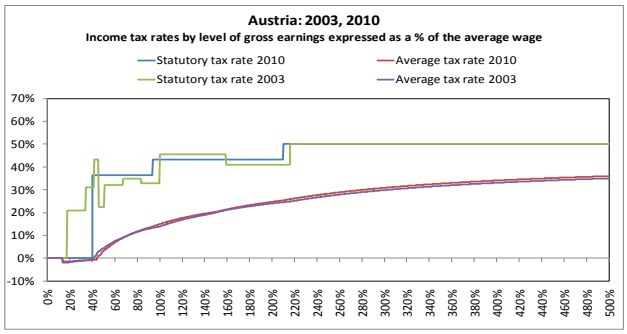
ANNEX

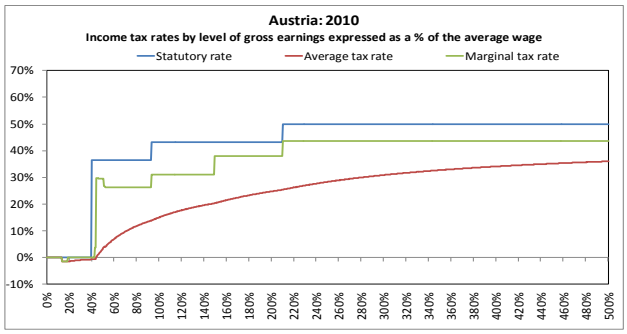
STATUTORY, MARGINAL AND AVERAGE PERSONAL INCOME TAX RATE SCHEDULES

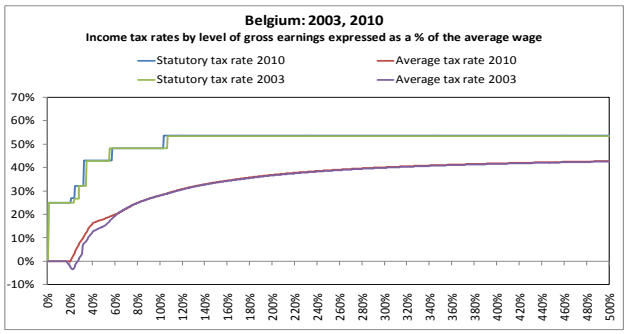
Income tax rates for single full-time workers with no children, by level of gross earnings expressed as a % of the average wage

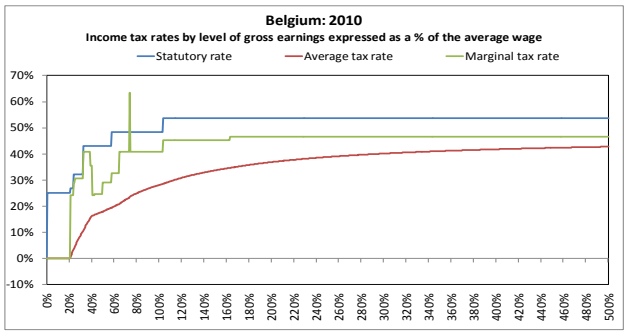


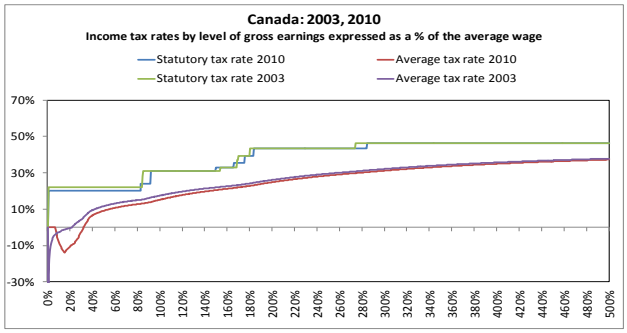


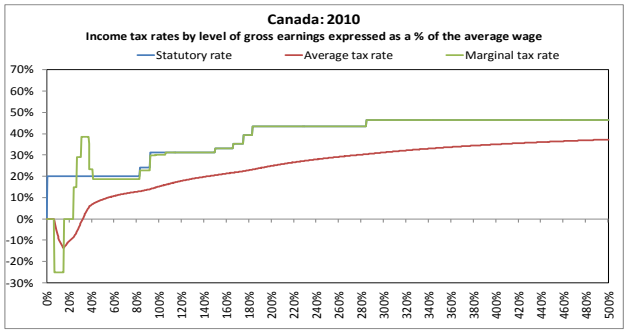


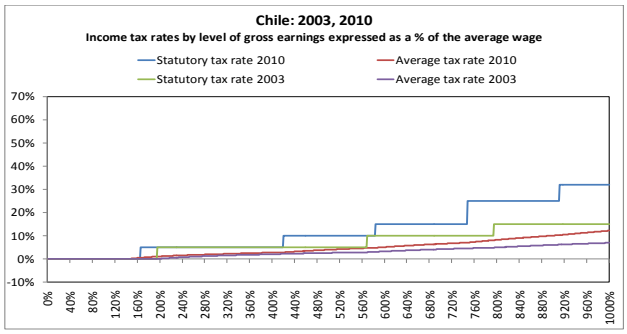


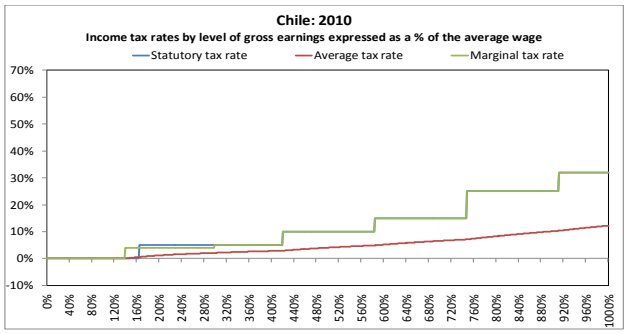


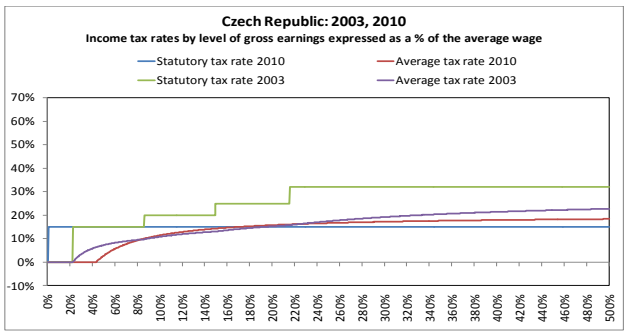


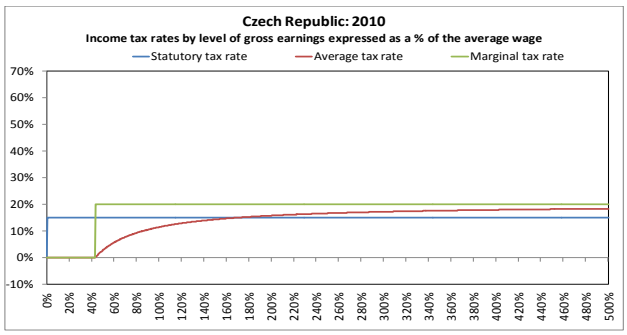

Canada: 2003, 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate 2010
Average tax rate 2010
Statutory tax rate 2003
Average tax rate 2003

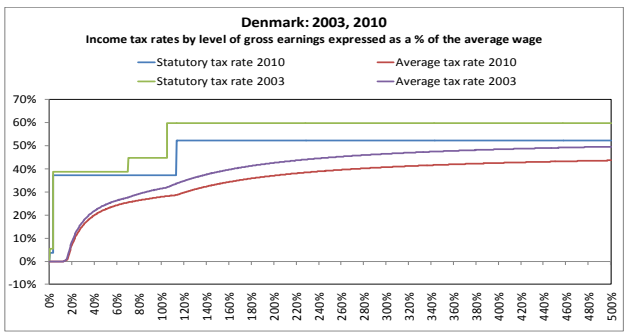

Canada: 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory rate
Average tax rate
Marginal tax rate

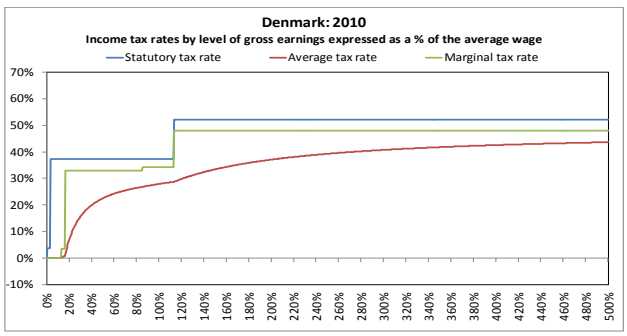

Chile: 2003, 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate 2010
Average tax rate 2010
Statutory tax rate 2003
Average tax rate 2003

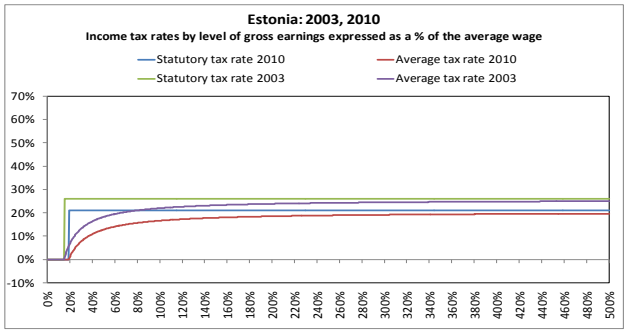

Chile: 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate
Average tax rate
Marginal tax rate

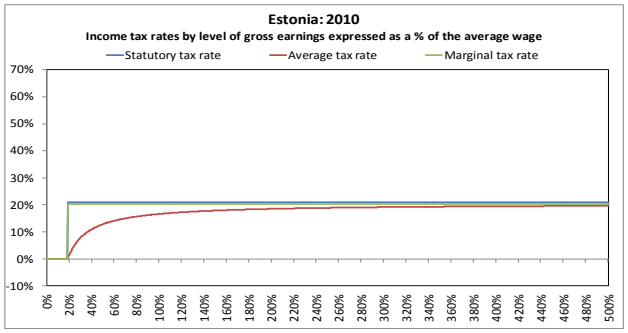

Czech Republic: 2003, 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate 2010
Average tax rate 2010
Statutory tax rate 2003
Average tax rate 2003

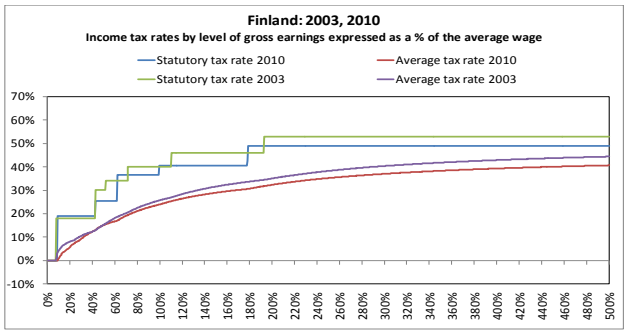

Czech Republic: 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate
Average tax rate
Marginal tax rate

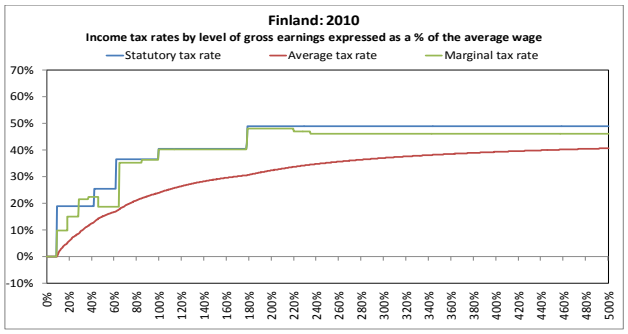

Denmark: 2003, 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate 2010
Average tax rate 2010
Statutory tax rate 2003
Average tax rate 2003

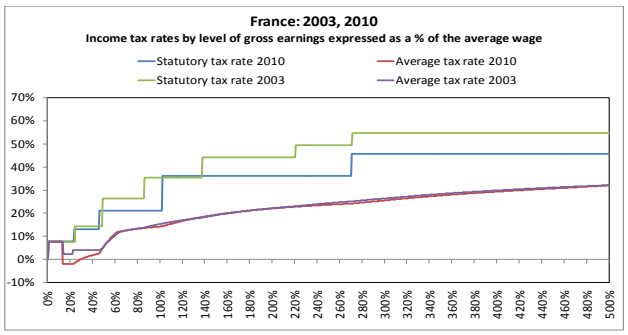

Denmark: 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate
Average tax rate
Marginal tax rate

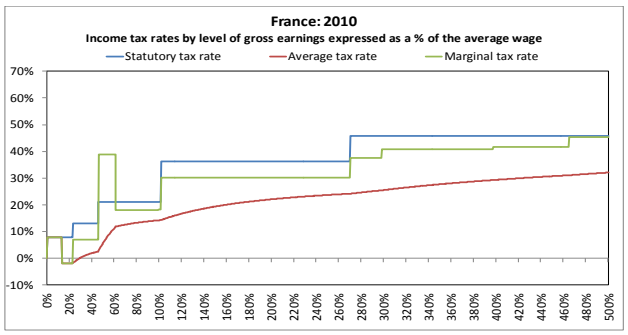

Estonia: 2003, 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate 2010
Average tax rate 2010
Statutory tax rate 2003
Average tax rate 2003

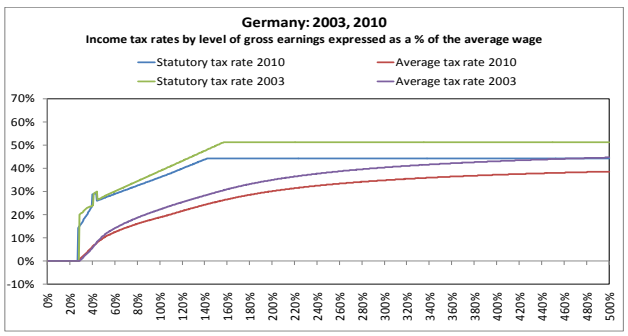

Estonia: 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate
Average tax rate
Marginal tax rate

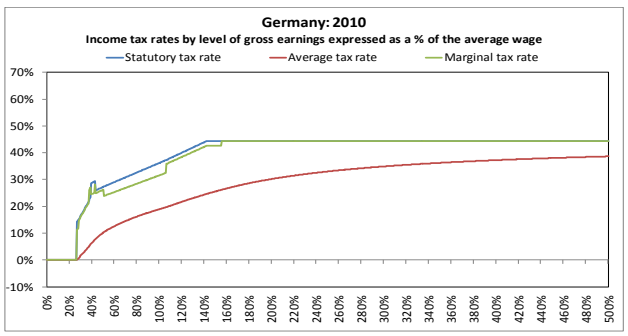

Finland: 2003, 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate 2010
Average tax rate 2010
Statutory tax rate 2003
Average tax rate 2003

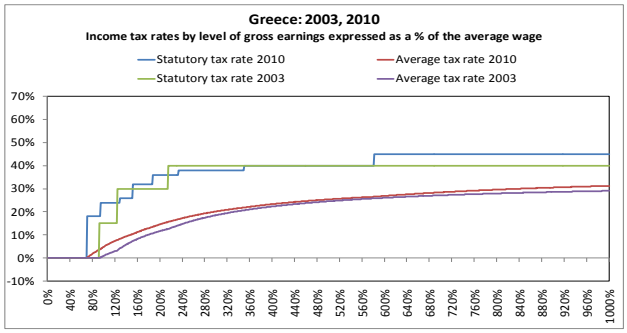

Finland: 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate
Average tax rate
Marginal tax rate

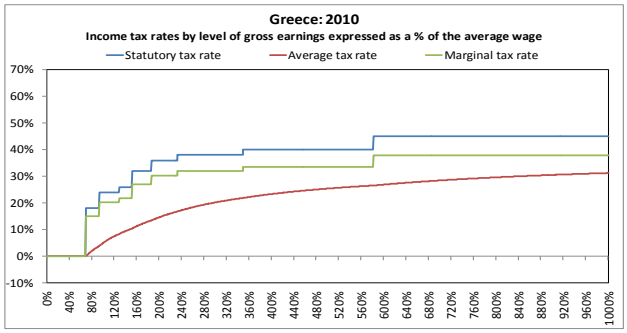

France: 2003, 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate 2010
Average tax rate 2010
Statutory tax rate 2003
Average tax rate 2003

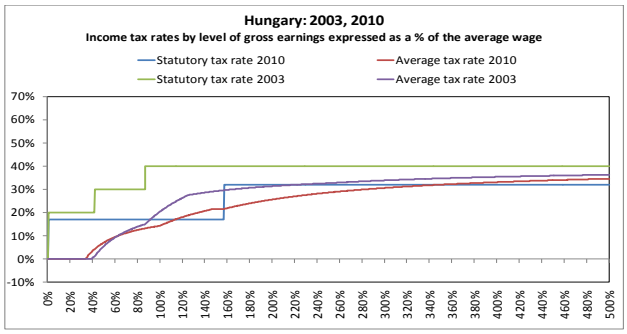

France: 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate
Average tax rate
Marginal tax rate

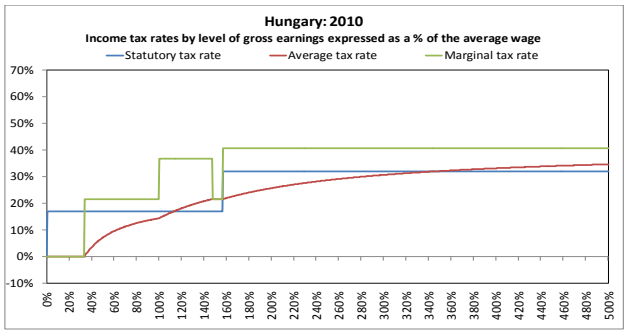

Germany: 2003, 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate 2010
Average tax rate 2010
Statutory tax rate 2003
Average tax rate 2003

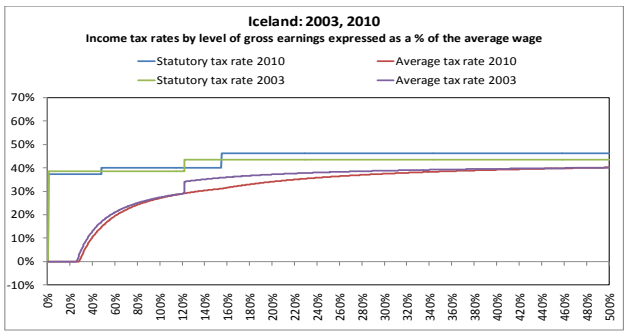

Germany: 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate
Average tax rate
Marginal tax rate

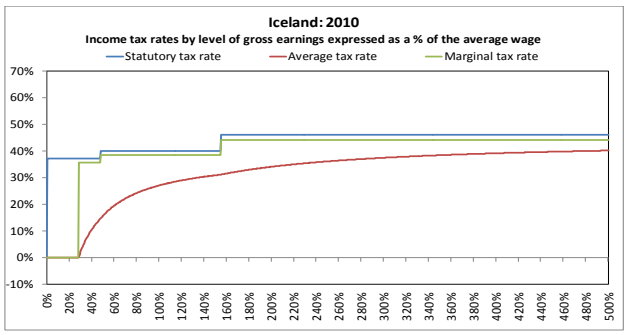

Greece: 2003, 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate 2010
Average tax rate 2010
Statutory tax rate 2003
Average tax rate 2003

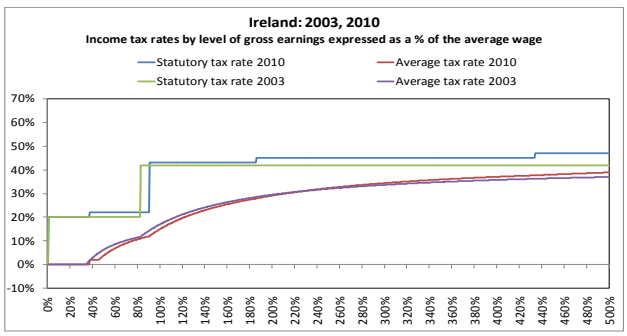

Greece: 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate
Average tax rate
Marginal tax rate

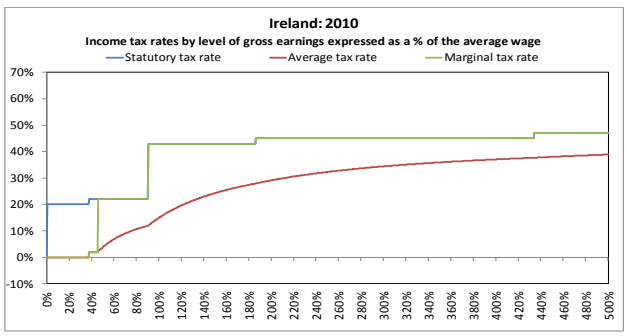

Hungary: 2003, 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate 2010
Average tax rate 2010
Statutory tax rate 2003
Average tax rate 2003

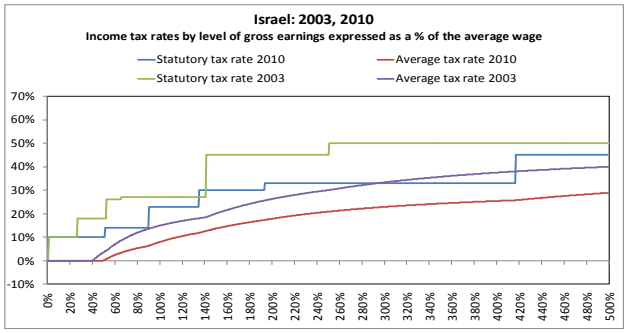

Hungary: 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate
Average tax rate
Marginal tax rate

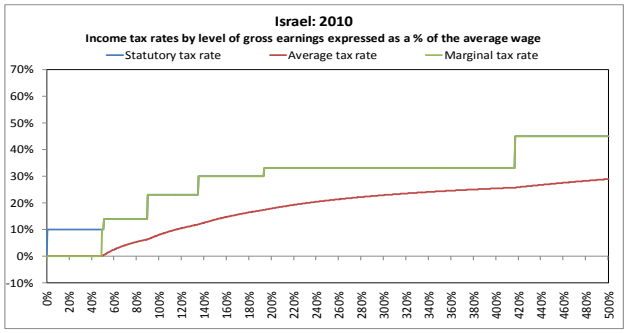

Iceland: 2003, 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate 2010
Average tax rate 2010
Statutory tax rate 2003
Average tax rate 2003

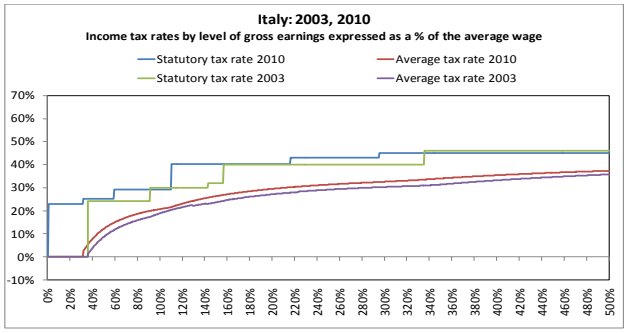

Iceland: 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate
Average tax rate
Marginal tax rate

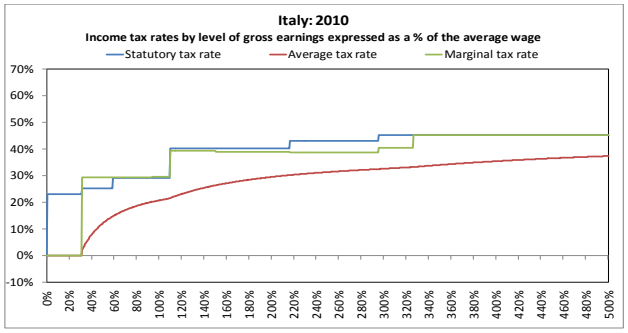

Ireland: 2003, 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate 2010
Average tax rate 2010
Statutory tax rate 2003
Average tax rate 2003

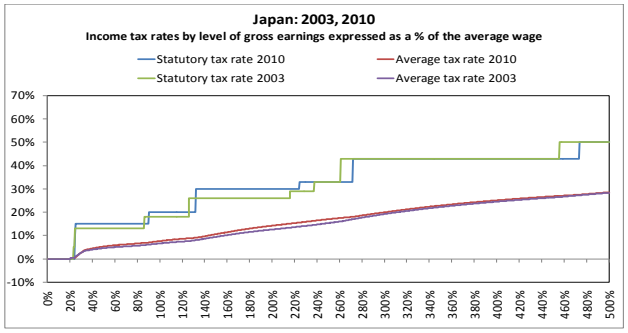

Ireland: 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate
Average tax rate
Marginal tax rate

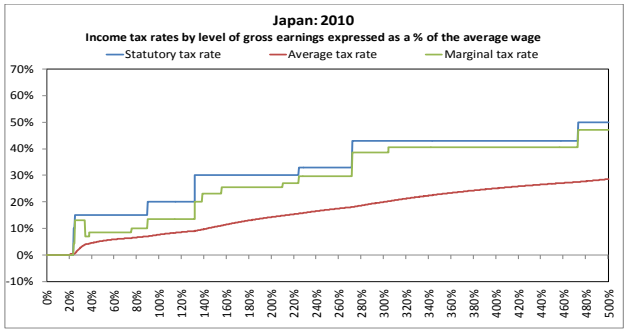

Israel: 2003, 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate 2010
Average tax rate 2010
Statutory tax rate 2003
Average tax rate 2003

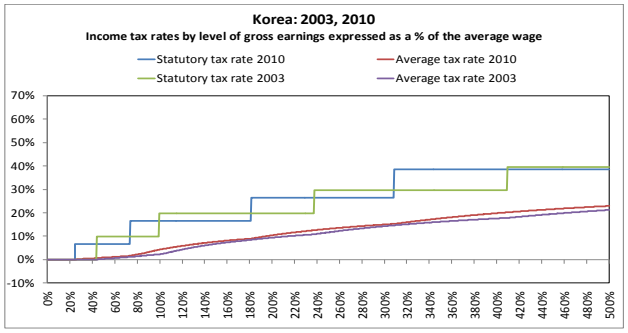

Israel: 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate
Average tax rate
Marginal tax rate

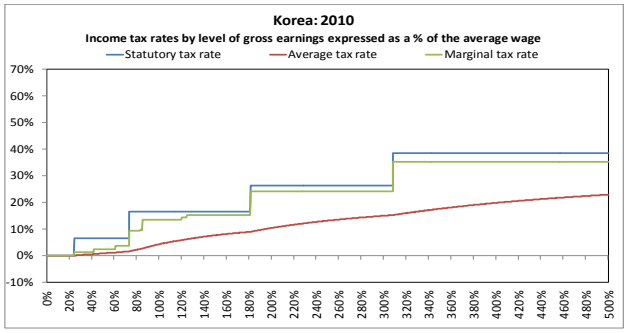

Italy: 2003, 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate 2010
Average tax rate 2010
Statutory tax rate 2003
Average tax rate 2003

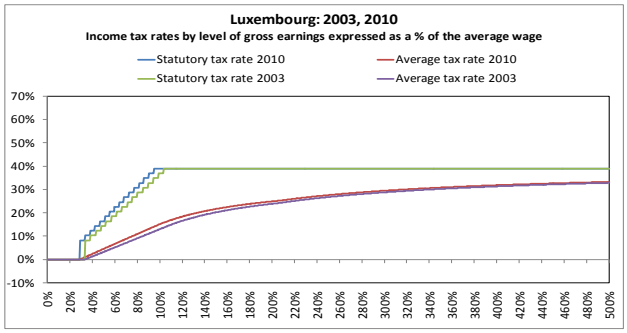

Italy: 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate
Average tax rate
Marginal tax rate

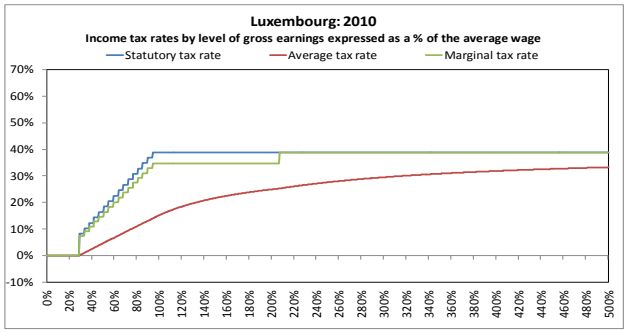

Japan: 2003, 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate 2010
Average tax rate 2010
Statutory tax rate 2003
Average tax rate 2003

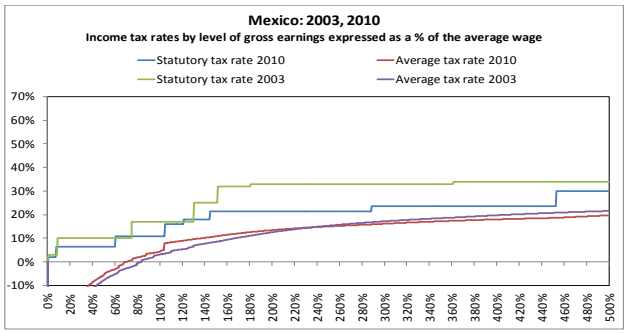

Japan: 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate
Average tax rate
Marginal tax rate

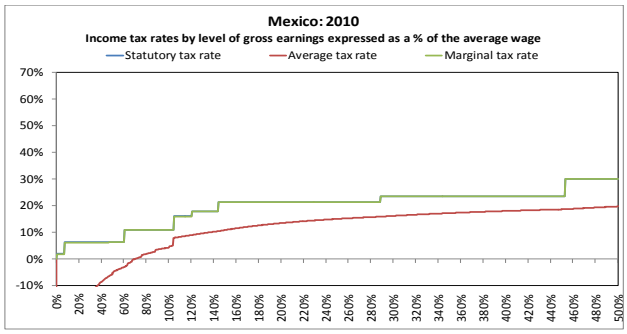

Korea: 2003, 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate 2010
Average tax rate 2010
Statutory tax rate 2003
Average tax rate 2003

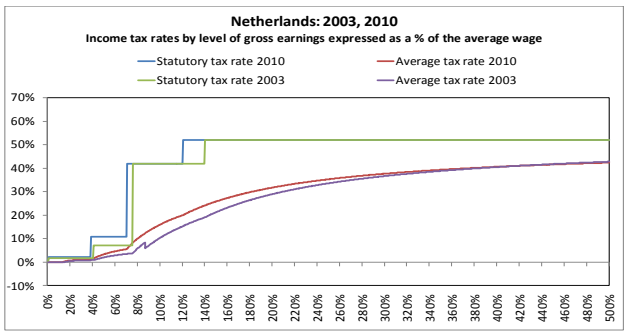

Korea: 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate
Average tax rate
Marginal tax rate

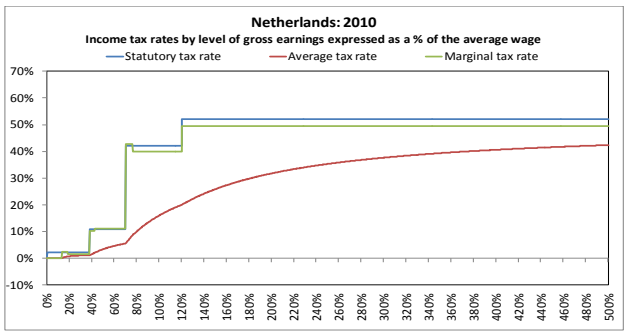

Luxembourg: 2003, 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate 2010
Average tax rate 2010
Statutory tax rate 2003
Average tax rate 2003

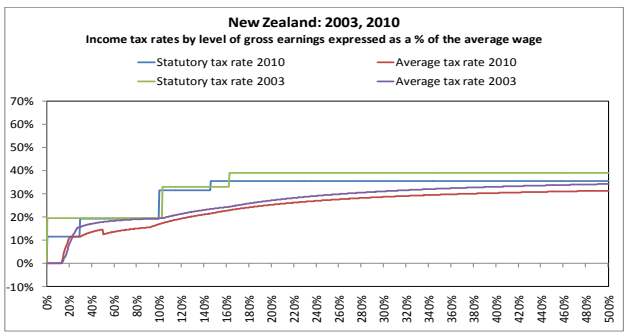

Luxembourg: 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate
Average tax rate
Marginal tax rate

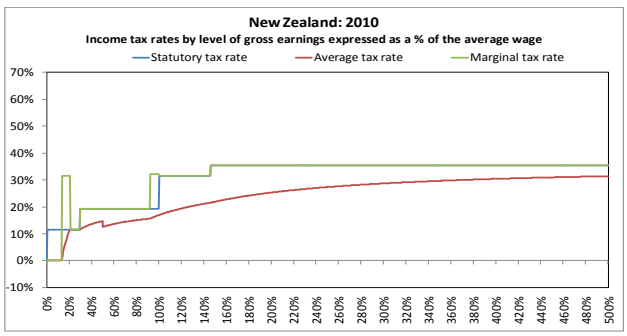

Mexico: 2003, 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate 2010
Average tax rate 2010
Statutory tax rate 2003
Average tax rate 2003

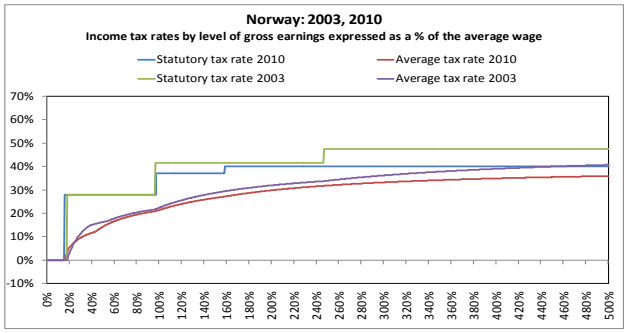

Mexico: 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate
Average tax rate
Marginal tax rate

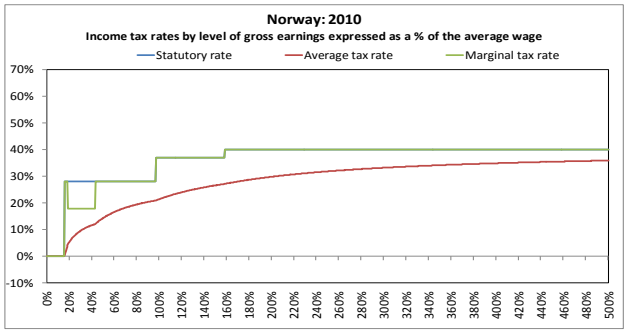

Netherlands: 2003, 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate 2010
Average tax rate 2010
Statutory tax rate 2003
Average tax rate 2003

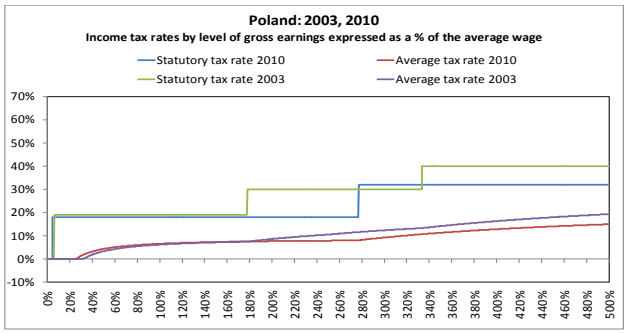

Netherlands: 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate
Average tax rate
Marginal tax rate

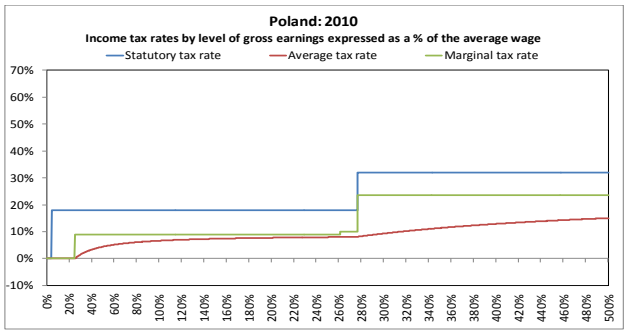

New Zealand: 2003, 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate 2010
Average tax rate 2010
Statutory tax rate 2003
Average tax rate 2003

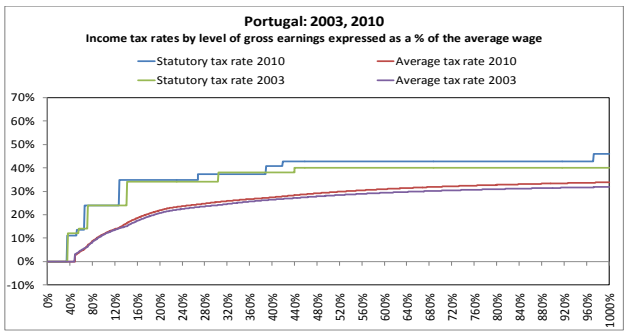

New Zealand: 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate
Average tax rate
Marginal tax rate

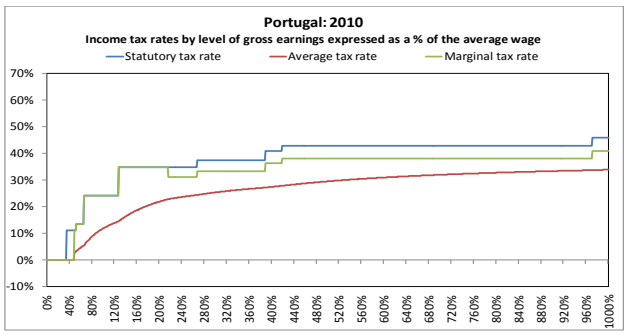

Norway: 2003, 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate 2010
Average tax rate 2010
Statutory tax rate 2003
Average tax rate 2003

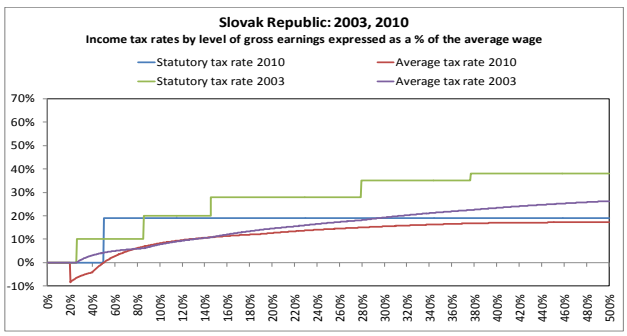

Norway: 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory rate
Average tax rate
Marginal tax rate

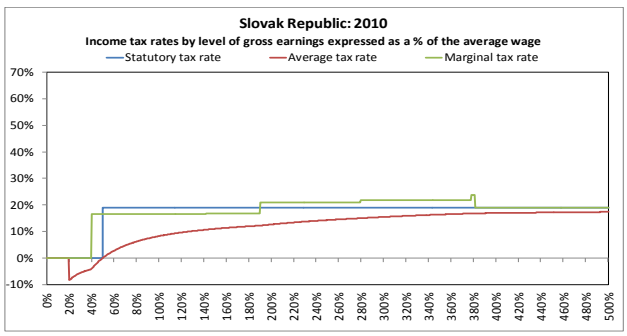

Poland: 2003, 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate 2010
Average tax rate 2010
Statutory tax rate 2003
Average tax rate 2003

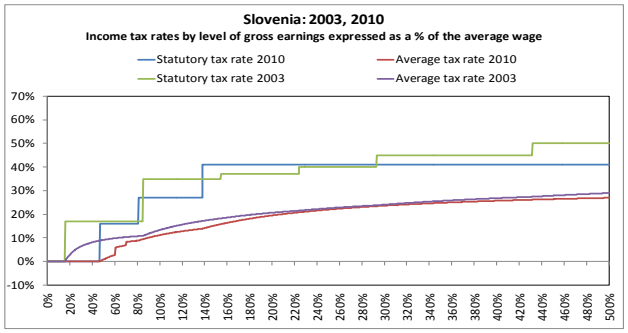

Poland: 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate
Average tax rate
Marginal tax rate

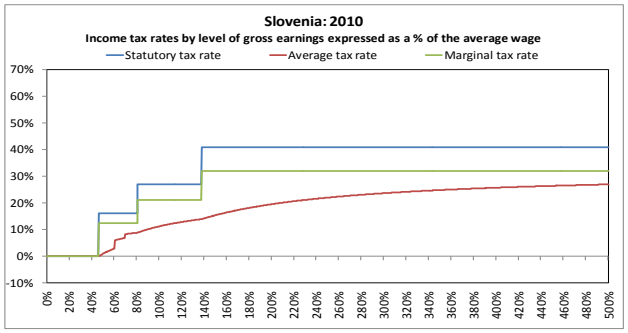

Portugal: 2003, 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate 2010
Average tax rate 2010
Statutory tax rate 2003
Average tax rate 2003

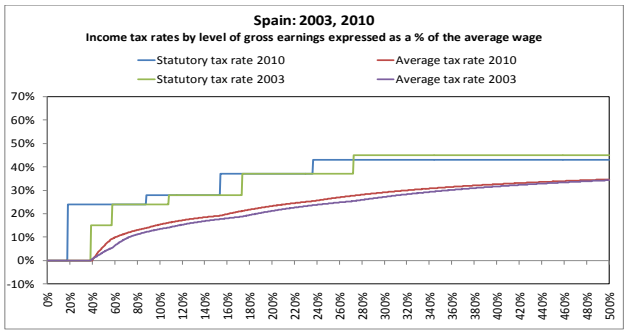

Portugal: 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate
Average tax rate
Marginal tax rate

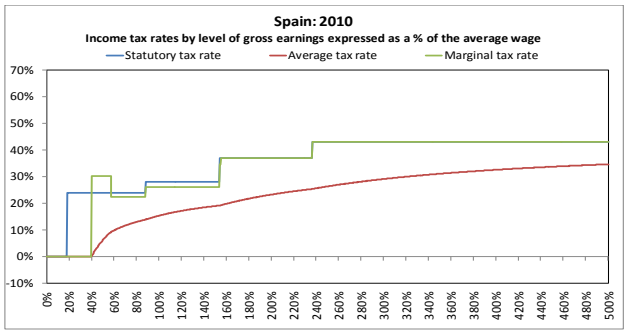

Slovak Republic: 2003, 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate 2010
Average tax rate 2010
Statutory tax rate 2003
Average tax rate 2003

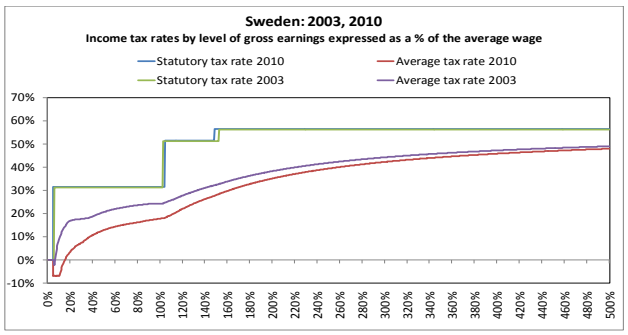

Slovak Republic: 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate
Average tax rate
Marginal tax rate

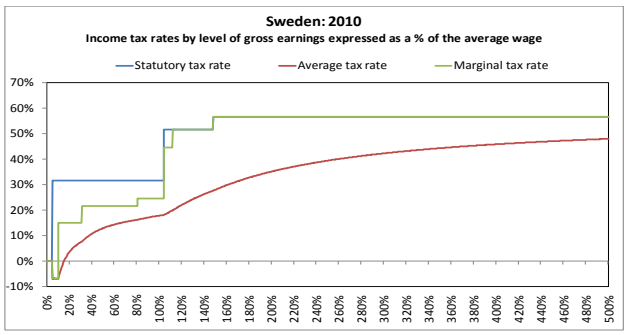

Slovenia: 2003, 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate 2010
Average tax rate 2010
Statutory tax rate 2003
Average tax rate 2003

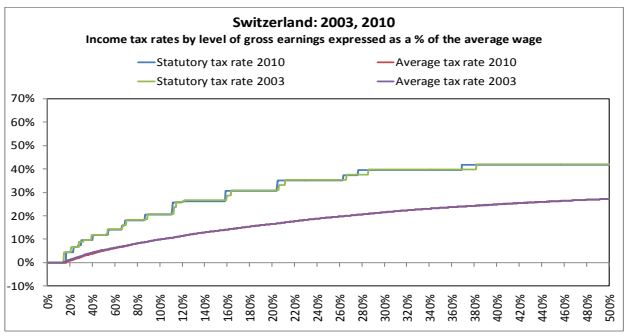

Slovenia: 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate
Average tax rate
Marginal tax rate

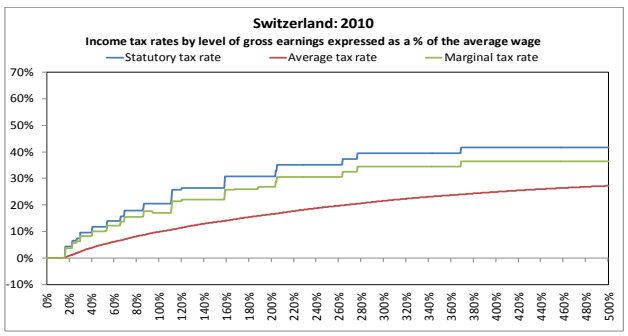

Spain: 2003, 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate 2010
Average tax rate 2010
Statutory tax rate 2003
Average tax rate 2003

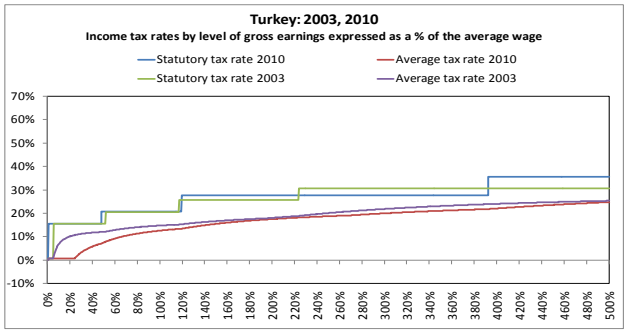

Spain: 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate
Average tax rate
Marginal tax rate

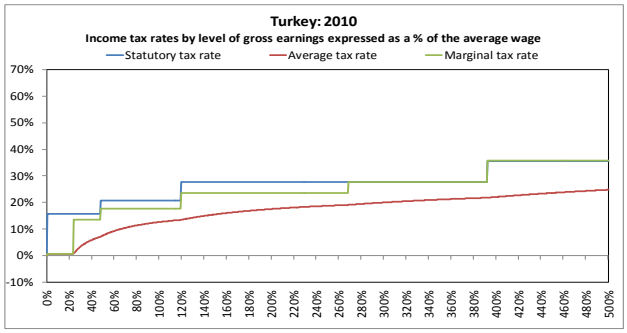

Sweden: 2003, 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate 2010
Average tax rate 2010
Statutory tax rate 2003
Average tax rate 2003

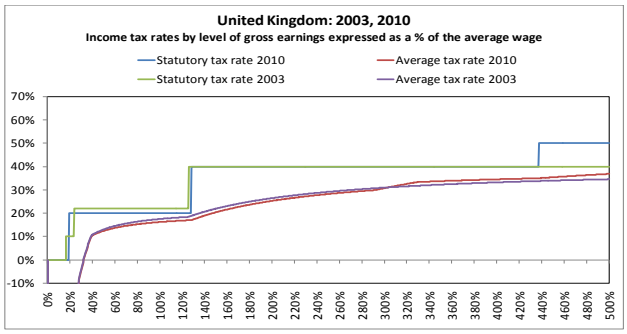

Sweden: 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate
Average tax rate
Marginal tax rate

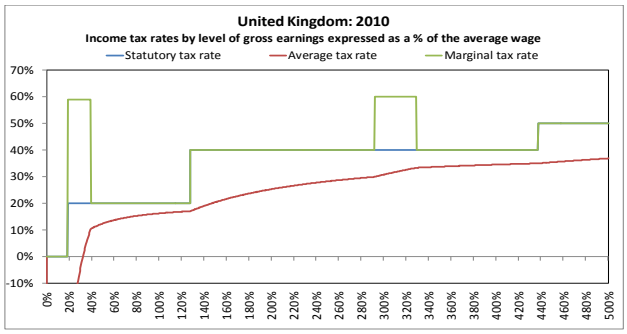

Switzerland: 2003, 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate 2010
Average tax rate 2010
Statutory tax rate 2003
Average tax rate 2003

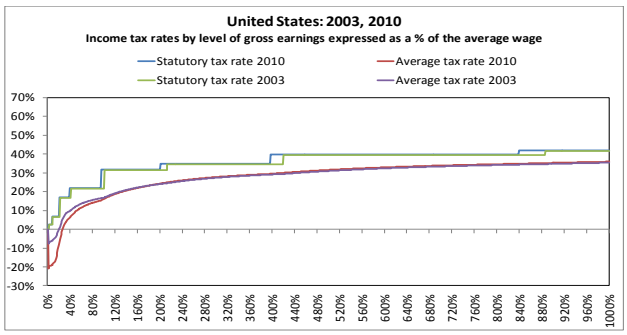

Switzerland: 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate
Average tax rate
Marginal tax rate

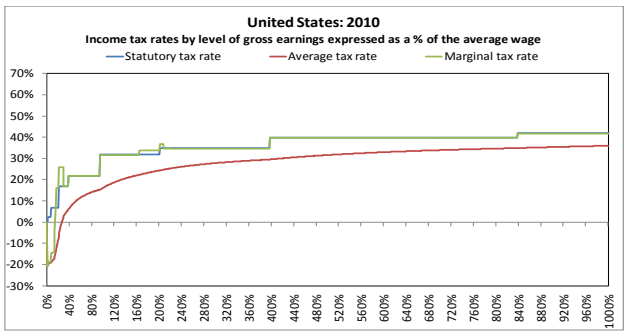

Turkey: 2003, 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate 2010
Average tax rate 2010
Statutory tax rate 2003
Average tax rate 2003


Turkey: 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate
Average tax rate
Marginal tax rate


United Kingdom: 2003, 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate 2010
Average tax rate 2010
Statutory tax rate 2003
Average tax rate 2003


United Kingdom: 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate
Average tax rate
Marginal tax rate


United States: 2003, 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate 2010
Average tax rate 2010
Statutory tax rate 2003
Average tax rate 2003


United States: 2010
Income tax rates by level of gross earnings expressed as a % of the average wage
Statutory tax rate
Average tax rate
Marginal tax rate

OECD TAXATION WORKING PAPERS

No. 1 *Tax reform trends in OECD countries*
Bert Brys, Stephen Matthews and Jeffrey Owens

No. 2 *What is a competitive tax system?*
Stephen Matthews

No. 3 *Making fundamental tax reform happen*
Bert Brys

No. 4 *Trends in top incomes and income inequality and the implications for tax policy*
Stephen Matthews

No. 5 *The evaluation of the effectiveness of tax expenditures: a novel approach. An application to the regional tax incentives for business investments in Italy*
Antonella Caiumi

No. 6 *Corporate taxation and SMEs: the Italian experience*
Marco Manzo

No. 7 *Consumption taxation as an additional burden on labour income*
Fidel Picos-Sánchez

No. 8 *Non-tax compulsory payments as an additional burden on labour income*
Bert Brys

No. 9 *Taxation and innovation*
Pamela Palazzi

No. 10 *Wage income tax reforms and changes in tax burdens: 2000-2009*
Bert Brys

No. 11 *Shifting from social security contributions to consumption taxes: the impact on low-income earner work incentives*
Alastair Thomas and Fidel Picos-Sánchez

No. 12 *Trends in personal income tax and employee social security contribution schedules*
Carolina Torres, Kirsti Mellbye and Bert Brys

THE OECD TAXATION WORKING PAPERS SERIES ON LINE

The OECD Taxation Working Papers Series may be found at:

- The OECD Centre for Tax Policy and Administration website: www.oecd.org/tax/workingpapers
- The OECD's online iLibrary: http://www.oecd-ilibrary.org/
- The Research Papers in Economics (RePEc) website: www.repec.org

For further information on the OECD Taxation Working Papers Series, please write to: ctp.contact@oecd.org.