**Indirect Taxes and Government Inequality Reduction:**

**A Cross-National Analysis of the Developed World**

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The substantial increase in inequality in the developed world of recent decades has moved the topic of government inequality reduction to the forefront of the both the scholarly and policy agenda (see, for example, Piketty, 2014; Hoeller, Joumard and Koske, 2014; Mahler, Jesuit and Paradowski, 2014; Gornick and Jäntti, 2013; Stiglitz, 2012; Scholzman, Verba and Brady, 2012; and Garfinkel, Rainwater and Smeeding, 2010). Certainly, inequality of private sector income has grown sharply since 1980: the average Gini index of pre-government income in countries for which micro-data are available from the Luxembourg Income Study rose from .427 in 1980 to .494 in 2010, an increase of 67 Gini points. Inequality of post-government disposable income also grew over this period, but the increase was much smaller: the average Gini index increased from .271 to .296, a growth of only 25 Gini points. The difference is attributable to taxes and public sector social transfers, which have substantially—if not completely—kept pace with market inequality. Whether this will continue to be the case, or whether government efforts to reduce inequality will instead run up against increasing fiscal and political constraints, is one of the central questions facing the contemporary developed countries.[[1]](#footnote-1)

 As might be imagined, a great deal of attention has been devoted to charting and explaining cross-national and over–time variation in the extent and nature of government efforts to ameliorate market inequality. One of the most common observations has been to note that a large and growing share of government inequality reduction has been the result of social transfers rather than taxation. Across 20 major developed countries over the last 30 years, the share of total government inequality reduction resulting from direct taxes averaged only 22.9 percent; the other 77.1 percent was the result of public social transfers. Moreover, inequality reduction as a result of transfers has steadily increased, while reduction resulting from taxes has remained stagnant for decades. This trend was noted more than two decades ago by Esping-Anderson (1990: 56), who observed that “the role of tax systems has gradually [been] replaced by social transfers as the major weapon for redistribution.”

 The key claim of this paper is that the widespread impression that inequality reduction by way of taxes constitutes a small and shrinking component of the contemporary welfare state is misleading. The reason is that the only taxes examined in the vast majority of empirical work on government redistribution are those assessed directly on households, the most important of which are income taxes and social insurance contributions. There are two reasons for this focus on direct taxes. The first is that personal income taxes, the single most important source of revenue in most developed countries, are almost always progressive: unlike most other taxes, their aim is not only to raise revenue but also to redistribute income, making them a natural focus of those studying government inequality reduction. The second reason is practical: the income surveys that are basis of nearly all empirical studies of redistribution do not measure indirect taxes, whose precise amount is rarely known even to those paying them and whose incidence is thus difficult to determine.

The argument of this paper is that an exclusive focus on direct taxes presents a limited and somewhat distorted picture of the role taxes as a whole play in government inequality reduction. The reason is that, even though indirect taxes (the most important of which are sales, value-added and excise taxes) are not explicitly redistributive—in fact, are commonly regressive—they nonetheless play a critical role in raising the revenue that funds redistributive social benefits. Without them, the social transfers that provide the bulk of government redistribution would be much less generous—and overall inequality reduction greatly diminished.

The paper will seek to contribute to the comparative literature on the role of indirect taxes in several ways. It will begin by offering an overview of the prominence of various taxation modes in OECD countries, with a special focus on indirect taxes. Second, it will review the relatively few empirical studies of redistribution that have focused on indirect taxes. A common theme of these studies is the observation that, paradoxically, the countries that provide the greatest government redistribution by way of social transfers tend to fund these transfers with the most regressive tax mix. Third, the paper will conduct an empirical analysis exploring the relationship between indirect taxes and redistribution in more detail and with reference to many more country-years than has heretofore been the case. In particular, this analysis will move beyond the exclusive focus of nearly all previous empirical work on the size of social transfers by considering their internal progressivity, making use of household-level micro-data from the Luxembourg Income Study (LIS). Finally, the paper will consider the sources of cross-national variation in the share of indirect taxes in GDP in a more systematic way than has commonly been the case, drawing upon variables that have been widely employed in the cross-national literature on the welfare state but rarely applied specifically to the indirect taxes that help fund it.

**Indirect Taxes and the Welfare State**

The most authoritative source of comparative data on taxes in the developed countries is the OECD’s database *Revenue Statistics - OECD Member Countries.* Table 1 lists average shares in GDP of seven major tax types in 2011: indirect taxes on the consumption of goods and services; individual taxes on income, profits and capital gains; corporate taxes on income, profits and capital gains; social security contributions; payroll and workforce taxes; property taxes; and other taxes. Since the focus is on indirect taxes, the countries are listed in that order.

TABLE 1 ABOUT HERE

As can be seen, three tax types dominate: indirect taxes on consumption; individual taxes on income, profits and capital gains; and social security contributions. Together these tax modes account for an average of 10.2, 10.6 and 9.1 percent of GDP respectively, for a total of 29.9 percent, in comparison to the 36.0 percent accounted for by taxes as a whole. However, the specific tax mixes that comprise these averages vary considerably across countries. Of particular note is that countries with less redistributive welfare states tend also to be at the low end in terms of their reliance on indirect taxes. For example, the United States has the lowest share of indirect taxes in GDP of any of the 20 countries, followed by Japan, Switzerland, Australia and Canada in that order. At the top of the list are several Nordic countries, Denmark, Finland and Sweden, followed by Greece, Iceland, Austria and the Netherlands. Other countries fall in between. More generally, it is clear that indirect taxes play a major role in determining countries’ share of total tax revenue in GDP, which itself varies by a factor of almost two to one across the 20 countries: the bivariate correlation between revenues raised by indirect taxes and total revenue raised by all taxes is r = +.83, higher than for any other tax type.

 It is widely recognized that indirect taxes are almost always more regressive than direct taxes (Jourmard, Pisu and Bloch, 2014). Because of this, many commentators have noted a “paradox” whereby the countries that accomplish the most inequality reduction by way of social transfers tend to be the very countries that rely the most on regressive indirect taxes to raise the revenue that supports those transfers. One of the earliest scholars to make this point was Steinmo (1993), who began his comparative study of tax policy in Sweden, Britain and the United States by noting the anomaly whereby “for most of the twentieth century both the United States and Britain have had more progressive tax systems than ‘socialist’ Sweden.” As he goes on to say, “The key here is that Sweden, like all social democratic countries, has been able to build a tax system that generates huge revenues to the state. These revenues translate into public spending on housing, education, health and welfare, and the effects of this spending are substantially more redistributive than steeply progressive taxes.”

 A more recent study is that of Beramendi and Rueda (2007), who note what they call a “paradoxical situation” in which extensive social transfers tend to be funded by regressive taxes (*Ibid*.: 621). As they continue, “this pattern poses a puzzle for partisanship theory. Social democratic parties are assumed to protect the interests of citizens in the bottom half of the income distribution, and yet they seem to make ample use of a tool that clearly undermines this goal” (*Ibid*.: 620). They conclude by noting the need for more research on this topic: “Comparative political economy has devoted a great deal of attention to understanding the determinants of both social expenditures and public revenues. But within that body of literature the analysis of indirect taxation appears largely as a residual category” *Ibid.)*.

 Another recent empirical study to consider redistribution by way of indirect taxes, along with other tax modes, is that of Prasad and Deng (2009). These authors agree with Beramendi and Rueda as to the lack of attention to indirect taxation in the literature on the welfare state: “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” (2009: 431). However, the primary aim of these authors is to compare tax modes rather than explore their relationship to social transfers, although they do note in passing that governments that are highly redistributive often rely to a greater extent on regressive taxes than less redistributive countries.[[2]](#footnote-2)

 Several studies have explored the underlying causal processes linking indirect taxes and inequality reduction by way of public social transfers. Three basic mechanisms have been proposed. One well-established tradition looks to what economists have called “fiscal illusion,” the notion that resistance to taxes tends to be directed primarily at the most visible taxes—the most important of which are direct taxes (Buchanan, 1967). In the words of Wilensky (2002: 380), “overreliance on visible taxes triggers tax revolts. . . The most unpopular of all taxes are property taxes on households and income taxes—taxes that are paid once or twice a year with full awareness of the amount and ambiguity about the services they buy. . . Despite their regressivity, sales taxes appear to be most popular” (2002: 384). A similar point is made by Kato (2003). As she puts it, countries with large and redistributive welfare states “achieved and were likely to maintain a high level of welfare provision owing not to a domestic corporatist arrangement but rather to the use of a less visible taxation such as indirect taxes on consumption. . . . In contrast, a visible progressive income tax that is best for redistribution may not be an effective measure or a politically feasible solution for raising revenue.” (*Ibid*.: 7-8).

 A second broad approach looks to another feature of indirect taxes: the fact that they are levied on consumption rather than investment and, as a result, do not have direct taxes’ perceived disadvantage of discouraging investment that leads to economic growth (and, incidentally, a higher tax base). The most prominent proponent of this perspective is Lindert (2004). In his words, “The high-spending welfare states have developed a style of taxation that few have noticed when debating the effects of the welfare state. In general, high-budget welfare states have a more pro-growth and regressive mix of taxes” (2004:31). As he goes on to say, “The preference for taxing labor rather than capital is regressive, of course. It is also pro-growth, to the extent that capital is internationally mobile and would take positive productivity effects with it when migrating” (*Ibid*.: 241). A similar point is made by Ganghof (2006), although he cautions that direct taxes can also be structured in such a way as not to impose an undue burden on capital.

 A third broad approach to the relationship between indirect taxes and social transfers is that of Beramendi and Rueda (2007), who take an historical institutionalist perspective in arguing that indirect taxes are employed by many redistributive democracies because they offer a vehicle for social democratic regimes to raise sufficient revenue to honor their commitments to societal stakeholders, particularly in corporatist settings—something that would not be possible if they relied on the more direct mechanism of redistributing income by way of progressive income taxes. A similar conclusion is reached by Martin (2014), who depicts a bargain in which employers are willing to support generous social benefits only if these programs are financed by taxes that do not place a heavy burden on capital. As has been indicated, this is the case with indirect taxes, which are levied on consumption rather than investment.

**Indirect Taxes and Social Transfers: A Cross-National Analysis.**

Is the level of indirect taxes relative to GDP positively related to the extent to which developed countries reduce market inequality by way of social transfers? That is the underlying premise of the sources cited above. However, this premise has been the subject of surprisingly little systematic cross-national analysis, particularly across a wide range of countries and points in time. For example, Wilensky’s (2002) discussion, while interesting and influential, offers only descriptions of the situation in several individual countries and a few summary tables, while Kato (2004) and Martin (2014) focus on the historical processes that led to welfare states’ reliance on indirect taxation with reference to several detailed case studies. Of the few studies (e.g., Beramendi and Rueda, 2007) that have offered fuller cross-national analyses, these have without exception explained the size of social transfers relative to GDP rather than the extent to which these transfers have reduced market inequality. However, the size of social benefits and the degree to which they reduce inequality are not the same thing; as put by Milanovic (2000: 370), “a society with high taxes and transfers may have contributors and beneficiaries who are the same people.”

The aim of this paper is to address some of these limitations of previous cross-national work. Specifically, the paper will employ a newly created dataset that includes information not only on countries’ reliance on various tax modes but also on the extent of inequality reduction owing to social transfers. The analysis covers 20 countries for various points in time between 1980 and 2010, for a total of 101 country-years in all.

Before reporting the results of the empirical analysis, it is necessary to introduce the variables that will be employed. As has been indicated, the dependent variable in nearly all previous work on this topic has been public expenditures as a share of GDP. Data have usually been from the OECD’s *Social Expenditures (SOCX)* database, which provides information on the shares in GDP of major social benefit programs. However, as has been noted, data on the size of social benefit expenditures is not the same as data on inequality reduction. In the empirical analysis reported here, data on inequality reduction as a result of social transfers have been computed from household-level surveys available from the Luxembourg Income Study (LIS), a cross-national database that harmonizes data from authoritative national income surveys so that it can be compared across countries.[[3]](#footnote-3)

The starting point in computing summary figures for inequality reduction is to measure the distribution of private sector income. The first and most important source is earnings, which are comprised of wages, salaries and income from self-employment, including (as much as possible) non-cash compensation. To this figure are added interest and dividends, rental income, royalties, and “voluntary individual” pensions received by private and public sector employees. The total of these sources of income is defined as “factor income.” Finally, several additional, relatively minor, sources of private sector but non-market income are added to factor income: merit-based educational transfers; transfers from non-profit institutions; and inter-household transfers, such as alimony and child support.

In measuring the extent of inequality reduction by way of public social benefits, it is necessary to add to private sector income any benefits from public sector cash and near-cash transfers.[[4]](#footnote-4) The coverage of such transfers in LIS income surveys is quite extensive. The main modes include social security benefits, such as employment-related retirement, disability and survivors pensions; child and family allowances; unemployment compensation; sickness, maternity and work-injury pay; and means-tested social assistance of various kinds.[[5]](#footnote-5)

The standard summary measure of inequality, which will be employed here, is the Gini index, which ranges from 0 (all households receive the same income) to 1.000 (one household receives all income). Government inequality reduction is measured as the reduction of the Gini index of private sector income when income from public sector social transfers is added.[[6]](#footnote-6) For example, in the United States in 2010, the Gini index of private sector inequality was .504. When social transfers were added to private sector income the Gini fell to .415, a decline of 89 Gini points. In Germany in the same year, the Gini index of private income inequality was slightly higher than in the United States: .513. However, when pubic social transfers were added to German households’ income, the Gini declined to .338, a reduction of 175 Gini points—nearly twice as large as the decline in the United States.

As to independent variables, these measure countries’ reliance on various types of taxes, each measured as a share of GDP. Indirect taxes, the primary focus of this paper, are taxes that are levied on goods and services; they are called indirect because they are not paid directly but rather through intermediaries, such as retail outlets. The most common such tax is the value added tax (VAT) which is, in the words of Burman and Slemrod (2013: 268), “a form of consumption tax collected from businesses based on the value each firm adds to a product (rather than, say, gross sales).” In practice, producers pay tax on their gross receipts but then receive credits for taxes paid by producers below them on the supply chain, with the total accumulated amount paid at the point of sale. A related tax, which is widely employed by state and local governments in the United States (but not at the national level), is the sales tax, whereby retailers simply remit a percentage of their sales receipts to tax authorities. A third, less important, type of consumption tax is the excise tax, which is a tax levied on a particular product, typically gasoline, alcohol and tobacco.

As has been indicated, all modes of indirect tax have two characteristics in common. One is that their incidence is much harder to measure than is the case with direct taxes; few consumers know, or could easily find out, the share of their income paid in indirect taxes in a given year. Second, indirect taxes are levied on consumption, but not investment. This, it is said, contributes to economic growth by rewarding investment in future productivity relative to immediate consumption. It is also the basis of the expectation that indirect taxes will be regressive, since the share of total income that is devoted to savings or investment—and thus not taxed—tends to rise steadily with income. However, this regressivity can be—and often is—mitigated if consumption of necessities, such as food or medicine, are taxed at a lower rate than other goods.

Other types of taxes and their expected redistributive effect can be more briefly described.[[7]](#footnote-7) The single most important tax in the developed world is the individual income tax, which is almost always progressive. However, the progressivity of income taxes has declined in many countries in recent decades and such taxes are often subject to a wide array of exemptions, many of which tend to be more beneficial to middle- or high-income households than to low-income households.

Another type of income tax is the corporate tax on income, profits and capital gains. On average across the 20 countries considered here this tax mode constituted 3.1 percent of GDP in 2011, less than a third the share of the individual income tax. As to redistribution, there is disagreement as to whether the burden of this tax is ultimately borne by shareholders, which would make it progressive; workers, which would make it proportional; or consumers, which would make it regressive in a manner similar to an indirect tax on consumption.[[8]](#footnote-8)

A third tax mode is social security contributions. These taxes, the third largest source of revenue in the developed world after individual income taxes and indirect taxes on consumption, are generally proportional to wages. There are, however, sometimes maximum contributions, which reduce proportionality, and there are often minimum benefits or progressive payout schemes, making the benefits financed by social security contributions somewhat progressive.

Property taxes are a much less important source of revenue than any of the tax modes discussed so far; on average in 2011 they accounted for 2.1 percent of GDP across our 20 countries. Since these taxes are levied on the ownership of property, which is strongly related to income, they have a progressive component. On the other hand, the most important property taxes in most countries are on housing (whether directly or indirectly by way of rent), which typically constitutes a larger share of the income of lower and middle income groups than of the wealthy.

The final tax types in the OECD classification are payroll and workforce taxes that are not directly linked to social insurance plans, which exist in only a handful of countries; and “other” taxes. Together these two tax types constituted an average of only 0.7 percent of GDP in our 20 countries in 2011.

Now that the primary variables have been introduced, it is time for an analysis of the relationship between tax type (particularly indirect taxes) and government inequality reduction by way of social transfers. As has been indicated, a positive relationship between these variables has frequently been posited, but much less often examined empirically, especially in a cross-national analysis covering a relatively large number of countries and years.

Figure 1 offers a scattergram depicting the bivariate relationship between the share of revenue raised by indirect taxes relative to GDP and the extent of government inequality reduction by way of social transfers. As can be seen, the relationship is positive and strong. On the lower left of the scattergram are countries that are on the low end of the developed-country scale in terms of government inequality reduction, the United States, Japan and Switzerland. Each of these countries also raises relatively little revenue by way of indirect taxes. In general, as a country-year moves up on the scale of indirect taxes it also moves up on the scale of inequality reduction. There is one major exception: the case of Iceland, which is at the high end on revenue raised by indirect taxes but the low end on inequality reduction by way of social transfers. This is no doubt a result of Iceland’s position as the country among the 20 with the lowest pre-government Gini; even with relatively little government inequality reduction, Iceland is among the most egalitarian of the countries examined in its distribution of post-government disposable income. Still, despite this exception, the relationship between indirect taxes and government inequality reduction is strongly positive.

FIGURE 1 ABOUT HERE

Although the simple bivariate relationship described above is a useful starting point, it takes us only part of the way toward an understanding of the relationship between taxation and government inequality reduction. The next step is to construct a multiple regression that includes five other modes of taxation along with indirect taxes.[[9]](#footnote-9) (The “other” category is omitted.) Table 2 reports the results of such an analysis. As can be seen in part A, even when controlling for the share of GDP raised by other tax types, consumption taxes continue to be strongly and statistically significantly related to inequality reduction by way of social transfers. Indeed, the only other tax type that is similarly strongly related is social security contributions—which are, of course, directly linked to pension benefits at the level of individual workers. None of this is to say that consumption taxes are directly financing social transfers in a manner similar to social security contributions; with that exception, taxes are fungible. It does seem fair to say, however, that indirect taxes on consumption represent a powerful revenue-raising vehicle that supports an array of social transfers that in turn substantially ameliorate market inequality.

TABLE 2 ABOUT HERE

 The next step is to disaggregate inequality reduction by way of public sector transfers into two components. The first is the part that is the result of pensions, which accrue primarily to the elderly. The second is the part that is the result of transfers directed primarily at the working-age population, such as unemployment compensation, child and family allowances, sickness, maternity and work-injury pay, and means-tested social assistance. Part B of table 2 describes the relationship between the tax modes described above and pensions, while part C describes their relationship with programs aimed at those of working age. As can be seen, the only one of the six tax types that is statistically significant related (at the p < 0.001 level) to inequality reduction by way of pensions is social security contributions. This is hardly surprising, since this tax mode is directly linked to pensions. As to inequality reduction by way of programs primarily benefiting the working-age population, there is also only one statistically significant relationship: that with indirect taxes, which is significant at the p = .013 level. In sum, it appears that indirect taxes do play an important role in financing inequality reduction by way of public social transfers, especially programs aimed at those of working age.

Interestingly, national consumption taxes are generally of recent origin in comparison to income and property taxes. In fact, in many cases they were inaugerated at about the same time that social benefits expanded. Of the countries examined in this paper, national-level indirect consumption taxes were established in the late 1960s in Denmark, Germany, the Netherlands, and Sweden; in the 1970s in Austria, Ireland, Italy, Luxembourg, Norway and the United Kingdom; in the 1980s in Greece, Japan and Spain; in the 1990s in Canada, Finland, Iceland and Switzerland; and in the 2000s in Australia. (There is no national consumption tax in the United States, although such taxes are widely employed at the level of U.S. states and municipalities.) In most cases the establishment of such taxes more or less coincided with the establishment of new redistributive programs or the expansion of existing ones.

 Now that the positive relationship between indirect taxes and inequality reduction by way of public social transfers has been established, it is time to consider possible political variables that help explain cross-national variation in countries’ reliance on indirect taxes, moving one step backward on the chain of causation. Five political variables that are widely used in the cross-national literature to explain countries’ welfare effort will be considered, exploring whether they are related in a similar manner to countries’ reliance on indirect taxes.

The first variable draws from the power resources tradition, which argues that government inequality reduction in the developed world is a product of the nature and extent of political partisanship. In the words of Korpi and Palme (2003: 425; see also Korpi, 2006), “proponents of what has become known as the power resources approach argued that it is fruitful to view welfare states as outcomes of, and arenas for, conflicts between class-related socio-economic interest groups.” Partisan orientation is measured as the share of social democratic and other left parties in all cabinet posts in a country in a given year, weighted by days. Data are from Armingeon et al. (2014).

A second tradition focuses on political “voice,” as manifested in the most widespread form of participation in the developed world, voting in national elections. The expectation is that, in the words of Lijphart (1997: 4), “who votes, and who doesn’t, has important consequences for who gets elected and for the content of public policies”—including, especially, inequality-reducing policies. The measure of turnout employed here taps the share of the eligible population in a country that voted in the most recent national election for the lower house of its parliament or, in presidential systems, for its chief executive. Data are from International Institute for Democracy and Electoral Assistance (IDEA) (2014) and, for the United States, McDonald (2014).

A third broad tradition in the literature looks to electoral institutions. One of the most-cited contributions is that of Iversen and Soskice (2006), who distinguish between the two most common electoral systems, majoritarian and proportional representation (PR). These authors argue that electoral systems shape the nature of governing coalitions, which in turn affects the propensity of governments to enact redistributive policies. Because coalitions are more formal and thus more enforceable in PR systems than in majoritarian systems, centrist groups—a key part of any coalition—will be more likely to join with parties of the left, with the expectation that they can be restrained from moving too far to the left. In majoritarian systems, on the other hand, centrist groups are said to be more likely to look to the right for coalition partners, which is considered a safer choice than the left in an atmosphere in which coalitions are less formal, and thus more subject to the dominant partner reneging on its commitment. The variable employed is coded 3 for pure PR systems, 2 for modified PR systems and 1 for majoritarian systems. Date are from Armingeon et al. (2014).

A fourth explanatory tradition looks the nature of policy-making. This perspective argues that complex and decentralized constitutional structures complicate government inequality reduction, since opponents of creating or expanding social benefits can concentrate their efforts in a single arena while proponents must battle and win on many fronts. In the words of Huber, Ragin and Stephens (1993: 721), “It is our hypothesis that those features of constitutions that make it difficult to reach and implement decisions on the basis of narrow majorities—and that, conversely, let minority interests obstruct legislation—will impede far-reaching reforms in social policy, especially reforms that might benefit the underprivileged minority.” The measure employed is an updating by Armingeon (2014) of Huber, Ragin and Stephens’ original variable. It includes such constraints as federalism; separation of powers between the legislature and executive; majoritarian electoral systems; bicameralism; and frequent referenda.

A fifth and final tradition looks to labor unions (Pontusson, 2005: 25-28). The basic argument is that when unions comprise a large share of the workforce, and thus participate as a co-equal partner with business, workers will be more successful in socializing some of the costs of child-rearing, sickness, unemployment, and old age—benefiting many members of society, but especially those of low and middle income. The relative prominence of labor unions is measured as union density, the percentage of all workers who are members (excluding retired and other non-working members). Data are from Visser (2013).[[10]](#footnote-10)

TABLE 3 ABOUT HERE

An equation that includes all of these variables is reported in table 3. As can be seen, two of the five political variables described above are statistically significantly related to the share of a country’s GDP that is constituted by indirect taxes. One is the variable measuring constitutional constraints on action by the central government, which appear to undermine governments’ ability to raise the revenue necessary to support the establishment or expansion of redistributive programs. This relationship is statistically significant at the p < .001 level. To cite an example, in a unitary parliamentary system like Denmark or Sweden the executive and legislature are fused into a single entity and there are no autonomous subnational entities, co-equal second legislative chambers, binding referenda, etc., to thwart its action. On the other hand, in a federal presidential system like the United States, with two co-equal legislative bodies and powerful subnational units, establishing or expanding social benefit programs or the resources to pay for them requires overcoming multiple institutional hurdles. Other countries fall between these extremes. The extent to which such institutions constrain governments does indeed seem to be related to the extent to which they ameliorate inequality of market income. Second, there is a statistically significant positive relationship, at the p = .025 level, between union density and the share of indirect taxes in GDP. As density rises, so too does the share of GDP raised by indirect taxes—despite the fact that these taxes tend to be paid primarily by labor as opposed to capital. As is well-known, the 20 countries examined here vary enormously in the extent to which their labor force is unionized: union density ranges from highs of over 70 percent in Iceland, Finland and Denmark to lows of under 20 percent in Japan, Spain and the United States. This variation appears to be related to the size of the indirect taxes taht play an important role in raising the revenue to support social transfers, which in turn have mitigated the widespread increase in market inequality that has occurred in many countries since the early 1980s.

FIGURES 2 AND 3 ABOUT HERE

As to the other variables, all are related in the expected direction to the share of indirect taxes in countries’ GDP, but none of the relationships is statistically significant, even at the p < .10 level.

The relationships between our constitutional constraints and union density variables and the share of indirect taxes in GDP are depicted graphically in figures 2 and 3. As can be seen, the United States and Switzerland have the highest scores on the constitutional constraints variable and are also at the low end in the share of their economies devoted to indirect taxes. At the other end of the scale are a number of unitary parliamentary systems; while these countries vary in the share of GDP accounted for by indirect taxes, they almost always accomplish more inequality reduction than decentralized countries. The one exception is Japan, which scores relatively low on the constitutional constraints scale but nonetheless provides relatively little inequality reduction by way of social transfers.

As to union density, the relationship is also positive and strong. In the lower left of the figure are three countries with low unionization rates and also low reliance on indirect taxes: the United States, Switzerland and Japan. In the upper right are several Nordic countries with high levels of both unionization and indirect taxes: Sweden, Denmark, Iceland, Finland and Norway. Other countries fall between, with union density rates of between 20 and 60 percent and indirect taxes constituting between 7 and 13 percent of GDP.

**Conclusion**

The aim of this paper has been to explore a topic which has rarely been considered in the vast number of studies on the contemporary welfare state: the role of indirect consumption taxes. In particular an effort has been made to further explore the apparent paradox whereby the countries that provide the most reduction of market income inequality by way of social transfers tend to support these programs with the most regressive tax mix. The cross-national analyses presented here explore this relationship in more detail, and with reference to more countries and years, than has heretofore been the case. The conclusion is that indirect taxes do indeed play an important role in raising the revenues needed to fund inequality-reducing public social transfers. This confirms the conclusion of Kenworthy (2008: 2), on the basis of a much less extensive analysis, that “for inequality reduction, it is the quantity of taxes rather than the progressivity of the tax system that matters most.” This is especially true of programs aimed primarily at the working-age population which, unlike those directed to the elderly, do not have a dedicated source of revenue in the form of social security contributions.

The paper also explored, more briefly, the sources of cross-national variation in the size of indirect consumption taxes relative to GDP. It found that countries’ reliance on indirect taxes was significantly related in the expected direction to two variables: the number of constraints on positive legislative action embodied in a country’s constitution and the share of its labor force that belongs to labor unions. On the other hand, three other commonly considered variables, electoral turnout, majoritarian electoral institutions and the partisan orientation of a country’s governing coalition, were not strongly related in either direction to indirect taxes.

As was suggested at the beginning of the paper, public social transfers have in large part—although not completely—kept pace with the substantial increase in market income inequality in most countries over the last three decades. One of the central questions of the next decade will be whether the public sector will continue to play this role or whether such efforts will instead run up against increasing fiscal constraints that undermine its ability to ameliorate market inequality. In any such process, the role of indirect taxes, a revenue-raising workhorse in many highly redistributive countries, is likely to play a critical role.

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**Figure 1: Indirect taxes and Inequality Reduction via Public Social Transfers**



AS Australia

AT Austria

BE Belgium

CA Canada

DK Denmark

FI Finland

DE Germany

IS Iceland

IE Ireland

IT Italy

JP Japan

LU Luxembourg

NL Netherlands

NO Norway

ES Spain

CH Switzerland

UK United Kingdom

US United States

**Figure 2: Indirect taxes and Constitutional Constraints**

AS Australia

AT Austria

BE Belgium

CA Canada

DK Denmark

FI Finland

DE Germany

IS Iceland

IE Ireland

IT Italy

JP Japan

LU Luxembourg

NL Netherlands

NO Norway

ES Spain

CH Switzerland

UK United Kingdom

US United States

**Figure 3: Indirect Taxes and Union Density**



AS Australia

AT Austria

BE Belgium

CA Canada

DK Denmark

FI Finland

DE Germany

IS Iceland

IE Ireland

IT Italy

JP Japan

LU Luxembourg

NL Netherlands

NO Norway

ES Spain

CH Switzerland

UK United Kingdom

US United States

|  |
| --- |
| **Table 1. Tax Modes as a share of GDP, 2011** |
|  |
| **Country** | **Indirect Taxes: Taxes on Goods and Services** | **Taxes on Income, Profits and Capital Gains--Individual** | **Taxes on Income, Profits and Capital Gains--Corporate** | **Social Security Contributions** | **Payroll and Workforce Taxes** | **Property Taxes** | **Other Taxes** | **Total Tax Revenue** |
| Denmark | 15.2 | 26.4 | 2.7 | 1.0 | .3 | 1.9 | .0 | 47.7 |
| Finland | 14.3 | 12.9 | 2.6 | 12.6 | .0 | 1.1 | .0 | 43.7 |
| Sweden | 12.9 | 12.4 | 3.1 | 10.1 | 4.4 | 1.0 | .1 | 44.2 |
| Greece | 12.7 | 4.9 | 2.1 | 10.6 | .0 | 1.8 | .0 | 32.2 |
| Iceland | 12.0 | 13.0 | 1.7 | 3.9 | .2 | 2.3 | .4 | 34.5 |
| Austria | 11.8 | 10.0 | 2.2 | 14.5 | 2.9 | .5 | .2 | 42.3 |
| Netherlands | 11.6 | 8.4 | 1.9 | 14.8 | .0 | 1.3 | .2 | 38.6 |
| UK | 11.5 | 10.3 | 2.9 | 6.7 | .0 | 4.2 | .0 | 35.7 |
| Norway | 11.3 | 9.6 | 10.9 | 9.5 | .0 | 1.2 | .0 | 42.5 |
| Italy | 11.2 | 11.3 | 2.6 | 13.4 | .0 | 2.2 | 2.1 | 43.0 |
| Belgium | 10.9 | 12.6 | 2.8 | 14.2 | .0 | 3.2 | .0 | 44.1 |
| Germany | 10.8 | 9.2 | 1.7 | 14.2 | .0 | .9 | .0 | 36.9 |
| Luxembourg | 10.0 | 8.2 | 5.1 | 11.0 | .0 | 2.6 | .0 | 37.0 |
| Ireland | 9.6 | 9.2 | 2.2 | 4.6 | .2 | 1.9 | .0 | 27.9 |
| Spain | 8.4 | 7.6 | 1.7 | 12.1 | .0 | 1.9 | .3 | 32.2 |
| Canada | 7.4 | 11.2 | 3.1 | 4.6 | .6 | 3.3 | .0 | 30.4 |
| Australia | 7.2 | 10.5 | 5.2 | .0 | 1.4 | 2.3 | .0 | 26.5 |
| Switzerland | 6.4 | 10.4 | 2.8 | 7.0 | .0 | 2.0 | .0 | 28.6 |
| Japan | 5.3 | 5.2 | 3.4 | 11.9 | .0 | 2.8 | .1 | 28.6 |
| USA | 4.4 | 9.0 | 2.2 | 5.5 | .0 | 3.0 | .0 | 24.0 |
| Mean | 10.2 | 10.6 | 3.1 | 9.1 | 0.5 | 2.1 | 0.2 | 36.0 |

**Table 2. Tax Modes and Inequality Reduction by way of Social Transfers**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Coefficients** | **Robust SE** | **t** | **P>|t|** |
| **A. All transfers** |   |  |  |  |
|  Indirect Taxes | 0.007 | 0.002 | 2.71 | 0.014 |
|  Corporate Income Taxes | 0.002 | 0.002 | 0.93 | 0.336 |
|  Individual Income Taxes | 0.001 | 0.001 | 0.58 | 0.567 |
|  Social Security Contributions | 0.004 | 0.001 | 3.47 | 0.003 |
|  Payroll Taxes | 0.006 | 0.004 | 1.59 | 0.128 |
|  Property Taxes | 0.001 | 0.006 | 0.08 | 0.933 |
|  constant | 0.017 | 0.025 | 0.68 | 0.506 |
| **B. Pensions** |  |  |
|  Indirect Taxes | 0.002 | 0.001 | 1.32 | 0.202 |
|  Corporate Income Taxes | 0.002 | 0.001 | 1.81 | 0.086 |
|  Individual Income Taxes | 0.001 | 0.001 | 1.94 | 0.068 |
|  Social Security Contributions | 0.004 | 0.001 | 7.35 | 0 |
|  Payroll Taxes | -0.001 | 0.003 | -0.22 | 0.831 |
|  Property Taxes | -0.003 | 0.003 | -0.92 | 0.369 |
|  constant | 0.026 | 0.016 | 1.6 | 0.127 |
| **C. Programs Aimed at Persons of Working Age** |
|  Indirect Taxes | 0.005 | 0.002 | 2.73 | 0.013 |
|  Corporate Income Taxes | -0.000 | 0.002 | -0.1 | 0.918 |
|  Individual Income Taxes | -0.001 | 0.001 | -0.57 | 0.574 |
|  Social Security Contributions | 0.000 | 0.001 | 0.09 | 0.93 |
|  Payroll Taxes | 0.007 | 0.004 | 1.81 | 0.86 |
|  Property Taxes | 0.003 | 0.005 | 0.75 | 0.46 |
|  constant | -0.009 | 0.025 | -0.35 | 0.729 |

A:R2 = .568; F6, 19 = 20.50 (p<.001); root MSE = 0.026; n = 101

B:R2 = .693; F6, 19 = 20.70 (p<.001); root MSE = 0.015; n = 101

C:R2 = .274; F6, 19 = 4.82 (p=.004); root MSE = 0.216; n = 101

**Table 3. Political Sources of Reliance on Indirect Taxes**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Coefficients** | **Robust SE** | **t** | **P>|t|** |
|  Electoral turnout | 0.017 | 0.018 | 0.96 | 0.347 |
|  Share of left parties in cabinet | 0.005 | 0.004 | 1.32 | 0.204 |
|  Constitutional constraints | -0.812 | 0.155 | -5.24 | <0.001 |
|  Majoritarian/PR | 0.044 | 0.303 | 0.14 | 0.887 |
|  Union Density | 0.041 | 0.017 | 2.43 | 0.025 |
|  Constant | 9.291 | 1.949 | 4.77 | <0.001 |

R2 = .816; F5, 19 = 28.75 (p<.001); Root MSE = 1.360; n = 101

**TECHNICAL APPENDIX**

As has been indicated, **d**ata on pre- and post-government Gini indexes were calculated from Luxembourg Income Study household-level data by David K. Jesuit and myself. Details are offered in Jesuit and Mahler (2014). This technical appendix offers details on measurement that may be of interest to some (but perhaps not all) readers.

In contrast to most variables of interest to social scientists, it is important when measuring income to account for the fact that individuals are grouped into households—persons (or a single individual) who live together and pool their income—and that these households vary in size. In principle, it would be possible either to focus on total income without adjusting for household size or, alternatively, to divide household income by the number of members. In practice, a middle ground is ordinarily taken: total household income is divided by the square root of the number of members, which accounts for variation in household size but at the same time allows for economies of scale accruing to progressively larger households. In addition, households are weighted by their size; as a result, income is ultimately measured at the level of individuals, but in a manner that takes into account the size of the household in which they are living. Finally, we employ any demographic or other weights used in the original income surveys on which the LIS relies to account for under- or over-sampling of population subgroups.

It is also necessary to account for respondents who report zero income. We follow the usual LIS practice in this area, including households that report zero pre-government income (that is, all of their income is derived from the state) but excluding the small number of households that report zero disposable (post-government) income, on the assumption that these households must receive at least some income from unreported sources.

Yet another issue arises from the practice of most income surveys to, for reasons of confidentiality, “top code” the very highest incomes at some maximum value that varies from country to country. In addition, national practices vary somewhat in the treatment of income that is very low or negative. To account for this, we have employed the standard LIS practice in this area, which is to consistently top-code household income at 10 times the median of non-equivalized income and bottom-code at 1 percent of equivalized mean.

As to the measure of inequality reduction employed here, which compares Gini indexes before and after social transfers are added to private sector income, it should be noted that it does not capture redistribution at the level of households but rather net redistribution at the level of entire countries. For present purposes this is the most useful approach, since the aim of governments seeking to redistribute income is not to generate movement of household incomes per se but rather to achieve a more egalitarian distribution of post-government income. In an effort to make clear that we are focusing on net redistribution at the level of countries The paper generally uses the more precise term “government inequality reduction” rather than the conventional, looser, term “government redistribution”—although it does occasionally employ the latter term, which is used in most of the literature cited.

1. Gini indexes in this and the next paragraph have been calculated from Luxembourg Income Study (LIS) (2014) household-level income surveys. Averages are for all countries for which data are available in LIS waves I (about 1980) and VII (about 2010). These and many more measures of inequality and government inequality reduction are reported in Jesuit and Mahler (2014), which also provides extensive details on measurement. [↑](#footnote-ref-1)
2. Prasad and Deng (2010) note that they do not actually measure redistribution by way of indirect taxes, which is not possible using the Luxembourg Income Study surveys they employ. [↑](#footnote-ref-2)
3. Information on such matters as household size equivalization, top and bottom coding and treatment of zero income is provided in a technical appendix the follows the paper.

 [↑](#footnote-ref-3)
4. “Near-cash” benefits are those whose cash value is easy to determine. Examples include food allowances such as those available from the US’s SNAP and WIC programs, and similar allowances in various countries for food, housing, heating fuel and other necessities.

 [↑](#footnote-ref-4)
5. Unfortunately, LIS data do not permit the measurement of direct taxes on transfers in countries in which transfers are taxed. [↑](#footnote-ref-5)
6. Theoretically social transfers could be regressive, and thus result in a higher Gini. However, transfers in all of the countries covered are in practice progressive, although to differing degrees. I have reported the absolute change in the Gini index rather than the change relative to the level of private sector inequality, since the former measure is not only more straightforward but also has the benefit of allowing one to compare the extent of state inequality reduction in a way that is not affected by trends in market income inequality. In practice, these variables are strongly positively related, with a bivariate r of +0.93 across the 101 country-years examined. [↑](#footnote-ref-6)
7. See, for a more extensive discussion, Katz, Mahler and Franz (1983). [↑](#footnote-ref-7)
8. An extensive discussion is offered in a special issue of the *National Tax Journal* on the burden of corporate taxes edited by Diamond (2013). [↑](#footnote-ref-8)
9. Since LIS surveys constitute an unbalanced pooled cross-sectional time series (i.e., the years of LIS surveys vary slightly and not all countries have conducted surveys in all years) cross-national analyses employ a statistical technique that uses OLS regression with Huber White “sandwich” robust standard errors clustered by country; see Bradley et al. (2003) and Kenworthy and Pontusson (2005) for applications. Regressions were conducted using Stata 13.1. Collinearity is often a problem in cross-national analyses of inequality reduction, since many independent variables are closely interrelated. However, an effort has been made to offer a parsimonious explanatory structure, and collinearity is not serious: the highest Variance Inflation Factor (VIF) in any equation is less than 2.5, well below the conventional criterion of 10 (Neter et al., 1996: 387). [↑](#footnote-ref-9)
10. 2010 data for Iceland are missing; 2008 data are substituted. [↑](#footnote-ref-10)