

# Taxation and the worlds of welfare

Monica Prasad\* and Yingying Deng

Department of Sociology and Institute for Policy Research, Northwestern University, USA

\*Correspondence: m-prasad@northwestern.edu

We use Luxembourg Income Study (LIS) data to compare the progressivity of the tax structure in the USA and Europe. LIS data allow a comparison of tax rates that attempts to take different starting rates, thresholds and exemptions into account. Our study supports the argument others have made that the USA has more progressive taxes than the European countries. However, we find that Britain's tax structure is more regressive than those of the continental welfare states, making the mapping of tax structure onto the 'three worlds of welfare' imperfect. We also show that it is a mistake to assume that income and property taxes are always progressive: regressive examples of both are common in the data. But sales taxes are regressive wherever they are found, and we suggest that the proportion of tax revenue raised through sales taxes can serve as an index of overall progressivity in situations where the detailed data examined here are not available. We close by outlining several possible explanations for the inverse correlation between tax progressivity and welfare state effort.

**Keywords:** taxation, welfare state, capitalist systems

**JEL classification:** H22 taxation, incidence, P51 comparative analysis of economic systems, I38 provision and effects of welfare programs

## 1. Introduction

The state gives, and the state takes away. But social scientists know much more about the giving than the taking. The study of how the state distributes benefits to citizens boasts a sophisticated and varied research tradition, but the study of how the state generates the revenue for its redistributive and other functions is much less well developed (but see the contributions to Martin *et al.*, 2009).

Recently, several scholars have argued that examining taxation can enhance—or even transform—our understanding of welfare states. Beginning with Steinmo (1993), a handful of scholars have argued that the liberal welfare states actually have more progressive taxes than the conservative and social democratic welfare states (Wilensky, 2002; Kato, 2003; Lindert, 2004). This insight is

important for several reasons. First, it explains the puzzling lack of correlation between economic growth and the size of the state: if taxes hinder economic growth, then it is hard to explain how the European states have collected taxes at a rate of nearly 50% of GDP for decades while still posting strong economic performance. Lindert argues that this is because the European states rely on regressive consumption taxes, which are less distortionary than progressive income taxes, and Wilensky and Kato emphasize that consumption taxes allow a low tax burden on capital.

Second, this argument offers a new perspective on the century-old debate on 'American exceptionalism', specifically on why the USA has a much less well-developed welfare state than the European countries: Kato (2003) argues that countries can only develop large welfare states if they first adopt regressive taxes. Because the USA adopted income tax as its major form of finance before the First World War, and because it resisted the value added tax on several occasions, the financial basis for the welfare state was undermined (Morgan and Prasad, 2009). It remains to be explained whether the decision to adopt regressive taxes preceded, and enabled, the growth of the welfare state (as Kato argues) or whether policy-makers adopted regressive taxes because they wanted a form of finance that would allow the state to grow, as Ganghof (2006) and Lindert (2004) argue.

Third, the tax structure helps to explain the turn towards neoliberal economic policies in the USA in the 1980s and the lack of such a turn to the right in Europe: Wilensky (2002) argues that regressive taxation keeps the wealthy on the side of the welfare state in Europe, allowing a kind of redistribution that is politically tolerated by all classes, namely, within-class redistribution. Meanwhile, progressive taxation consigns the USA to frequent conflict over revenue generation (see also Prasad, 2006).

Finally, Hays (2003) and others have argued that the tax structure explains the resilience of European welfare states in the face of globalization: the European welfare states have managed to avoid the 'race to the bottom' that many feared would be the outcome of globalization because they finance their welfare states with forms of taxation that are not subject to global competition, specifically, taxes on labour rather than capital.

Thus, examining the structure of taxation can help to shed light on the past and the future of the welfare state.<sup>1</sup> These scholars suggest that the progressivity of the tax structure—examined separately from the progressivity of the welfare state—has consequences for the extent and stability of the welfare state and,

---

<sup>1</sup> An overall picture of progressivity or regressivity also requires attention to what is done with those taxes. Korpi and Palme (1998) have shown that transfers are also more progressive in the liberal countries.

moreover, that because decisions on tax came first historically, they may have constrained the decisions on the welfare state that came later.

In this paper, we focus on establishing a crucial prior point: although these arguments have been made for nearly two decades now, not all scholars have been convinced by the evidentiary base for the thesis (see e.g. Musgrave, 1995). We first identify problems with existing attempts to analyse tax progressivity comparatively, and we then construct a more careful analysis than what other studies have done. We turn in particular to the Luxembourg Income Study (LIS), which allows a comparison of tax rates that attempts to take different starting rates, thresholds and tax exemptions into account.

Our study supports the general picture that the USA has more progressive taxes than the continental or social democratic countries. The comparative tax picture maps onto the 'worlds of welfare' typology, but it is the social democratic states that have the most regressive taxes and the liberal USA that has the most progressive taxes. The one exception to this mapping is Britain, a liberal state with a tax structure that is more regressive than that of the continental or social democratic welfare states.

We also show that it is a mistake to assume that income taxes and property taxes are always progressive: there are examples of regressive income taxes in the data, and property taxes are almost always regressive in this sample. Payroll taxes tend to be regressive, but we find a progressive payroll tax on two occasions. The only tax that lives up to its reputation is sales tax, which is regressive in every country, for every year. The role of sales taxes in the tax structure also correlates well with our measure of regressivity, and so we suggest that the role that sales tax plays in the revenue structure is an acceptable proxy for the degree of regressivity of a tax structure in cases where more detailed data are not available. We close with a discussion of whether the regressivity of the value added tax matters, and what might be causing the inverse correlation between tax progressivity and welfare state effort.<sup>2</sup>

---

<sup>2</sup>There has been confusion in the comparative historical scholarship about whether the relevant independent variable is best measured by the factors being taxed (e.g. labour or capital), the form of taxation (e.g. income or payroll), the methods of tax collection (e.g. visible vs. invisible, earmarked to spending or non-earmarked) or the degree of progressivity. Positions can be found in the literature to support each of these four possibilities. In this paper we examine tax progressivity only: the theoretical prediction about the economic consequences of taxes is entirely about progressivity (namely, if we tax higher income and wealth, then people will behave in ways that avoid leading to higher income and wealth, damaging economic growth). The theoretical predictions about the political consequences are more varied, but progressivity is one element of them. Nevertheless, our focus on progressivity should not be read as an exclusion of the possibility of issues such as the visibility of tax collection having important political effects. Progressivity is not the only important feature of the tax structure, but it is an important feature.

## 2. Literature review and data sources

The international comparison of tax progressivity is not a well-developed field. The first instinct is to compare nominal tax rates on different income groups across different countries, but tax exemptions make this unrealistic: particularly in the USA, where political lobbying is essentially about obtaining tax exemptions in exchange for campaign donations (see Howard, 1997; Clawson *et al.*, 1998), the tax code is riddled with exemptions. Thus, the political scientists and sociologists who study this issue usually adopt a second approach: they assume that some *kinds* of taxes (income and property taxes) are progressive, while other kinds (payroll and consumption taxes) are regressive, and they measure the role that these different kinds of taxes play in the tax structure (Steinmo, 1989, 1993; Volkerink, 2000; Genschel, 2002; Wilensky, 2002; Cusack and Beramendi, 2003; Kato, 2003).

However, progressivity is not simply a matter of what kinds of things are taxed; it also depends on the rates applied to different income groups *within* different categories of tax. It is possible to envision a regressive income tax or a progressive consumption tax, for example. Two countries may both rely on income taxes, but if one has much higher rates of income tax on the wealthy, then that country will have a more progressive overall tax structure than the other; or, two countries may both depend on consumption taxes, but one may impose much lower rates on basic goods, giving it a much more progressive overall tax structure. Therefore, this approach is inadequate for a rigorous testing of the claim about comparative tax progressivity.

A third approach was suggested by Lucas (1990) in a review of the evidence for the 'supply side' claim. Lucas suggested that a good proxy for progressivity is the tax ratio on different factors of production (labour, capital, land) and on consumption. All that is needed is knowledge about how much tax is collected from a tax on a particular factor, and what the total economic base is of that factor. This allows a comparison of the relative tax burdens on labour, capital, consumption or other factors in different countries and over time. Mendoza *et al.* (1994) worked out the technical issues and produced the first paper giving ratios for several different countries over long stretches of time. Since then, there have been various modifications that change one or another assumption, and the Organisation for Economic Co-operation and Development (OECD) has constructed tax ratios across broad categories of income for all of the OECD countries. The robust findings from this tradition—the findings that hold up no matter how the assumptions are changed—are that the USA taxes labour and consumption less than other countries (e.g. Mendoza *et al.*, 1994, update; Volkerink, 2000; Carey and Rabesona, 2002; Sørensen, 2004). Beyond that, there is less agreement: some scholars argue that the USA also taxes capital more than other countries, but others

argue that since the 1970s the USA has begun to tax capital less than other countries (Carey and Rabesona, 2002).

However, this method only imperfectly reflects the question of progressivity, as the OECD categories only allow us to examine the redistribution between very broad income categories, e.g. from capital to labour. This categorization would lead to mis-characterization of (for example) the labour income of those in the highest quintile groups and the capital income of those from lower quintile groups. Moreover, this method is somewhat unstable, because

‘most tax categories as distinguished in the OECD Revenue Statistics relate to more than one macroeconomic category (labour, capital, etc.). Consequently, it is impossible to calculate tax ratios without using some technique to artificially separate out the amounts to be allocated to various macroeconomic categories.’ (OECD, 2001, p. 21)

For example, there is evidence that at the top of the income distribution, executives shift the form in which they take their compensation in response to tax regimes (wages are counted as labour income, but stock options as capital income, and the decision to take compensation as wages or stock options can be made in response to the manner of taxation; Slemrod, 2007). The general assumption underlying this approach is that capital income accrues to upper income groups, and this assumption deserves more careful scrutiny.

A new approach has recently been developed that relies on the examination of income tax returns. This is associated most prominently with the work of Thomas Piketty. For example, Piketty and Saez (2007) use tax returns to estimate progressivity in the USA, France and the UK. They find greater progressivity in the USA than in France and the UK until the 1970s, and lower progressivity since. However, while their study includes income, corporate income, payroll and estate and gift taxes, it excludes state and local taxes as well as consumption tax—an exclusion which their method of examining income tax returns makes unavoidable. They argue that the exclusion of state and local taxes (which are important in the USA) counterbalances the exclusion of consumption tax (important in the European countries), but this is not likely to be true: first, while the consumption tax everywhere in Europe is regressive (as we show below), some state and local taxes in the USA, such as income and property taxes, are progressive (see e.g. Formby and Sykes, 1984). Second, state and local taxes make up a much smaller share of the American revenue structure than consumption taxes make up of the European revenue structure (Carey and Rabesona, 2002); and third, state and local sales taxes in the USA are not usually levied on services, but European value added taxes are (European Economic Community, 1977; Carpentier, 1992). These factors suggest that Piketty and Saez’s exclusion of these taxes understates progressivity in the USA and understates regressivity in the European countries.

These are the best existing studies of comparative tax progressivity. There are also many studies that claim to compare progressivity while examining only *income* tax progressivity. For example, recently, two prominent economists have claimed that the American tax structure is less progressive than the European (Alesina and Glaeser, 2004, p. 37). Their study does not cite their data sources or their methods, and the authors are unable to make their data and methods available;<sup>3</sup> and therefore it is not possible to analyse their claim in detail. From the evidence given in their book, however, we can note that they are making a claim only about income taxes, and not the overall tax structure. As we show below, examining income tax alone distorts the tax progressivity picture, because the role that income tax plays in the overall tax structure varies: Germany, for example, has a progressive income tax, but because it collects so much consumption tax, the progressivity of income tax is overwhelmed by the regressivity of sales tax, leading to an overall tax structure that is regressive. Many other studies are affected by this issue (e.g. Zandvakili, 1994; Bishop *et al.*, 1998).

We suggest that LIS data are a useful source of international tax data with which to supplement the above studies. The LIS provides income survey data across 30 countries, explicitly aimed at making a cross-national comparison possible. While it has been used as the main source for a rich and growing series of international comparisons of the welfare state, its resources for comparisons of taxation have been less thoroughly explored. The main advantage of the LIS data are that they allow a systematic comparison that does attempt to take issues such as different tax rates, thresholds and exemptions into account: the LIS data capture taxes actually paid, either directly through tax returns, or through household surveys and simulations based on reports of income and models of tax legislation (the sources vary for each country; see detailed descriptions at <http://www.lisproject.org/techdoc.htm>).

A handful of scholars have used the LIS data to calculate tax progressivity for one or several of countries. Zandvakili (1994) calculates international comparisons of tax progressivity using a method similar to ours on LIS data from the early 1980s. We update this work with data from more recent LIS waves, and we also extend it in one way: Zandvakili calculates tax progressivity for several countries (as do we) but does not weight progressivity according to the importance of a particular tax in the nation's revenue structure (as we do). This leads, as we will show below, to a misleading characterization of tax progressivity: the German case, again, shows that a very progressive income tax can be combined with heavy reliance on consumption and payroll tax to lead to overall regressivity.<sup>4</sup>

---

<sup>3</sup>Personal communication, Alberto Alesina.

<sup>4</sup>In addition, some scholars have recently used LIS data to decompose the elements of tax progressivity and ask 'what makes the income tax progressive' (Wagstaff and Doorslaer, 2001)—that is, whether

Mahler and Jesuit (2006) have used LIS data to analyse tax concentrations as part of their analysis of 'fiscal redistribution'. Tax concentration is a measure of who pays the taxes: if the bulk of the taxes are being paid by the wealthy, the measure of tax concentration will be high. However, tax concentration is not the same thing as tax progressivity, because pre-tax inequality will artificially inflate tax concentration. Consider two countries that both have the same structure of tax progressivity, but that have very different structures of pre-tax inequality: the more unequal country will raise more tax revenues from the wealthy and less from the poor (because a larger proportion of the population is in the higher tax brackets), and will therefore have a higher tax concentration, even though the structure of progressivity is in fact the same.

Similarly, comparisons of pre- and post-tax inequalities privilege highly unequal countries: consider two countries (A and B) with equally progressive tax structures with three tax brackets that have exactly the same rates and bases. Now consider that country A has 10% of its population in the lowest tax bracket, 80% of its population in the middle bracket and 10% of its population in the highest bracket, while country B has 10% in the lowest bracket, 60% in the middle bracket and 30% in the top bracket. Country B has greater pre-tax inequality. Because of the greater percent of people in the top bracket, it also collects more taxes, and therefore has greater 'reduction in inequality through taxation': if we simply compare pre- to post-tax inequalities, country B will have had greater reduction in inequality due to taxes, but this is a function of its inequality, not of the progressivity of its tax structure.<sup>5</sup>

To get a better measure of tax progressivity, it is necessary to use a measure that accounts for pre-tax inequality, as we do below.

### 3. Methods

The LIS database is drawn from individual and household surveys on income receipts and tax payments in a large number of countries at different time points. LIS data are based on uniform definitions, making possible reliable comparisons across countries and over time. Our analysis is restricted to the period 1979–2004 as data prior to this period are incomplete or exist for only a few countries. The LIS is not conducted annually, but in 'waves' which take 5 years each; each country has a maximum of one observation within each wave, but for some years and some measures the data are incomplete. There have been

---

progressivity in different countries is a function of progressive rate structures, a progressive tax base or progressive exemptions.

<sup>5</sup>We also note that both tax concentration measures, and measures of reduction in inequality, are biased *in favour* of the thesis developed in this paper. That is another reason why we do not use them.

five waves to date. We include 13 countries for which data on income, payroll and property taxes are available: Australia, Belgium, Canada, Denmark, Finland, France, Germany, the Netherlands, Norway, Sweden, Switzerland, UK and USA. (The USA figures do include state-level taxes.)

The ability to estimate consumption taxes from LIS data is more limited, and is only possible for five countries (UK, Belgium, France, Germany and Switzerland). Fortunately, these five countries include all three ‘worlds’ of welfare. In addition, data of the Bureau of Labor Statistics (BLS) allow an estimation of consumption tax for the USA.<sup>6</sup> Because the LIS measures do not provide consumption taxes on housing across all countries, we exclude housing expenditure from the consumption tax measures.

We first calculate progressivity on the three sets of taxes for which the LIS data are relatively complete for all 13 countries: income tax, property and wealth taxes and mandatory employee contributions (payroll taxes). We then address how adding consumption tax changes the substantive findings for the six countries for which this calculation is possible.

We define income quintiles using factor income. We adopted quintiles because the BLS data we use for the American sales tax calculations are formatted only in quintiles; however, we also show in the online Supplementary material to this article the results using deciles for the overall tax structure excluding sales tax.

We choose factor income (which excludes taxes and transfers) instead of gross disposable income because we are interested in examining the operation of the tax code on the pre-tax, pre-transfer distribution of income.

We follow the practice of Mahler and Jesuit (2006) in excluding countries and years for which the LIS data are not complete or are problematic, and we follow their procedure for constructing an equivalency scale for households (486). This weighting procedure attempts to take into account the fact that household members cannot simply be aggregated due to the economies of scale.

We measured three major categories of variables: factor income (earnings before taxes and after transfer payments), four varieties of taxes (income tax, sales tax, property and wealth tax and mandatory employee contribution) and transfer payments (the sum of total social transfers plus the non-cash transfers of housing, medical, heating, education and health benefits). To obtain progressivity, we accumulate percentages of household income per quintile ranking

---

<sup>6</sup>Note that the US data available through BLS consist of consumer expenditure data by income quintiles rather than the actual consumption tax data available for the other cases from the LIS. We use the share of expenditure by income quintiles to approximate the quintile-specific share of consumption tax paid.



from the highest to the lowest and use them to estimate the Gini coefficient  $Gx(p)$  as our measure of pre-tax income inequality:

$$Gx(p) = 1 - 2 \int_0^1 Lx(p) \, dp,$$

where  $Lx(p)$  is the Lorenz curve of income inequality.

Tax and transfer units are estimated, respectively, as the amount of tax borne and benefits received by corresponding population quintiles. The results are then converted to percentages and accumulated to obtain the concentration index  $C_T(p)$  of tax and transfer.

$$C_T(p) = 1 - 2 \int_0^1 L_T(p) \, dp,$$

where  $L_T(p)$  is the concentration curve for tax and transfer.

We calculated the incidence of these taxes on different income quintile groups using the Kakwani (1977) index of tax progressivity. The Kakwani index ( $K$ ) measures the difference between the Gini index and the concentration index of tax/transfer in a simple equation shown below:

$$K = C_T(p) - Gx(p)$$

This method attempts to take pre-tax/pre-transfer income inequality into account, by calculating how concentrated tax revenues are, and subtracting from that the concentration of pre-tax/pre-transfer income. A higher index of concentration ( $C$ ) indicates that tax revenues are coming from one part of the income distribution rather than being spread out over the whole income distribution. A higher Gini score ( $G$ ) indicates greater income inequality. (Note, however, that this is income inequality before taxes and transfers.) The Kakwani index thus assigns high scores to countries where tax revenues are concentrated (i.e. coming mostly from high income groups), and penalizes countries for high pre-tax, pre-transfer inequality. Our unit of analysis is the household and all estimates use the available sampling weights to achieve population estimates. In separate analyses available in the online Supplementary material, we also calculated the Suits (1977) index of tax progressivity and the index of concentration for tax and transfer. The different methods of analysis did not change the substantive findings, and so we report only the Kakwani index here as the most popular index of tax progressivity.

One complication with the tax data is that total taxes include taxes paid on transfers—what scholars call tax ‘clawbacks’, because these taxes give back to the government a portion of the transfers (Adema, 2000, 2001). This means that where transfers are high, taxes on transfers may be high, but this is not ‘true’ tax, simply a reduction in the amount of transfer given. To achieve a measure of true tax paid, then, the amount of clawbacks should be subtracted

from the total tax paid. However, whether clawbacks lead to a bias in favour of or against our thesis depends on the progressivity of the clawbacks. If clawbacks increase for higher income groups—that is, if higher income groups pay larger taxes on transfers than lower income groups do—then the true tax structure is more *regressive* than it seems, because the true tax amount paid by higher income groups is lower than it seems (that is, if we subtract the clawback from the total tax paid to get the true tax paid, then when the clawback is larger, the true tax paid will be smaller).

Unfortunately, data limitations do not allow us to take clawbacks completely into account, and so we first use other research to estimate the direction of their effect. Adema (2000, 2001) has estimated clawbacks, and finds that taxes on transfers are the highest in several social democratic countries (Denmark, Sweden, Finland and the Netherlands) and the lowest in several liberal countries (USA, Australia and UK). This means that the tax progressivity of the social democratic countries is more likely to be affected by clawbacks than that of the liberal countries. But in what way will it be affected? The only estimation of clawbacks across income deciles that we have found is by Verbist (2005), who uses Euromod data to estimate pensions and unemployment clawbacks (with no data on the USA; but Adema's data show that clawbacks are not an issue in the USA); her figures show that the highest pension clawbacks are in Denmark, Sweden and Finland, and the lowest in Portugal; and that the highest unemployment clawbacks are in Sweden, Denmark, the Netherlands and Finland, and the lowest in the UK, Portugal, Ireland, Germany and Austria. As shown in the online Supplementary material, these clawbacks are generally larger for higher income groups, except for in Denmark, and with a partial exception in unemployment clawbacks for Sweden (which are closer to proportional). Because clawbacks are to be *excluded* from total tax paid, this means that where the clawback is larger, the true tax paid is smaller. This in turn means that the larger the clawbacks paid by higher income groups, the more regressive the tax structure. Since the clawbacks are the largest, and highest for high-income groups, in the social democratic countries, this makes the tax structure in those countries *even more* regressive. With the exceptions noted, including clawbacks would therefore largely *favour* our thesis; that is to say, if we could accurately take clawbacks into account, our thesis would be even stronger. The patterns for Denmark do not go in this direction, and therefore it should be kept in mind that our figures may underestimate progressivity in Denmark. In addition, unemployment clawbacks in Sweden do not clearly go in this direction, but the amounts under discussion are so small that we do not expect them to have a noticeable effect on overall progressivity.

We also estimated the effect of clawbacks on our data using the method of Ferrarini and Nelson, which is to apply the rate of taxation on total income to

the amount of transfers in each income quintile, and subtract this from the total tax paid. This is not a perfectly satisfactory method, as the rate of taxation on transfers is likely to be different from the general rate of taxation. This estimation reduced the Kakwani index for all the countries, but the comparative pattern of greater progressivity in the USA still held, leading us to be confident of the robustness of the general thesis. These calculations are available in the online Supplementary material.

Thus, while the data limitations suggest the need for further research on clawbacks, the size and progressive nature of clawbacks in conservative and social democratic countries suggest that they do not change the general picture that we describe in this paper. The numbers shown in the remainder of this paper are unadjusted figures; that is, they do not take the issue of clawbacks into account.

Because of the widely varying degree of pre-tax inequality in the countries under study, it is important to reiterate that the Kakwani index does take income inequality into account: if two countries have equally concentrated tax revenues, the country with greater inequality gets a lower Kakwani number, and is counted as less progressive.

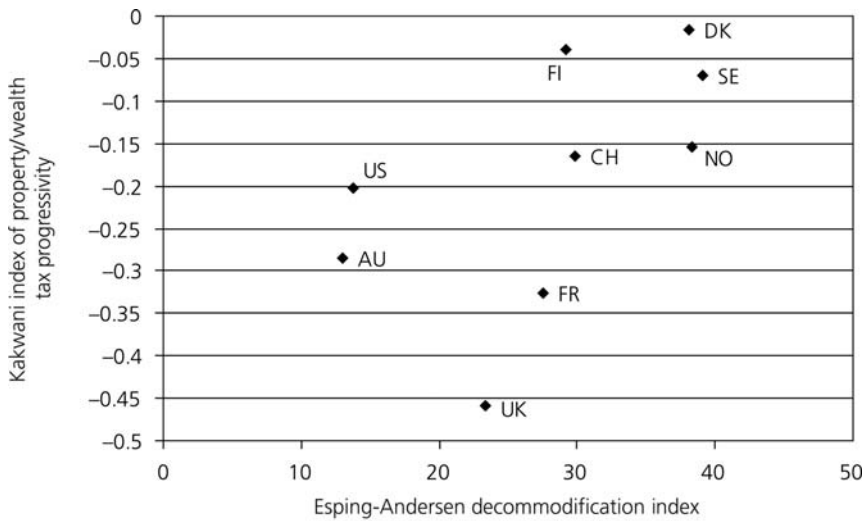
Because a great deal of work has been done recently on tax expenditures ('loopholes'—e.g. Howard, 2003), it is also worth pointing out that the LIS data do attempt to take tax expenditures into account. If they did not take tax expenditures into account—that is, if they only measured the nominal tax rate on households—then the USA, which relies on tax expenditures that go largely to the middle class, would look much more progressive than it does here.

#### 4. Findings

We compared the index of tax progressivity to several measures of the welfare state: Esping-Andersen's (1990) decommodification index, Scruggs and Allan's (2006) replication of the decommodification index and their benefit generosity index, and the OECD's SOCX measure. Because the overall picture does not change no matter which of these indices is used, we present here only the Esping-Andersen measure; results using the other three measures are available in the online Supplementary material, along with the full findings of this article.

The social democratic and conservative states have more progressive property taxes than the liberal states (Figure 1; each dot on the graph represents one country, and the measure is an average for that country over all years for which the LIS has data on that country; average and individual values are available in the online Supplementary material<sup>7</sup>).

<sup>7</sup>We average over the waves because graphing each wave would make the correlation seem stronger than it is; see page 8 in the online supplement.



Notes: Countries included in figure above and figures below are Australia (AU), Belgium (BE), Canada (CA), Denmark (DK), Finland (FI), France (FR), Germany (DE), the Netherlands (NL), Norway (NO), Sweden (SE), Switzerland (CH), the United Kingdom (UK), and the United States (US).

**Figure 1** Property/wealth tax progressivity.

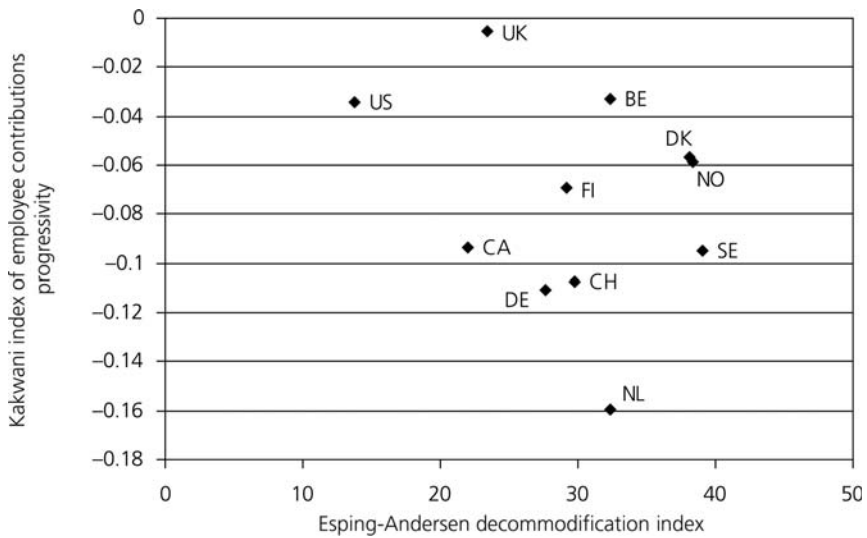
Property and wealth taxes are more regressive in the more liberal states, perhaps because of the more widespread nature of home ownership in these states.<sup>8</sup>

The social democratic countries have more regressive payroll taxes (Figure 2). Income tax progressivity is higher in the liberal states than the social democratic and conservative ones (Figure 3).

Consumption taxes are regressive in all countries for which this calculation is possible, but there is a trend of less regressivity in the liberal states and greater regressivity in the social democratic states (Figure 4).

Because property taxes make up such a small portion of tax revenue (between 2 and 6%) in social democratic states, the greater progressivity of property taxes in those states does not have a large effect on overall tax progressivity. On the other hand, the large role played by income and sales taxes in total tax collections in all countries indicates that greater or lesser progressivity in income tax *does* have a large effect on overall tax progressivity. Figure 5 shows the results of

<sup>8</sup>The LIS definition of property tax does not include estate and inheritance taxes, and so we have excluded those from the OECD numbers and the resulting calculations. As a check, we repeated the calculations with estate and inheritance taxes included. This does not affect the results.



**Figure 2** Payroll tax progressivity.

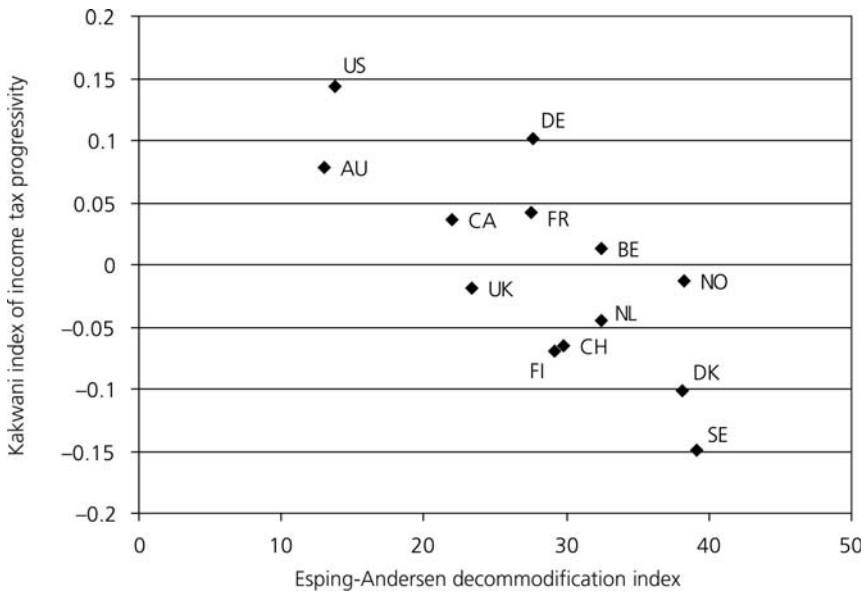
weighting the progressivity of income, property and payroll taxes by their share in total tax revenue, and adding together the weighted progressivities.<sup>9</sup>

The overall pattern of tax progressivity in these three taxes is that the liberal states have more progressive taxes than the social democratic states. Figure 6 shows the results of weighting the progressivity of income, sales, property and payroll taxes by their share in total tax revenue, and adding together the weighted progressivities, for the six countries for which consumption tax data is available. (The online Supplementary material also shows the overall tax structure, minus sales tax, using deciles rather than quintiles. The picture is largely the same.)

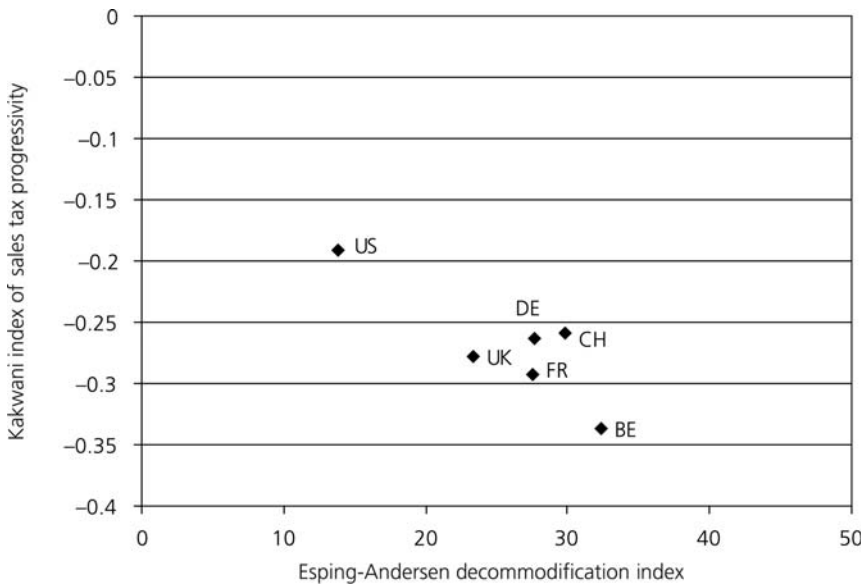
A closer examination of these results leads to three conclusions:

- (1) As other scholars have suggested, the USA has a more progressive tax structure than the European welfare states. Of the six countries for which it was possible to calculate sales tax, the USA is the only country to have an overall progressive tax structure. All other countries for which it is possible to calculate overall tax progressivity have been, and remain, regressive throughout the period of study. Of the 13 countries for which it was possible to calculate income, payroll and property tax progressivity, the USA has the most progressive tax structure; Sweden and Denmark are the most regressive.

<sup>9</sup>There were a few cases of missing data on property and payroll taxes, and incomplete data for some years for France; excluding these does not affect the overall picture described here (see online supplement, pages 15–16).

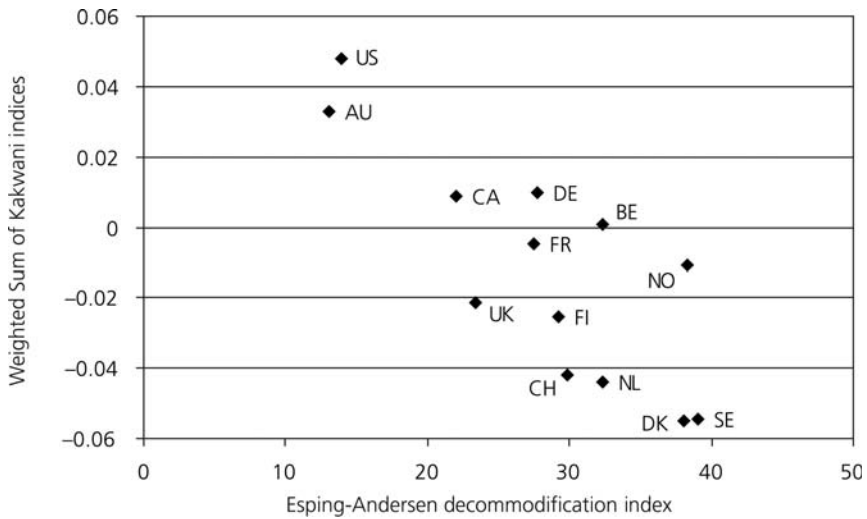


**Figure 3** Income tax progressivity.

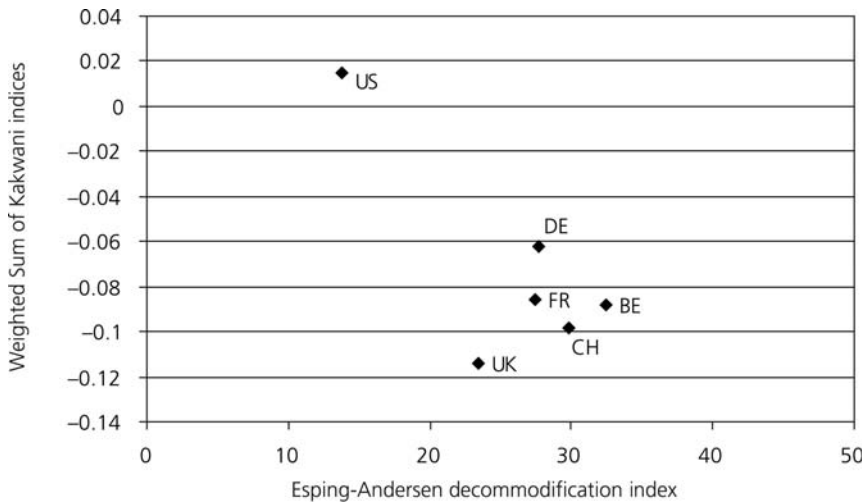


**Figure 4** Sales tax progressivity.

Our finding of an inverse correlation between tax progressivity and welfare state effort supports those scholars who suggest that regressive taxes allow the growth of the welfare state, whereas progressive taxes constrain it.



**Figure 5** Overall progressivity of tax structure (excluding sales tax).



**Figure 6** Overall progressivity of tax structure (including sales tax).

- (2) However, Britain's tax structure is more regressive than the continental welfare states, making the inverse mapping onto the 'worlds of welfare' typology imperfect. Comparison of Figures 5 and 6 shows that Britain's regressivity is driven by the large role that sales taxes play in the tax structure. Although the LIS data do not extend to the pre-Thatcher period, we know from other studies (e.g. Johnson and Stark, 1989) that the Thatcher government made the tax structure more regressive by increasing the role of sales

taxes and reducing the role of income taxes, and we suspect that our measures are a result of those changes. If the arguments discussed above are correct, we might expect the increasing regressivity of the British tax structure to lead to a larger British welfare state in the coming years, as a regressive tax structure has in other cases served to stabilize the finances of the welfare state.

- (3) It is a mistake to assume that income and property taxes are necessarily progressive, and that payroll taxes are necessarily regressive. Regressive income taxes are common in the social democratic countries, and the property tax tends to be regressive in this sample of countries (with a few exceptions in the social democratic countries for some years). Payroll taxes tend to be regressive, as scholars have guessed, but we find a progressive payroll tax on two occasions (the UK in 1991 and 1995). The one tax that does live up to its reputation is the sales tax, which is regressive in every country and every year.

Because the extremely detailed data of the kind that the LIS makes available for the developed contemporary world are not available for earlier historical periods and for other countries, we wondered whether any of the less data-intensive methods could be used as an acceptable proxy for overall progressivity.<sup>10</sup> If a method that requires less data gives a similar result to our findings, it would be possible to use it to analyse progressivity in other contexts. In particular, the role that direct and indirect taxes (specifically income and sales taxes) play in the revenue structure is often available even for very early historical periods. We therefore examined whether either the role of income taxes or the role of sales taxes in the tax revenue structure correlates with our findings. The correlation is low for income tax, but much higher ( $r = -0.744$ ) for sales tax (see online Supplementary material). This is in accordance with our detailed findings, as we found several cases of regressive income taxes in the social democratic and continental countries, but uniformly regressive sales taxes everywhere. Thus, the role of sales tax in the overall revenue structure is a better proxy for progressivity than the role of income tax: the higher the role of sales tax, the lower is the overall progressivity. We also examined the correlation between our method and several different methods of calculating tax ratios (Daveri and Tabellini, 1997; Mendoza *et al.*, 1997; Volkerink and de Haan, 2001; Carey and Tchilinguirian, 2003; Martinez-Mongay, 2003; Eurostat, 2005) details of which are available in the online Supplementary material. There were no clear results, but in most cases tax ratios on consumption correlated most highly with our measures, again suggesting that sales taxes provide the best proxy for regressivity.

<sup>10</sup>We are grateful to a reviewer for posing this question.



## 5. Limitations and conclusion

We have criticized above the data and methods of other studies. Our study has limitations as well, and two issues deserve further discussion. First is the problem of the top-coding of income data, that is, censoring extremely high incomes because their rarity would make the taxpayers concerned identifiable. The LIS top-codes data at 10 times the median of non-equalized income. The rule of 10 times the median was adopted in 1995, as the number of taxpayers earning over that level was negligible then. With increasing income inequality, especially in the USA, that number has risen but is still small (in 2007 the median household income was slightly over \$50 000, and so 10 times the median would be households earning over \$500 000 per year). The second issue that limits our findings is tax evasion, the magnitude and direction of which will have clear implications for our discussion. Despite creative attempts (e.g. Slemrod, 1985), conclusive estimates of tax evasion remain elusive, and cross-cultural comparisons are particularly limited (see the reviews in Andreoni *et al.*, 1998; Slemrod, 2007). In particular, if high-income groups are more likely than low-income groups to evade in the USA, and if low-income groups are more likely than high-income groups to evade in Europe, then our comparative conclusions would change.

To assess whether these issues affect our substantive conclusions, we conducted two simulations. First, we simulated what would happen to our measures if the top 1% of taxpayers in the USA pay zero income, property and payroll taxes (data availability restricts the ability to perform this calculation for sales taxes). This simulation tests what would happen if the US tax code is extremely regressive at the very top, where the top-coding issue matters. Even with these drastic assumptions, the USA is more progressive overall, except for Australia in some years. While the tax rates of top taxpayers are politically important, the small numbers of people in this category limits their influence on the overall progressivity picture. These findings are available in the online Supplementary material.

Second, to give a picture of the robustness of the overall progressivity score including sales tax in the face of possible tax evasion, we took the year in which the American tax code is most regressive (1994) and compared it with the most progressive overall score, including sales tax, for any European country for any year (Germany in 1989). We then calculated what per cent of American taxpayers would have had to pay an income tax of zero for the two scores to be equal. For the US Kakwani Index of 1994 to match the German Kakwani Index of 1989, 63.6% of the top quintile group of taxpayers in the USA in 1994 would have had to pay an income tax rate of zero. These calculations are available in the online Supplementary material.

We therefore conclude that top-coding does not change the comparative picture. Furthermore, while tax evasion is certainly an important issue, both

substantively and analytically, these numbers suggest that even extremely widespread evasion at the top of the income distribution in the USA would not change the comparative progressivity picture: even in the year in which the USA is most regressive, almost two-thirds of the top quintile group of taxpayers would need to pay an income tax rate of zero (i.e. evade their tax obligations completely) for the US Kakwani index to match the most progressive score of any European country, for any year.

The most important limitation of our study is that although we believe our methods are the best possible, the analysis is only as good as the underlying data. The LIS data that we use are collected by agencies within each country and harmonized by the LIS. While the LIS strives to present the best data possible, and while its efforts are clearly of the highest quality currently possible, the data may be compromised at several points, including the initial collection, the estimation procedures used by each country if necessary, and the secondary collection and formatting at the LIS.

Because of these difficulties, our study cannot be the last word on the question of tax progressivity. Indeed, it seems clear that no study can be the last word on this issue, as the cross-national examination of tax progressivity is a complicated enterprise for which no one data source will yield fully reliable conclusions. In this situation, the way forward is to examine what common conclusions the different data sources yield, what discrepancies arise and what might be causing the discrepancies.

The one finding that holds across all of these studies is that the USA has historically had a more progressive tax structure than other countries: studies that use the tax ratio method, studies that use income tax returns data and our study using household survey data, all come to this conclusion (Table 1). While the recent picture produces less consensus, there is agreement that, at least until the rise of the neoliberalism of Ronald Reagan, the USA had a more progressive tax structure.

However, beyond this point, there are differences in our findings and those of other studies. First, while Piketty and Saez find greater progressivity in the USA only to the 1970s, we find that it continues until today. We suspect that this discrepancy arises because of Piketty and Saez's exclusion of the value added tax. For reasons explained above, we believe that the exclusion of the value added tax and other sales taxes distorts the tax progressivity picture and is a disadvantage of the method of using income tax returns to measure progressivity.

While some studies put Britain and the USA in similar categories, we find that Britain has a tax structure that is as regressive as that of the continental welfare states. We suspect that this is a result of the Thatcher era increases in consumption taxes. If this is true, and if consumption taxes form a strong financial base for

**Table 1** Cross-national comparisons of tax progressivity

|                        | <b>Method</b>   | <b>Studies</b>   | <b>Main comparative finding</b>  |
|------------------------|---|--|--|
| Percent of tax revenue | Measure role of different kinds of taxes (income, payroll, sales, etc.) in tax structure                                      | Steinmo (1989, 1993), Wilensky (2002), Kato (2003), Genschel (2002), Volkerink (2000), Cusack and Beramendi (2003) | USA relies on 'progressive' taxes, large welfare states rely on 'regressive' taxes   |
| Tax ratio              | Measure total tax paid by one factor of production (e.g. capital, labour) as proportion of total economic base of that factor | Carey and Rabesona (2002), Mendoza <i>et al.</i> (1994), Volkerink (2000), Sørensen (2004)                         | USA taxes labour and consumption less than other countries do; at least until the 1970s, USA taxed capital more than other countries did (studies disagree about whether this has changed since the 1970s) |
| Income tax returns     | Use official tax returns data to measure progressivity of income tax  | Piketty and Saez (2007), Piketty and other collaborators   | USA more progressive than France and UK until 1970s  |
| LIS tax data           | Use Luxembourg Income Study data to measure progressivity of all taxes, weight progressivity by role of tax in tax structure  | This paper   | USA more progressive than any other country  |

the welfare state, then the Thatcher tax changes may ironically have strengthened the British welfare state by stabilizing its financial base.

The one finding of ours that clearly contradicts the assumptions of some of the earlier research is our conclusion that it is a mistake to consider particular kinds of taxes progressive or regressive, as many scholars do. Income and property taxes are usually considered progressive taxes; but in the LIS data the progressivity of these taxes varies across countries, and these taxes are often regressive, especially in the social democratic countries. Similarly, payroll tax, which is usually considered a regressive tax, is progressive on two occasions. The only tax that uniformly behaves as scholars have assumed is the consumption tax: this tax is regressive in every country for which we have data. The proportion of tax revenue generated from taxes on goods and services correlates better with our overall tax progressivity picture than the proportion of income taxes, and therefore we suggest that in situations where the detailed calculation of overall progressivity is not possible, the proportion of tax revenue raised from the taxation of goods and services is an acceptable proxy.

Does the regressivity of consumption taxes, such as the value added tax, matter? Some economists have argued that it does not, because although the value added tax is regressive if considered at one point in time, it looks proportional if considered over the life course: that is, because people become wealthier over the course of their lives, the heavy tax burden that hits them when they are younger is counterbalanced by the relatively lighter tax burden that they must bear when they are older and wealthier. Caspersen and Metcalf (1995) use Panel Study of Income Dynamics data to measure lifetime incidence of a hypothetical value added tax, and they find that a VAT would be roughly proportional in the USA if assessed with regard to lifetime income. Similar incidence of consumption taxes in the other countries would make the overall tax picture less regressive in countries with large VATs.<sup>11</sup>

This is a point about income mobility over the life course rather than a specific point about progressivity. If we calculate all taxes and welfare spending from the point of lifetime incidence, we come back to a point known two decades ago: namely, that welfare states in general do not redistribute between classes so much as across the course of life, and 'take . . . from the lucky and the young to give to the unlucky and the old' (Stinchcombe, 1985, p. 424). The VAT picture fits that pattern.

<sup>11</sup>Graetz (2005, p. 249) has made two additional arguments against using lifetime income as the measure of progressivity of VAT. First, he notes that the ability of young individuals to borrow against future or lifetime earnings is limited—in practice, it depends on factors such as the regulation of credit and the risk aversion of individuals and capital markets. Second, he notes that the calculation of lifetime incidence makes the assumption that the VAT rate will be constant over the lifetime; but continuity in policy cannot be guaranteed.

For purposes of examining the consequences of welfare states, however, the lifetime incidence perspective is unsatisfactory, because it does not consider the ways in which tax structures may alter behaviour. Consider a household facing the decision of whether or not to increase its income through increased labour. In a progressive tax structure the household will receive a lower after-tax return on increased income than a similarly positioned household in a regressive tax structure. If the two tax structures are equivalent over the long run, then taxpayers who are indifferent between present and future income will not be affected by the progressivity or regressivity because it will balance out in the long run. However, taxpayers with a high discount rate will forego income under the progressive tax structure even if the two tax structures are equivalent over the long run. In addition, Caspersen and Metcalf's calculation assumes that the VAT itself does not change patterns of income mobility. But a tax that is assessed on people when they are young and poor may have consequences that distort income mobility across the life course: for example, it may interfere with the attempt to acquire human capital by making it more difficult to recover from financial setbacks, as well as by reducing purchasing power at earlier points in the life course. In the US context, a value added tax would have more severe repercussions than in the European context, because it would limit the ability of poor households to overcome financial setbacks caused by healthcare costs (a significant factor in American bankruptcies). It would, in short, damage the very income mobility that is the source of Caspersen and Metcalf's critique.

For these reasons, we conclude that the lifetime incidence perspective is inappropriate for the analysis of the progressivity of the VAT, and to the analysis of the consequences of progressivity more broadly.

Aside from the case of Britain, our study confirms the intuition of other scholars of an inverse mapping of tax progressivity onto the 'worlds of welfare': welfare state effort is higher where tax progressivity is lower. The reasons for this inverse correlation, however, are not well understood. We close by outlining five possible explanations for this inverse correlation.

### *5.1 Timing of industrialization*

Theorists have suggested that countries that industrialize later than their neighbours develop a larger state apparatus (Gerchenkron, 1962). A combination of this literature with the recent resurgence of interest in Polanyi's (2001 [1945]) observations about market embeddedness may shed light on the inverse correlation described above. It may be that industrialization unsettled the fabric of local communities everywhere, as Polanyi argues, but that the response to this varied according to the capacities of the state at the time of the rise of mass capitalism. Late and state-driven industrialization may mean that the state has greater

capacity to deliver welfare benefits to citizens at the time of industrialization. In early industrializing countries, the absence of administrative capacity may make punitive taxation the only way of disciplining capital at the time of industrialization: because the early stages of progressive taxation required the state to pursue only a very small number of very wealthy citizens, it may simply have been more feasible than any other form of 'embeddedness'.

### 5.2 *Economic consequences of progressive taxation*

It is possible that progressive taxes lead to greater economic inefficiency than regressive taxes. Lindert (2004) argues that consumption taxes are more economically sustainable because they do not penalize work effort as income taxes do, and therefore do not interfere with economic growth. Extending this line of thought, it may be that progressive taxes in general dampen incentives for economic growth (if greater income leads to a higher tax bite, some workers will forego the extra income for leisure), whereas regressive taxes sharpen incentives for economic growth (if greater income is rewarded with a lower tax rate, some workers will forego leisure for extra income). If this is the case, then regressive taxes are more compatible with economic growth, and progressive taxes may interfere with economic growth. If a tax system based on progressive taxes gets too large, the consequences for economic growth may then lead to political and popular support for cutting taxes, effectively putting a ceiling on the size of the welfare state. While this hypothesis is logically sound, it is unclear whether economic behaviour is as responsive to incentives as this hypothesis assumes. It is also unclear whether the mechanism hypothesized, which puts a great deal of emphasis on economic voting and the ability of voters and politicians to pinpoint the reasons for economic decline, can be historically demonstrated.

### 5.3 *Political institutions*

Progressive taxation and small welfare states may both result from majoritarian political structures. In an examination of the question of whether globalization is causing a 'race to the bottom', Hays (2003) argues that institutions that force political adversaries to compromise, such as proportional representation or the practice of governing through coalitions, constrain the translation of majority preference into public policy. Politics without such restraining institutions are more likely to see policy-making driven by majority preference. It is possible to apply this institutional logic to the case here. Because progressive taxation was directed against a very small minority of wealthy taxpayers at its inception at the turn of the century, it was likely to have represented the preferences of the

majority (this period precedes the era of systematic opinion polling, but documentary sources do reveal widespread popular interest in ‘soaking the rich’ in many countries—see Morgan and Prasad, 2009). In countries in which majority opinion translates easily into policy, it may have allowed politicians a way to appeal to the majority of their constituents at the expense of a small minority. In addition, the fragmentation of policy-making power in the USA may have made it difficult to implement any welfare legislation that did not display such high majority preference. On the flip side, countries with restraining corporatist institutions and less fragmented policy making would be more likely to find adversaries striking a bargain of extensive welfare policies paid for by regressive taxes. While this hypothesis is intriguing, the restraining corporatist institutions in many countries come after the decisions about tax structure. Nevertheless, versions of this argument have recently received a great deal of attention (Iversen and Soskice, 2006) and deserve careful testing.

#### *5.4 Political consequences of progressive taxation*

It is possible that progressive taxes lead to political protest and increased political attention on the issue of taxation. Wilensky (2002) has been the most prominent advocate of this argument. Wilensky argues that progressivity implies visibility of taxation: to implement a tax that discriminates by income, the state needs fine-grained information on taxpayers’ income. The process of collecting this income information gives taxpayers detailed information about their tax liabilities, making taxation more visible than in states that rely on taxes that do not discriminate based on income, such as consumption taxes. It may also be that progressive taxation diverted political attention away from the welfare state (for example, by focusing the attention of third parties and social movements on progressive taxation rather than on national healthcare) and generated a political world centred around the politics of tax exemptions (which eventually channelled the American welfare state down private rather than public lines).

#### *5.5 Preferences for a small state*

Finally, politicians may have chosen progressive taxation in some countries precisely in order to keep the state small by keeping its costs visible. In this understanding, the ultimate causal factor is a preference for a small state, and political actors are aware that progressive taxes will be more visible and less popular than regressive taxes and will therefore keep the state small and choose progressive taxes for that reason.

Assessing the reasons for the inverse correlation thus requires historical investigation into the origins and consequences of tax progressivity. While it is

beyond the scope of this article to investigate these alternative explanations, we hope that our work will help to focus research attention onto this question.

## Supplementary material

Supplementary material is available at *Socio-Economic Review* online.

## Acknowledgements

For comments on earlier versions of this manuscript we are grateful to Jason Beckfield, Fred Block, David Brady, Mark Leff, Lane Kenworthy, Vincent Mahler, the anonymous reviewers, and audiences at the Northwestern University Institute for Policy Research, the Social Science History Association annual meeting, and the University of Washington Center for West European Studies.

## References

- Adema, W. (2000) 'Revisiting Real Social Spending Across Countries: A Brief Note', OECD Economic Studies No. 30, 2000/I.
- Adema, W. (2001) 'Net Social Expenditure', OECD Labour Market and Social Policy Occasional Papers No. 52.
- Alesina, A. and Glaeser, E. (2004) *Fighting Poverty in the U.S. and Europe: A World of Difference*, Oxford, Oxford University Press.
- Andreoni, J., Erard, B. and Feinstein, J. (1998) 'Tax Compliance', *Journal of Economic Literature*, **36**, 818–860.
- Bishop, J. A., Formby, J. P. and Zheng, B. (1998) 'Inference Tests for Gini-based Tax Progressivity Indexes', *Journal of Business and Economic Statistics*, **16**, 322–330.
- Carey, D. and Rabseona, J. (2002) 'Tax Ratios on Labour and Capital Income and on Consumption', OECD Economic Studies No. 35, 2002/2.
- Carey, D. and Tchilinguirian, H. (2003) 'Average Effective Tax Rates on Capital, Labour and Consumption', OECD Economics Department Working Papers No. 258.
- Carpentier, D. (1992) 'State Sales Taxes on Services: A Perspective on the "New Old Tax"', *Detroit College of Law Review*, **1992**, 561–589.
- Caspersen, E. and Metcalf, G. (1995) 'Is a Value Added Tax Progressive? Annual vs. Lifetime Incidence Measures', NBER Working Paper No. 4387.
- Clawson, D., Neustadt, A. and Weller, M. (1998) *Dollars and Votes: How Business Campaign Contributions Subvert Democracy*, Philadelphia, Temple University Press.
- Cusack, T. R. and Beramendi, P. (2003) 'Taxing Work: Some Political and Economic Aspects of Labor Income Taxation', Discussion Paper SP II 2003 – 17, Wissenschaftszentrum Berlin.



- Daveri, F. and Tabellini, G. (1997) 'Unemployment, Growth and Taxation in Industrial Countries', Centre for Economic Policy Research (CEPR); Center for Economic Studies and Ifo Institute for Economic Research (CESifo) November 1997 IGIER Working Paper No. 122.
- Esping-Andersen, G. (1990) *The Three Worlds of Welfare Capitalism*, Cambridge, UK, Polity Press.
- European Economic Community (1977) *Sixth Council Directive of 17 May 1977 on the Harmonization of the Laws of the Member States Relating to Turnover Taxes—Common System of Value Added Tax: Uniform Basis of Assessment (77/388/EEC)*, Brussels, European Economic Community.
- Eurostat (2005) *Structures of the Taxation Systems in the European Union: Data 1995–2003*, Luxembourg, Office for Official Publications of the European Communities.
- Formby, J. P. and Sykes, D. (1984) 'State Income Tax Progressivity', *Public Finance Review*, **12**, 153–165.
- Ganghof, S. (2006) 'Tax Mixes and the Size of the Welfare State: Causal Mechanisms and Policy Implications', *Journal of European Social Policy*, **16**, 360–373.
- Genschel, P. (2002) 'Globalization, Tax Competition, and the Welfare State', *Politics and Society*, **30**, 245–275.
- Gerschenkron, A. (1962) *Economic Backwardness in Historical Perspective*, Cambridge, MA, Harvard University Press.
- Graetz, M. J. (2005) 'Comments on John B. Shoven and John Walley, "Irving Fisher's Spendings (Consumption) Tax in Retrospect"', *The American Journal of Economics and Sociology*, **64**, 245–256.
- Hays, J. C. (2003) 'Globalization and Capital Taxation in Consensus and Majoritarian Democracies', *World Politics*, **56**, 79–113.
- Howard, C. (1997) *The Hidden Welfare State: Tax Expenditures and Social Policy in the United States*, Princeton, NJ, Princeton University Press.
- Howard, C. (2003) 'Is the American Welfare State Unusually Small?', *PS: Political Science & Politics*, **36**, 411–416.
- Iversen, T. and Soskice, D. (2006) 'Electoral Institutions and the Politics of Coalitions', *American Political Science Review*, **100**, 165–181.
- Johnson, P. and Stark, G. (1989) 'Ten Years of Mrs. Thatcher: The Distributional Consequences', *Fiscal Studies*, **10**, 29–37.
- Kakwani, N. C. (1977) 'Measurement of Tax Progressivity: An International Comparison', *Economic Journal*, **87**, 71–80.
- Kato, J. (2003) *Regressive Taxation and the Welfare State: Path Dependence and Policy Diffusion*, New York, Cambridge University Press.
- Korpi, W. and Palme, J. (1998) 'The Paradox of Redistribution and the Strategy of Equality: Welfare State Institutions, Inequality and Poverty in the Western Countries', *American Sociological Review*, **63**, 661–687.

- Lindert, P. (2004) *Growing Public: Social Spending and Economic Growth since the Eighteenth Century*, New York, Cambridge University Press.
- Lucas, R. E. (1990) 'Supply-Side Economics: An Analytical Review', *Oxford Economic Papers*, **42**, 293–316.
- Luxembourg Income Study (LIS) Microdatabase (2006) Harmonization of original surveys conducted by the Luxembourg Income Study asbl, Luxembourg, periodic updating, accessed at [www.lisproject.org](http://www.lisproject.org) on February 10, 2009.
- Mahler, V. A. and Jesuit, D. K. (2006) 'Fiscal Redistribution in the Developed Countries: New Insights from the Luxembourg Income Study', *Socio-Economic Review*, **4**, 483–511.
- Martin, I., Mehrotra, A. and Prasad, M. (eds) (2009) *The New Fiscal Sociology*, New York and London, Cambridge University Press.
- Martinez-Mongay, C. (2003) 'Labour Taxation in the European Union. Convergence, Competition, Insurance?', Banca d'Italia, accessed at [http://www.bancaditalia.it/studiricerche/convegni/atti/taxpolicy/i/031-068\\_martinez-mongay.pdf](http://www.bancaditalia.it/studiricerche/convegni/atti/taxpolicy/i/031-068_martinez-mongay.pdf) on January 29, 2009.
- Mendoza, E. G., Razin, A. and Tesar, L. L. (update) accessed at <http://www.bsos.umd.edu/econ/mendoza/pdfs/newtaxdata.pdf> on January 29, 2009.
- Mendoza, E. G., Razin, A. and Tesar, L. L. (1994) 'Effective Tax Rates in Macroeconomics: Cross-country Estimates of Tax Rates on Factor Incomes and Consumption', *Journal of Monetary Economics*, **34**, 297–323.
- Mendoza, E. G., Milesi-Ferretti, G. M. and Asea, P. (1997) 'On the Ineffectiveness of Tax Policy in Altering Long-Run Growth: Harberger's Superneutrality Conjecture', *Journal of Public Economics*, **66**, 99–126.
- Morgan, K. and Prasad, M. (2009) 'The Origins of Tax Systems: A French–American Comparison', *The American Journal of Sociology*, **114**.
- Musgrave, R. (1995) 'Review of Sven Steinmo, Taxation and Democracy: Swedish, British, and American Approaches to Financing the Modern State', *Journal of Economic Literature*, **33**, 854–855.
- Organisation for Economic Co-operation and Development (2001) 'Tax Ratios: A Critical Survey', OECD Policy Studies No. 5.
- Piketty, T. and Saez, E. (2007) 'How Progressive is the U.S. Federal Tax System? A Historical and International Perspective', *Journal of Economic Perspectives*, **21**, 3–24.
- Polanyi, K. (2001 [1945]) *The Great Transformation*, New York, Beacon Press.
- Prasad, M. (2006) *The Politics of Free Markets: The Rise of Neoliberal Economic Policies in Britain, France, Germany, and the United States*, Chicago, IL, University of Chicago Press.
- Scruggs, L. and Allan, J. (2006) 'Welfare State Decommmodification in 18 OECD Countries: A Replication and Revision', *Journal of European Social Policy*, **16**, 155–172.
- Slemrod, J. (1985) 'An Empirical Test for Tax Evasion', *The Review of Economics and Statistics*, **67**, 232–238.

- Slemrod, J. (2007) 'Cheating Ourselves: The Economics of Tax Evasion', *Journal of Economic Perspectives*, **21**, 25–48.
- Sørensen, P. B. (2004) *Measuring the Tax Burden on Capital and Labor*, Cambridge, MA, MIT Press.
- Steinmo, S. (1989) 'Political Institutions and Tax Policy in the United States, Sweden, and Britain', *World Politics*, **41**, 500–535.
- Steinmo, S. (1993) *Taxation and Democracy: Swedish, British, and American Approaches to Financing the Modern State*, New Haven, CT, Yale University Press.
- Stinchcombe, A. (1985) 'The Functional Theory of Social Insurance', *Politics & Society*, **14**, 411–430.
- Suits, D. B. (1977) 'Measurement of Tax Progressivity', *American Economic Review*, **67**, 747–752.
- Verbist, G. (2005) 'Replacement Incomes and Taxes: A Distributional Analysis for the EU-15 Countries', EUROMOD Working Paper No. EM2/05.
- Volkerink, B. (2000) 'Tax Ratios: A Critical Survey', accessed at <http://www.volkerink.net/papers/taxratio.pdf> on January 29, 2009.
- Volkerink, B. and de Haan, J. (2001) 'Tax Ratios: A Critical Survey', OECD Tax Policy Studies, No. 5.
- Wagstaff, A. and van Doorslaer, E. (2001) 'What Makes the Personal Income Tax Progressive? A Comparative Analysis for Fifteen OECD Countries', *International Tax and Public Finance*, **8**, 299–316.
- Wilensky, H. L. (2002) *Rich Democracies: Political Economy, Public Policy, and Performance*, Berkeley and Los Angeles, University of California Press.
- Zandvakili, S. (1994) 'Income Distribution and Redistribution through Taxation: An International Comparison', *Empirical Economics*, **19**, 473–491.