How Can Scandinavians Tax So Much?

Henrik Jacobsen Kleven

Henrik Jacobsen Kleven is Professor of Economics at the London School of Economics, London, United Kingdom. His email address is h.j.kleven@lse.ac.uk .

Abstract

How can Scandinavian countries raise large amounts of tax revenue for redistribution and social insurance while maintaining some of the strongest economic outcomes in the world? Combining micro and macro evidence, this paper identifies three policies that can help explain this apparent anomaly: the coverage of third-party information reporting (ensuring a low level of tax evasion), the broadness of tax bases (ensuring a low level of tax avoidance), and the strong subsidization of goods that are complementary to working (ensuring a high level of labor force participation). The paper also presents descriptive evidence on a variety of social and cultural indicators that may help in explaining the economic and social success of Scandinavia.

American visitors to Scandinavian countries are often puzzled by what they see: despite large income redistribution through distortionary taxes and transfers, these are very high-income countries. They rank among the highest in the world in terms of income per capita, as well as most other economic and social outcomes. The economic and social success of Scandinavia poses important questions for economics and for those arguing against large redistribution based on its supposedly detrimental effect on economic growth and welfare.

To form a basis for the discussion, Table 1 shows tax revenues and income tax rates in the three Scandinavian countries—Denmark, Norway and Sweden—as compared to other European countries and the United States. We see that the tax-to-GDP ratio and the tax rates on income are much higher in Scandinavia than elsewhere. The top marginal tax rates are about 60-70% in the Scandinavian countries as opposed to only 43% in the United States. The contrast is even more striking when considering the so-called "participation tax rate", i.e. the effective average tax rate on labor force participation when accounting for the distortions due to income taxes, payroll taxes, consumption taxes, and means-tested transfers. This tax rate is around 80% in the Scandinavian countries, implying that an average worker entering employment will be able to increase consumption by only 20% of her earned income due to the combined effect of higher taxes and lower transfers. By contrast, the average worker in the United States gets to keep 63% of her earnings when accounting for the full impact of the tax and welfare system.

This paper asks how Scandinavian countries are able to impose very high tax rates and still perform strongly on measures of tax compliance and real activity. Are there specific features of policy design that can account for this combination of outcomes? Or is there something special about Scandinavians that make them less responsive to a given set of distortionary tax and transfer policies. If policy choices can largely explain the positive mixture of economic and social outcomes in Scandinavia, this may have important policy implications for societies where large inequality has been justified by growth considerations. If not, those opposing more redistribution may rest assured that Scandinavia is a special case that cannot be replicated elsewhere.

The next three sections of this paper consider three dimensions of policy design that can shed light on these questions. First, the Scandinavian tax systems have very wide coverage of third-party information reporting and more generally, well-developed information trails that ensure a low level of *tax evasion*. Second, broad tax bases in these countries further encourages low levels of *tax avoidance* and contribute to modest elasticities of taxable income with respect to the marginal tax rate. Third, the subsidization or public provision of goods that are complementary to working—including child care, elderly care, transportation, and education—encourages a high level of *labor supply*. Such public provision of labor complements implies that the effective labor supply distortions are less severe than implied by the tax-transfer distortions shown in Table 1.

We also explore the hypothesis that "Scandinavians are different" by considering cross-country evidence on social and cultural influences. Much of the public debate on these issues is based on a notion that social motivations such as morals, norms, and trust may vary across countries in a way that can explain international patterns in economic outcomes. We consider cross-country correlations between tax take and proxies for social motivations. While these

correlations are quite striking and favor the notion that Scandinavians are more socially motivated, the evidence is ultimately difficult to interpret. In particular, it is not clear whether the available measures of social and cultural motives have an independent causal impact on economic outcomes, or if they are simply a byproduct of those outcomes or of deeper institutions and policies driving the outcomes.

Throughout the paper, Scandinavia is defined narrowly as Denmark, Norway, and Sweden, as opposed to the broader group of "Nordic countries" that also includes Finland and Iceland. Although many of our conclusions apply to all the Nordic countries, it makes sense to focus on the three Scandinavian countries as they are socially and economically more similar.

Third-Party Information and Tax Evasion

The enforcement and administration of modern tax systems rely crucially on third-party information from employers and the financial sector, who report taxable income on behalf of their employees and clients directly to the government. Absent collusion between the taxpayer and the third party, there is no scope for tax evasion on third-party reported income. More broadly, even when no explicit system of third-party reporting is in place, tax enforcement may benefit from information created by market transactions between the taxpayer and third-party agents. These are verifiable information trails created for non-tax purposes—credit cards, loan contracts, business partners, and so on—that could be potentially obtained by the tax authorities in order to construct true tax bases. Kleven et al. (2009, 2011) show theoretically and empirically that tax enforcement is successful if and only if third-party information covers a large fraction of taxable income. Indeed, the importance of third-party reporting for tax compliance is an old idea that has been discussed by tax practitioners, tax lawyers, and economists.

To illustrate this point, Figure 1 plots estimates of personal income tax evasion against the fraction of income that is self-reported (self-employment income, foreign income, etc.). The estimates are taken from the Danish tax audit field experiment by Kleven et al. (2011). The figure shows the fraction of total income evaded (solid line) and the fraction of third-party reported income evaded (long dashes), with the difference between the two reflecting the fraction of self-reported income evaded. The 45-degree line represents the benchmark where the total evasion rate is precisely equal to the share of self-reported income. The figure shows that the total evasion rate is strongly increasing in the self-reported income share, whereas the third-party evasion rate is always very close to zero. In other words, throughout the distribution of self-reported income shares, individuals are near-perfect compliers on third-party reported income and at the same time large evaders on self-reported income. Kleven et al. (2011) argue that the overall evasion rate in Denmark is extremely low (2.2 percent of income), because almost all income (about 95 percent) is subject to third-party information reporting where tax evasion is virtually nil.

Figure 1 also shows that the evasion rate among Danish individuals with only self-reported income (typically self-employed individuals) is about 50 percent and therefore far below full evasion despite the complete absence of third-party reporting. There are two potential reasons why tax evasion is not complete for such individuals. First, self-employed individuals are constrained by

other forms of derivative information that make full evasion infeasible. For example, it would be very risky to not report income generated through credit card transactions or bank transfers, because such income could be uncovered by the tax authorities in the event of an audit. Such information trails increase with economic development and vary across countries, and they may have strong side effects on compliance. Indeed, the gradual transition from cash to credit card transactions may eventually eliminate most tax evasion even for self-employed individuals. Second, it is also possible that intrinsic or social motivations such as a duty to be law-abiding or a desire to pay a "fair share" restrain individuals from fully exploiting all available tax evasion opportunities. We return to this question below.

The evidence from Denmark is qualitatively consistent with evidence from the United States. The most recent tax compliance study by the US Internal Revenue Service (IRS 2012) estimates that the evasion rate is 56% for income with little or no information reporting, 8% for income with substantial information reporting, and 1% when there is both substantial information reporting and withholding. While the differences in tax evasion between income categories are therefore just as stark in the US as in Denmark, it is worth noting that the average evasion level across all categories is larger in the US. Methodological differences between the US and Danish studies can explain part the difference in levels, but it cannot explain all of it (Kleven et al. 2011).

This micro evidence shows that third-party information is crucial for tax compliance, but by itself it does not reveal if variation in such information is important for explaining differences in the tax take across countries. Given that self-employment income constitutes the main form of purely self-reported income and since self-employment is observed in macro data across a large set of countries, this provides a simple proxy for the degree of self-reporting in tax systems around the world. Figure 2A plots the tax/GDP ratio against the share of self-employed workers in the workforce across countries, with the Scandinavian countries highlighted in upper case letters. Three aspects of this graph are worth noting. First, there is a strong negative relationship between the tax take and the fraction of self-employed workers, consistent with the notion that differences in the coverage of third-party reporting is a key determinant of tax revenue.[1] Second, the location of the Scandinavian countries in the upper-left corner suggests that their large tax takes can be explained in part by the wide coverage of their third-party reporting. Third, there is huge variation in the tax take even conditional on self-employment and Scandinavian countries are clear outliers: their tax takes are exceptionally large compared to countries featuring similar levels of self-employment.

One possible reason why Scandinavian countries are outliers in Figure 2A may be due to the crudeness of self-employment as a measure of self-reporting. This measure does not account for

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[1] Of course, such cross-country correlations are not necessarily causal. The most obvious omitted variables when explaining the tax take using only the degree of self-reporting are those capturing the tax code: statutory tax rates and tax bases. It is worth noting that the omission of statutory tax rates most likely leads us to understate the true importance of third-party reporting. If larger statutory tax rates increase the fraction of self-employed workers (as this occupation allows for tax evasion and therefore becomes more attractive under higher tax rates) and increases the tax take (assuming that tax rates are below the revenue-maximizing point on a Laffer curve), then this attenuates the negative correlation between self-employment and tax take.

differences in the effectiveness of third-party reporting for employees, nor does it account for differences in derivative information more generally. We explore the first aspect by including in our measure of self-reporting the fraction of employees in "evasive jobs." For example, a hairdresser employed in a hair salon or a carpenter employed in construction can easily provide some of those services in return for cash outside the third-party reporting system to escape taxation. In general, such evasion will be feasible for labor-intensive services that can be provided by single workers (largely in isolation from the firm in which they are employed) directly to consumers. This point is confirmed by survey evidence on undeclared work (for example, Eurostat 2007).

To explore this insight, Figure 2B plots the tax take against the combined share of self-employed workers and employees in "evasive jobs" providing labor intensive consumer services (as defined in the note to the figure). This modification strengthens the negative relationship between the tax take and our measure of self-reporting, and it reduces somewhat the degree to which Scandinavia is an outlier conditional on the self-reporting measure.

In short, both micro evidence within countries and macro evidence across countries strongly suggest that the availability of third-party information on earned income plays a key role in tax compliance and with a country's overall tax take.

Tax Bases, Tax Avoidance, and the Elasticity of Taxable Income

A key parameter for evaluating tax policy is the elasticity of taxable income with respect to the marginal tax rate. This elasticity is sufficient for calculating the revenue effects of tax rate changes, and under some conditions also for calculating deadweight loss, as it accounts for the full range of behavioral responses to taxation. Importantly, this elasticity is not a structural parameter that depends only on preferences; it depends also on the opportunities for tax avoidance and tax evasion that are ultimately governed by policy choices (Slemrod and Kopczuk 2002). In particular, taxable income elasticities depend on the broadness of the tax base and the implied scope for tax avoidance through deductions, exemptions, and so on (Gruber and Saez 2002; Kopczuk 2005). Does the large tax take in Scandinavian countries reflect a small elasticity of taxable income due to broad tax bases and low levels of avoidance?

This question has been analyzed by Kleven and Schultz (2013), who provide quasi-experimental graphical evidence on the elasticity of taxable income with respect to the marginal tax rate in Denmark. Using a series of tax reforms over 25 years, they show that taxable income elasticities in Denmark are considerably smaller than what has been found for other countries such as the United States. Figure 3 reproduces two of their graphs showing labor income responses (Panel A) and capital income responses (Panel B) to a large income tax reform in 1987. This reform changed the tax rate schedule and the definition of tax bases in a way that produced very large and heterogeneous variation in marginal tax rates across different taxpayers. The reform-induced change in the marginal net-of-tax rate (i.e., 1 minus the marginal tax rate) varied between -20% and +42% across individuals, which is even larger than the variation created by the Tax Reform Act of 1986 in the United States (see Gruber and Saez 2002). In Figure 3 we compare the evolution of labor and capital income for those receiving tax cuts (solid line) and those receiving tax increases

(dashed line) due to the reform. The figure provides compelling evidence of taxable income responses that build up gradually in the three or four years following the reform. Using a difference-in-differences estimator that account for the gradual build-up of the response, the graphical evidence corresponds to a long-run labor income elasticity of 0.21 and a long-run capital income elasticity of 0.28.

The evidence from the Danish 1987-reform is very clear, but the reform is quite old and the elasticities may not represent the responsiveness under the current tax system in Denmark, especially because tax bases have been broadened since the 1980s. Indeed, Kleven and Schultz (2013) show that the estimated elasticities are smaller when considering more recent Danish tax reforms in the 1990s and 2000s. The more recent elasticity estimates for Denmark fall in the range of 0.05-0.15, which is much smaller than the most cited US estimates of around 0.4-0.5 (as surveyed by Saez et al. 2012). The relatively small taxable income elasticities in Denmark allow for higher levels of taxation without incurring larger losses in economic efficiency.

Why are elasticities so small in Denmark? One reason is the near-absence of tax evasion due to the wide coverage of third-party information reporting. Indeed, self-employed individuals have considerably larger taxable income elasticities than wage earners, but the small fraction of self-employed individuals in the workforce implies that they do not have a large impact on the average elasticity in the economy.

Another reason may be low levels of legal tax avoidance due to a broad tax base that offer limited scope for reducing tax liability through deductions, income shifting, and so on. To explore this, Kleven and Schultz (2013) compare elasticities of "broad income" (defined as gross labor and capital income) to elasticities of net taxable income (defined as broad income minus deductions, exemptions, losses, etc.). The literature using US data finds that taxable income elasticities are much larger than broad income elasticities, a difference that has been interpreted as reflecting the additional avoidance opportunities in the narrower taxable income base (Gruber and Saez 2002; Saez et al. 2012). By contrast, Kleven and Schultz (2013) find that taxable income elasticities are only slightly larger than broad income elasticities in Denmark, which suggests that avoidance responses are much smaller in Denmark. They argue that this is the result of a broad base offering relatively few deductions and exemptions along with an asymmetric tax treatment of different income components, with a much smaller tax rate on negative income and deductions than on positive income. The asymmetric treatment of positive and negative tax base components substantially weakens the incentive to pursue avoidance strategies.

Finally, it should be emphasized that the estimates discussed above represent *intensive margin* responses—that is, earnings responses conditional on working—and therefore do not account for extensive responses such as labor force participation, retirement, and migration. On the latter, a potential cost of large tax rates at the top of income distribution is international migration by high-skilled individuals, as analyzed by Kleven et al. (2014). They find that the migration elasticity of foreign immigrants in Denmark is large, but that the migration elasticity of Danish natives is very small. That is, while higher taxes do discourage high-income foreigners from moving into Denmark, they do not encourage Danish natives to leave to a very large extent. This is

important for overall tax capacity as natives represent the overwhelming share of the population and tax collections.

Expenditure Policy: Transfers and Work Subsidies

The efficiency of a tax system cannot be fully understood without considering how the revenue is spent. The spending of tax revenue may either reinforce or alleviate tax distortions depending on the structure of spending. On the one hand, the Scandinavian countries spend relatively large amounts on means-tested transfer programs that create implicit taxes on working and therefore reinforce the distortions coming from the tax system. On the other hand, these countries also spend relatively large amounts on the public provision and subsidization of goods that are complementary to working, including child care, elderly care, and transportation. Such policies represent subsidies to the costs of market work, which encourage labor supply and make taxes less distortionary (Rogerson 2007; Blomquist et al. 2010). Furthermore, Scandinavian countries spend heavily on education, which is complementary to long-run labor supply and potentially offsets some of the distortionary effects of taxation (for example, Bovenberg and Jacobs 2005; Heckman and Jacobs 2011). This section presents cross-country evidence on these points and draws some policy implications.

In this section we focus on the *extensive margin* of labor supply—that is, on whether people are working or not— which is typically viewed as the key margin for understanding aggregate labor supply (for example, Rogerson 1988; Rogerson and Wallenius 2009; Chetty et al. 2013). Before turning to government spending on work subsidies, we consider the distortion of labor force participation due to taxes and transfers. As discussed above, the appropriate measure of this distortion is the *participation tax rate* that accounts for all labor taxes, consumption taxes, and means-tested or work-tested transfers. Because the participation tax rate is an *average* tax rate, it can be measured more precisely in macro data than the *marginal* tax rate relevant for hours worked.

Specifically, we calculate the participation tax rate in each OECD country as follows. Using OECD revenue and national accounts statistics, we calculate income tax rates, payroll tax rates on employees and employers, and consumption tax rates that include value-added taxes, sales taxes, and excises. Using OECD social expenditure statistics, we calculate a social benefit rate defined as expenditures on means-tested and work-tested transfers per non-working person as a fraction of labor income per working person. We include in the benefit rate all social assistance benefits (cash and in kind), unemployment insurance, and disability insurance. Having obtained these tax and benefit rates, we combine them into a single tax rate measure τ that capture the difference between the consumption of the worker and the labor cost of the firm. That is, if a worker enters into employment and receives wages such that the employer labor cost equals 1, then the worker is able to increase her consumption by $1 - \tau$.[2]

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[2] The participation tax rate is calculated as follows. We denote the income tax rate by τ_i, the payroll tax rate on employees (workers) by τ_{pw}, the payroll tax rate on employers (firms) by τ_{pf}, the consumption tax rate by τ_c, and the benefit rate by b. The extra consumption Δc induced by labor

A key advantage of our tax rate estimates is that they can be obtained for a large number of countries and over many years using readily available macroeconomic statistics. An important question, however, is how well they line up with more exact measures of tax distortions that would be obtained by modelling the tax-benefit system of each country and using micro data. Using such a micro approach, Immervoll et al. (2007) estimate participation tax rates in 15 EU countries in 1998, and so we can compare their micro-based tax rates with our macro-based tax rates for this particular set of countries and year. Figure A1 in the appendix shows that the two tax rate measures are very closely correlated, and this is true both when we compare to micro-based tax rates on the average worker and to micro-based tax rates at the bottom of the earnings distribution. The reason why our macro-based participation tax rates provide good approximations in different places of the earnings distribution is that participation tax rates have a very flat structure in most countries due to the combined effect of means-tested transfers (creating distortions mostly at the bottom) and progressive income taxes (creating distortions mostly at the top). The flatness of participation tax rates across the income distribution further strengthens the relevance of our macro tax rates.

Figure 4 plots employment rates among the 20-59 year olds against the net-of-tax rate on participation $1 - \tau$. Panel A considers total employment while Panel B considers female employment. Ignoring potential confounders, employment rates and net-of-tax rates should of course be positively related, but the figure shows that these variables are in fact negatively correlated across countries. In particular, Scandinavian countries impose exceptionally large participation tax rates due to the interaction between taxes and social assistance, and yet those countries feature very high employment. The surprising correlation between tax-transfer incentives and employment is even stronger for females than for the full population even though females are normally considered to be the most responsive to such incentives. Although the graph cannot be given a causal interpretation, it does raise questions about the enormous focus on extensive responses to taxes and transfers in the public finance literature. It suggests either that micro estimates of extensive responses to tax-transfer distortions are swamped by other factors, or that those locally estimated effects (using for example tax reforms) have no global validity. In either case, there is a bigger picture that the literature seems to be missing.

The relationships shown in these graphs stand in sharp contrast to a large macro literature, which argues that labor supply is positively correlated with net-of-tax rates across countries and

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market entry is governed by a budget constraint $(1 + \tau_c) \cdot \Delta c = \frac{1 - \tau_i - \tau_{pw} - b}{(1 + \tau_{pf})} \cdot W_f$, where $W_f \equiv W \cdot (1 + \tau_{pf})$ is the total labor cost of firms and W is the before-tax earnings of workers. Hence, the participation tax rate τ can be defined as

$$(1) \qquad 1 - \tau \equiv \frac{\Delta c}{W_f} = \frac{1 - \tau_i - \tau_{pw} - b}{(1 + \tau_{pf})(1 + \tau_c)}$$

This formula uses that the underlying tax and benefit rates τ_i, τ_{pw}, τ_{pf}, and b are calculated from macro statistics as fractions of the before-tax earnings of workers W. Further details are provided in the notes to Figure A1.

implies very large labor supply elasticities (for example, Prescott 2004; Davis and Henrekson 2005; Rogerson 2007; Ohanian et al. 2008). Much of this literature considers aggregate hours worked (thereby conflating the intensive and extensive margins), but some of it separately considers the extensive margin as we do here. A meta-study of the macro literature by Chetty et al. (2013) calculate an extensive margin elasticity with respect to the net-of-tax rate equal to 0.17, and argue that this is not very inconsistent with the micro literature. By contrast, our data would imply a strongly negative elasticity at the extensive margin.

Why are our results so different from those in the previous macro literature? There are two main reasons. First, the macro studies do not account for the effect of means-tested transfers on the effective distortion of labor supply. Second, much of the macro literature used data from the 1990s, a time period in which low-tax countries had comparatively stronger labor market outcomes than they do today. Figure A2 in the appendix demonstrates the importance of these two points by showing how the regression line in Figure 4 is affected by omitting transfers and considering a different year. Interestingly, the correlation between the total employment rate and the net-of-tax rate on participation becomes weakly positive when considering 1995 and leaving out transfers. This suggests that the apparently "realistic" relationship between taxes and labor supply in the macro literature is largely a coincidence driven by mismeasured incentives and the time period that was studied. Finally, it is worth noting that much of the macro literature considers aggregate employment rather than male and female employment separately. When we focus on females alone, excluding transfers and considering the 1990s are not sufficient to overturn the negative cross-country relationship between employment and net-of-tax rates. [3]

How do Scandinavian countries perform so strongly on employment despite imposing very large tax-transfer distortions at the extensive margin? Broadly speaking, there can be two reasons: culture or incentives. That is, either Scandinavian culture favors labor force participation independent of incentives, or there are non-tax incentives in the Scandinavian countries that favor participation. Figure 5 explores the role of non-tax incentives by showing the cross-country relationship between employment rates and "participation subsidies" due to public spending on the provision of child care, preschool, and elderly care. Even though these programs are typically universal (and therefore available to both working and non-working families), they effectively subsidize labor supply by lowering the prices of goods that are *complementary* to working. That is, working families have greater need for support in taking care of their young children or elderly parents, and so demand more of those services other things equal. From this perspective, the cross-country correlations shown in the figure have the expected sign; higher public support for preschool, child care, and elder care is positively associated with the rate of employment. Moreover, the Scandinavian countries are strong outliers as they spend more on such participation subsidies (about 6 percent of aggregate labor income) than any other country. Since child care subsidies are targeted to women with young children who have the largest elasticities of labor force

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[3] The surprising correlation between taxes and labor supply at the extensive margin shown above does not carry over to the intensive margin. Figure A3 in the appendix shows that average annual hours worked among the employed is positively associated with (1 − top marginal tax rate) across countries.

participation, the average correlations in the figure (based on either the full population or all women) potentially understate the importance of these subsidies for employment.

Broadly speaking, countries tend to be divided into those with relatively small tax-transfer distortions and at the same time small subsidies to child care and elderly care (such as the United States and countries of southern Europe) and those with a lot of both (like the countries of Scandinavia). This naturally raises the question of what is the optimal policy. The literature on optimal income taxation in the presence of extensive labor supply responses argues for low or even negative participation tax rates at the bottom of the income distribution (Saez 2002), as implemented for example by the Earned Income Tax Credit (EITC) to low-income working families in the United States. The EITC and similar programs in other countries have been hailed as successes by economists and policy makers, and yet we have seen that Scandinavian countries have strong labor market outcomes without any significant program of this type. An issue with the theoretical literature on these questions is that it ignores the possibility of subsidizing child care and other fixed costs of work, which limits the suitability of this research for fully evaluating the normative argument for an EITC or low participation tax rates more generally.

To evaluate the desirability of an EITC as compared to subsidized child care, Kleven (2014) develops an extensive-margin optimal tax model that allows for both policy instruments. The paper presents two simple and intuitive findings. First, assuming that child care demand is positively related to working, subsidies to child care boost labor supply and thus enhances the efficiency of income redistribution. The optimality of subsidizing child care within this framework corresponds to classic insights from optimal tax theory, which calls for low or negative tax rates on goods that are complementary to labor supply (for example, Corlett and Hague 1953-54; Atkinson and Stiglitz 1976; Christiansen 1984). Second, because child care subsidies represent a subsidy to labor force participation (by lowering the total effective distortion of labor supply on the extensive margin), it directly reduces the need for a low or negative tax rate on labor force participation through a policy like the Earned Income Tax Credit. If the optimal child care subsidies are large, then it becomes very difficult to justify a policy like the EITC under realistic parameters.

Of course, there may be other reasons for publicly provided child care and preschool than these optimal tax considerations; for example, the argument that these activities represent investments in early education. Such aspects would increase the optimal subsidy and therefore serve to reinforce our argument.

To conclude, the empirical and theoretical arguments above suggest that public spending on work complements such as child care, preschool, and elder care allows for a more efficient provision of low-income support and at the same time weakens the argument for low participation tax rates at the bottom of the distribution through an EITC. In this sense, it is conceivable that Scandinavian countries (with their large subsidies to work complements and no EITC) got it right, while the US (with its small subsidies to work complements and a large EITC) got it wrong. At the very least, when thinking about how to ameliorate the efficiency costs of income redistribution, it would be useful to expand the conversation beyond tax and transfer instruments to include the expenditure-side instruments emphasized here.

Social and Cultural Influences

A common perception is that Scandinavian countries collect more tax in part because of intrinsic or social motivations such as morals, norms, and trust. In the literature, these motivations are often grouped under the heading of "tax morale" (a subject discussed in more detail in the paper by Luttmer and Singhal in this symposium). There is some micro evidence that social incentives matter for tax compliance (for example, Dwenger et al. 2014) and for public goods contributions more broadly (for example, DellaVigna et al. 2012). However, it is a considerably stronger statement to say that tax morale varies across countries in a way that can explain cross-country variation in tax collections. This section presents some descriptive and suggestive evidence on the possible role of social and cultural factors for tax collections and redistribution in the Scandinavian countries.

Figure 6 shows cross-country evidence on the relationship between the tax/GDP ratio and different social and cultural indicators. Panel A considers a standard attitudinal measure of trust from the World Value Survey, namely the average response to the question of "whether or not most people can be trusted." The positive correlation between trust and tax take is quite striking and so is the location of the Scandinavian countries in the graph: Scandinavia features higher levels of trust than anywhere else in the world. This evidence is consistent with the notion that social cohesion is larger in Scandinavian countries, which may explain their willingness to pay large taxes. Two caveats are worth noting about this relationship. First, Glaeser et al. (2000) argue that such survey measures of trust predict trustworthy behavior better than they predict trusting behavior. This is not necessarily a problem for tax compliance questions, as trustworthiness may be a more appropriate measure of intrinsic motivation to comply. Second, a fundamental question is whether beliefs about trust represent "structural" cultural attitudes, or whether these beliefs are endogenous outcomes of deeper institutions and the economic equilibrium we are trying to understand (for example, Fehr 2009). Indeed, the fact that trust is higher in Scandinavian countries than elsewhere is consistent with rational expectations given that tax evasion and crime more broadly are lower in Scandinavia.

Panel B explores the idea that willingness to pay taxes that finance redistribution to the poor is driven in part by beliefs about the poor. Here we consider a question from the World Value Survey that probes views on whether people live in need because of laziness or lack of willpower, or if they live in need because of social injustices, bad luck or other factors outside individual control. The belief that the poor are lazy features a weak negative correlation with tax take, and the relationship would be stronger if we control for income per capita or if we dropped low-income countries from the sample. The location of the Scandinavian countries in the graph is again striking: the view that poor people are lazy is held by only 10-15 percent of the population in Denmark, Norway, and Sweden, a smaller share than anywhere else in the world. At the other end of the spectrum, more than 60% of Americans hold the view that people are poor as a result of their own laziness.

The two bottom panels of Figure 6 turn from attitudinal measures to behavioral measures of social motivation. Panel C considers a social capital index in the spirit of the one constructed by Rupasingha and Goetz (2008) and used by for example Putnam (2007) and Chetty et al. (2014). Specifically, we consider an index that combines civic participation, voter turnout, and crime (as proxied by the homicide rate). We include only democratic countries as voter turnout is meaningful only for those countries. As shown in Panel C, our social capital index is strongly positively related to tax take and with the Scandinavian countries scoring very high.

Finally, Panel D explores the hypothesis that *mandatory* contributions to public goods and redistribution through tax payments might crowd out *voluntary* contributions through charitable donations. For example, Alesina et al. (2001) highlight the importance of such effects when evaluating the difference in welfare states between the US and Europe. If such crowding-out is significant, that would weaken the argument that countries with large tax takes and generous social welfare have populations that are more socially motivated than others. Ideally, one would like to consider the *amount* of charitable contributions across countries, but unfortunately such information is not available for a large set of countries. Panel D instead plots tax take against the fraction of people donating money to charity using data from the World Giving Index. Perhaps surprisingly, the figure shows no negative relationship between coercive taxation and voluntary donations, nor does it indicate that Scandinavians are less involved in charity than populations facing smaller tax takes. We obtain similar findings when using related questions from the World Value Survey or the International Social Survey Program (such as the fraction of people who are members of charitable organizations).

The absence of tax-charity crowd-out may not survive if we instead consider donation amounts. For example, Americans contribute larger amounts to charity (and pay less in taxes) than European countries. According to the Charities Aid Foundation (2006), charitable giving as a fraction of GDP is equal to 1.67 percent in the US, 0.73 percent in the UK, 0.22 percent in Germany, and 0.14 percent in France. The Scandinavian countries were unfortunately not part of this study. Although these numbers are consistent with the existence of some tax-charity crowd-out across countries, it is important to note that the charity-to-GDP ratios are extremely small compared to tax-to-GDP ratios. Even if we assume that all of the cross-country variation in charitable giving is a reflection of tax-charity crowd-out (an upper bound), the evidence on charitable donations would have no quantitatively important implications for understanding the variation in tax take and public goods contributions across countries.

The cross-country evidence that the Scandinavian countries share some distinctive social and cultural attitudes and norms that could contribute to the willingness to pay taxes is suggestive, but of course falls short of being conclusive. However, we can say that large tax collections go hand in hand with a number of measures of social cohesiveness like civic participation, voter turnout, trust, low crime, and so on, and so these different factors may deserve are more integrated treatment than they normally receive.

Conclusion

How are Scandinavian countries able to combine exceptionally large tax takes with some of the strongest economic outcomes in the world? The wider question extends beyond Scandinavia. Is it in general possible to design a tax and enforcement system that raise large amounts of revenue while keeping tax evasion and labor market distortions at a modest level, or is there something special about the Scandinavian countries that make it hard to replicate their successful outcomes in other settings?

We do not claim to provide an exhaustive or conclusive treatment of these big questions. The descriptive cross-country evidence is consistent with social and cultural factors playing a role, although we are far from being able to fully interpret this evidence. But the discussion has also identified a set of concrete policies that can go some way towards explaining the Scandinavian puzzle, namely the use of far-reaching information trails that facilitate tax compliance, broad tax bases the limits the scope of legal tax avoidance, and large public spending focused on complements to work. Indeed, these factors may intertwine: that is, the social and cultural factors may make it easier to enact these kinds of policies, and in turn the social and cultural norms may themselves be driven by the design of policies and institutions.

As we continue our efforts to understand and draw lessons from the social and economic success of the Scandinavian countries, it is worth remembering that these countries have some specific traits. They are small and homogenous, racial and religious diversity is limited, human capital is high, and they have been largely unaffected by violent conflict. It is not clear to what degree lessons learned from Scandinavia carry policy implications for large, diverse, and unequal countries such as the United States. Certainly the political economy surrounding the implementation of the policies proposed here would be different in the US—indeed this is partly why we observe stark policy differences to begin with—and conditional on political feasibility the effects and appropriate design of those policies might be different in the US. Hence, replicating the Scandinavian policies and institutions in societies that are fundamentally different is unlikely to be achievable or even desirable. The point is instead for countries everywhere to think carefully about how to collect taxes and redistribute income with less distortion from tax evasion, tax avoidance, and reduced labor supply, and the Scandinavian experience may provide ideas on how to expand the conversation about these important questions.

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Table 1: Tax Revenue and Tax Rates in Scandinavia vs Selected Comparison Countries

	Denmark	Norway	Sweden	Germany	United Kingdom	United States
Tax revenue / GDP	48.2%	42.8%	45.8%	36.3%	35.0%	24.8%
Shares of tax revenue						
Income taxes	64.2%	70.7%	68.4%	68.7%	54.8%	70.0%
Property taxes	3.8%	2.9%	2.4%	2.4%	11.8%	12.2%
Consumption taxes	31.6%	26.4%	28.8%	28.4%	32.8%	17.9%
Income tax distortions						
Top marginal tax rate	69.8%	60.8%	73.6%	59.3%	62.7%	43.3%
Participation tax rate	87.0%	77.6%	76.7%	63.0%	55.6%	36.6%

Notes: The data on tax revenue / GDP (source: Index of Economic Freedom, Heritage Foundation) and on revenue shares (source: OECD Tax Revenue Statistics) are from 2012. Referring to OECD tax classification numbers, we define income taxes = 1000 + 2000 + 3000, property taxes = 4000, and consumption taxes = 5000. Income taxes include all taxes on income, profits, and capital gains (1000), social security contributions (2000), and taxes on payroll and workforce (3000). The data on the top marginal income tax rates (source: Piketty, Saez, and Stantcheva 2014) are from 2011 for Germany and from 2010 for the other five countries. The calculation of participation tax rates is described in detail in the notes to Figure A1 in the appendix. These tax rates are from 2010 for Germany and United States and from 2009 for the other four countries (sources: OECD National Accounts, OECD Government Revenue Statistics, OECD Social Expenditure Statistics, Penn World Table 7.0).

Figure 1: Evasion by Fraction of Income Self-Reported
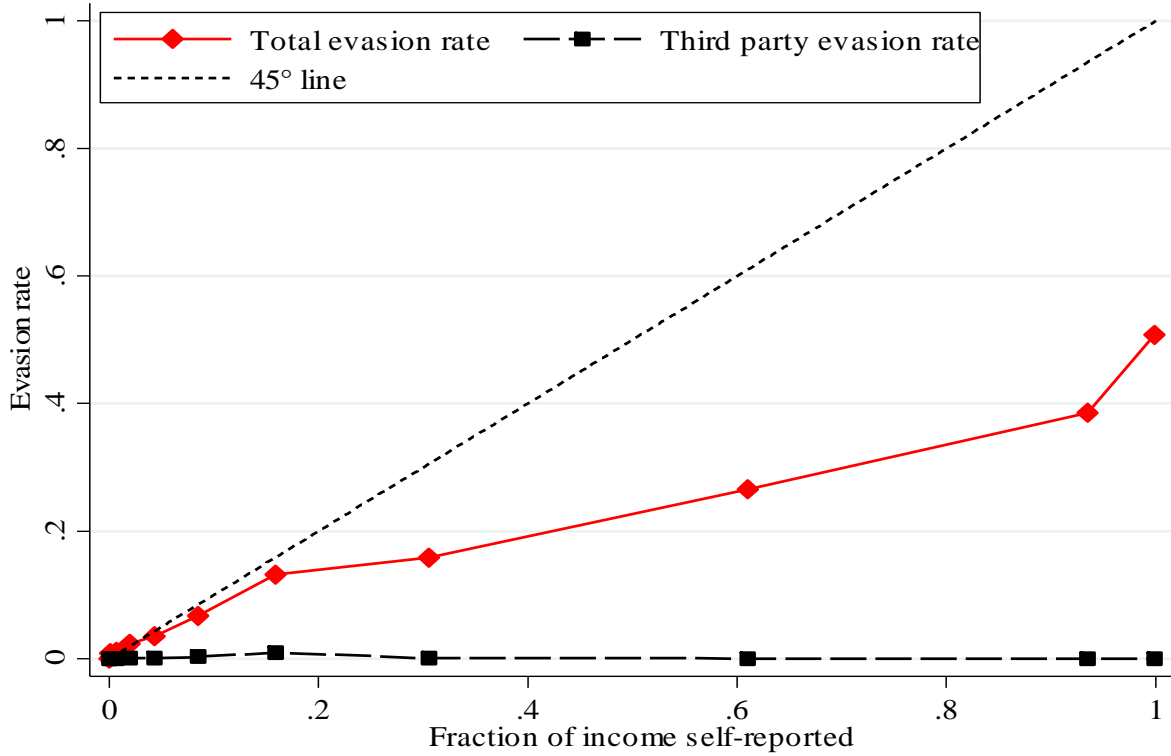
Notes: the source is Kleven et al. (2011). The figure displays estimates of the total evasion rate (fraction of total income undeclared) and the third-party evasion rate (fraction of third-party reported income undeclared), conditional on having positive evasion, by deciles of the fraction of income self-reported. Further details can be found in the original source.

Figure 2: Tax Take and Third-Party Reporting across Countries

Panel A: Tax Take vs Fraction Self-Employed
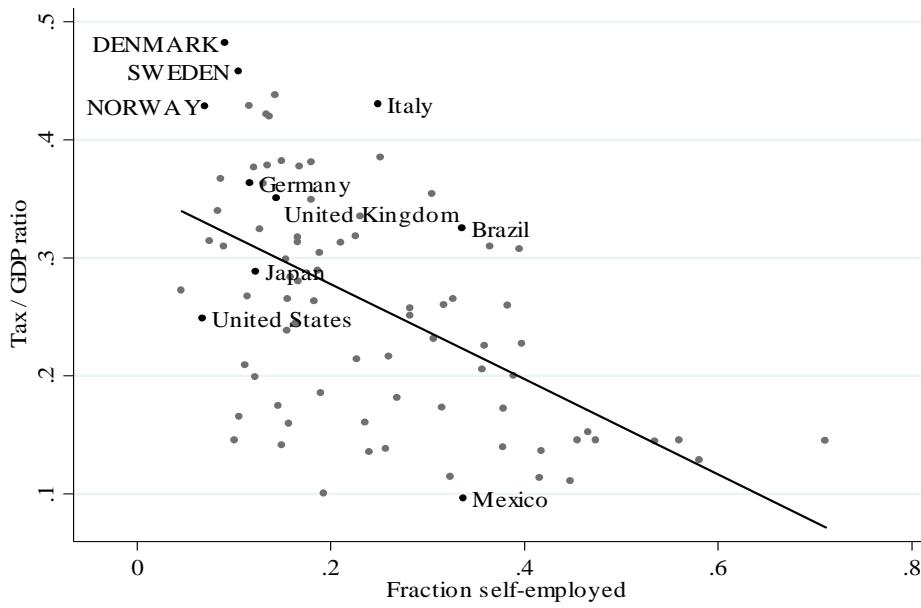
Panel B: Tax Take vs Fraction of Self-Employed and Employees in Evasive Jobs

Notes: Country-level observations, latest available year. Countries with GDP per capita below $5000 (in 2005 PPP terms) or natural resource rents as a fraction of GDP above 20% are excluded from the sample. Tax/GDP ratio is the share of tax revenue in a given country's nominal GDP in 2012 (source: Index of Economic Freedom, Heritage Foundation). In both panels, the "fraction self-employed" is defined crudely as all non-employees (self-employed, employers, and non-classifiable workers) as a fraction of the workforce (source: World Bank). In Panel B, the "fraction of employees in evasive jobs" is defined as the fraction of the workforce who are employees in sectors that (in part) provide labor intensive consumer services (source: ILO). These evasive sectors are defined according to ISIC codes 4F: construction, 4G: retail, wholesale, and repair of motor vehicles, motorcycles and personal and household goods, 4I: hotels and restaurants, 4S: other service activities, and 4T: employees of private households (nannies, cooks, gardeners, etc.). Regression line is plotted in each panel.

Figure 3: Graphical Evidence on Taxable Income Responses in Denmark

Panel A: Labor Income Responses to 1987-Reform

DD Elasticity = 0.214 (0.011)

Panel B: Capital Income Responses to 1987-Reform


DD Elasticity = 0.278 (0.063)
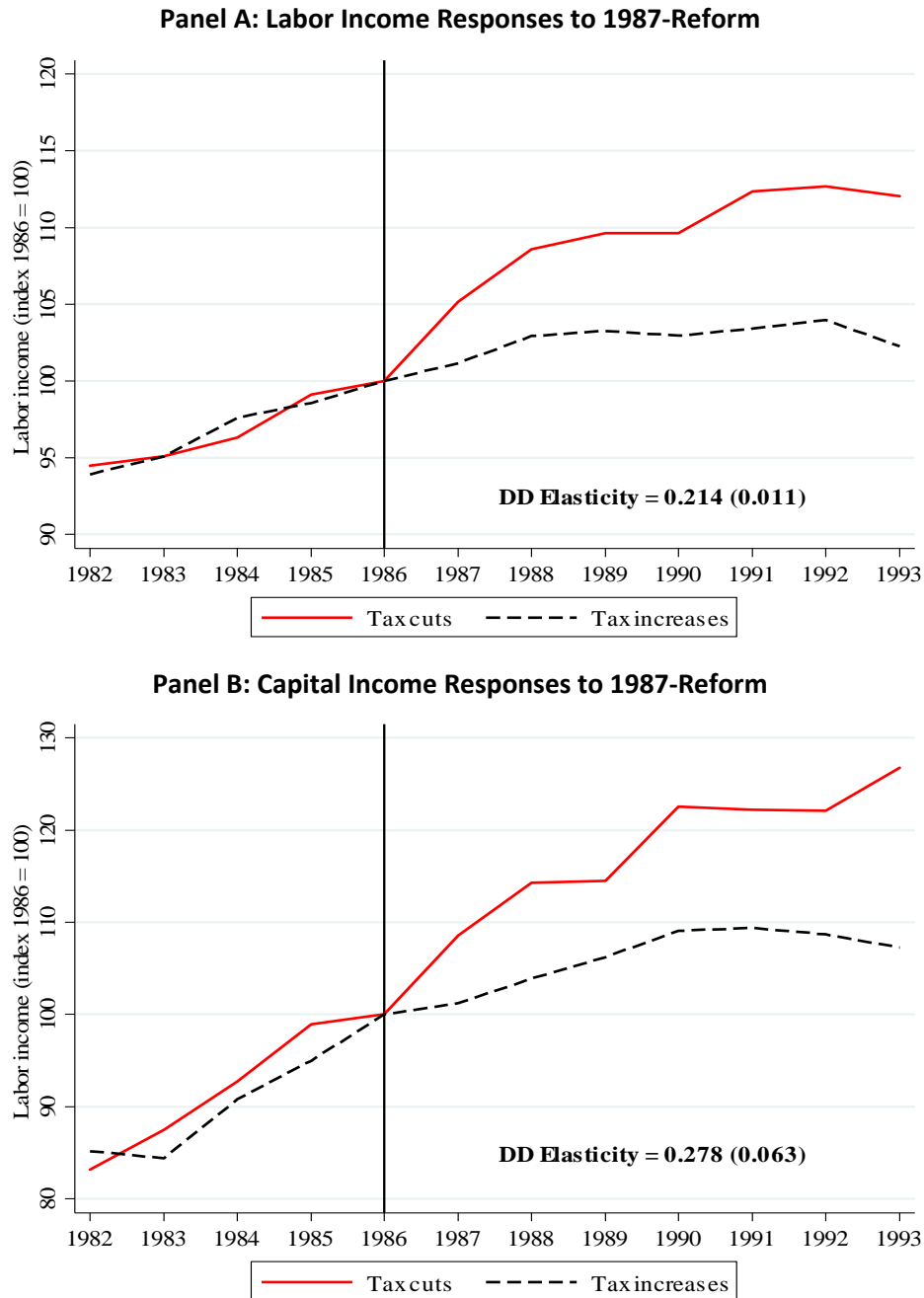
Notes: the source is Kleven and Schultz (2013). The figure shows the evolution of labor income (Panel A) and capital income (Panel B) between 1982-1993 for groups that experienced, respectively, tax cuts or tax increases as a result of the 1987-reform. The figure is based on a balanced panel of individuals who are observed throughout the period. The vertical line at 1986 denotes the last pre-reform year (as the reform was passed in parliament during 1986 and changed tax rates starting from 1987), and income levels in 1986 are normalized to 100 in all groups. Both panels show that income trends are completely parallel in the years prior to the reform and then start to diverge precisely in 1987, the first year of reform-induced tax changes. Most of the effect of the tax reform materializes within 3 years. The figure reports difference-in-differences estimates of the elasticities of labor and capital income, comparing groups of individuals facing tax cuts or tax increases over the 3-year interval 1986-1989. The DD estimates in both panels are based on 2SLS regressions of log income on an after-reform time dummy, a tax-cut-group dummy and the log marginal net-of-tax rate, the latter variable being instrumented by the interaction between the after-reform and tax-cut-group dummies. Further details can be found in the original source.

Figure 4: Employment Rate vs Participation Tax Rate across Countries

Panel A: Employment Rate vs Participation Net-of-Tax Rate
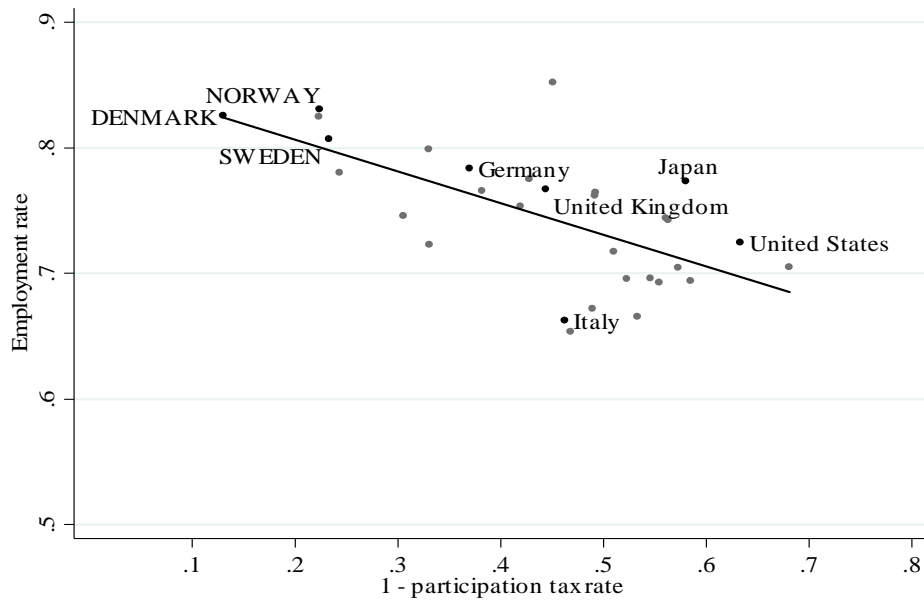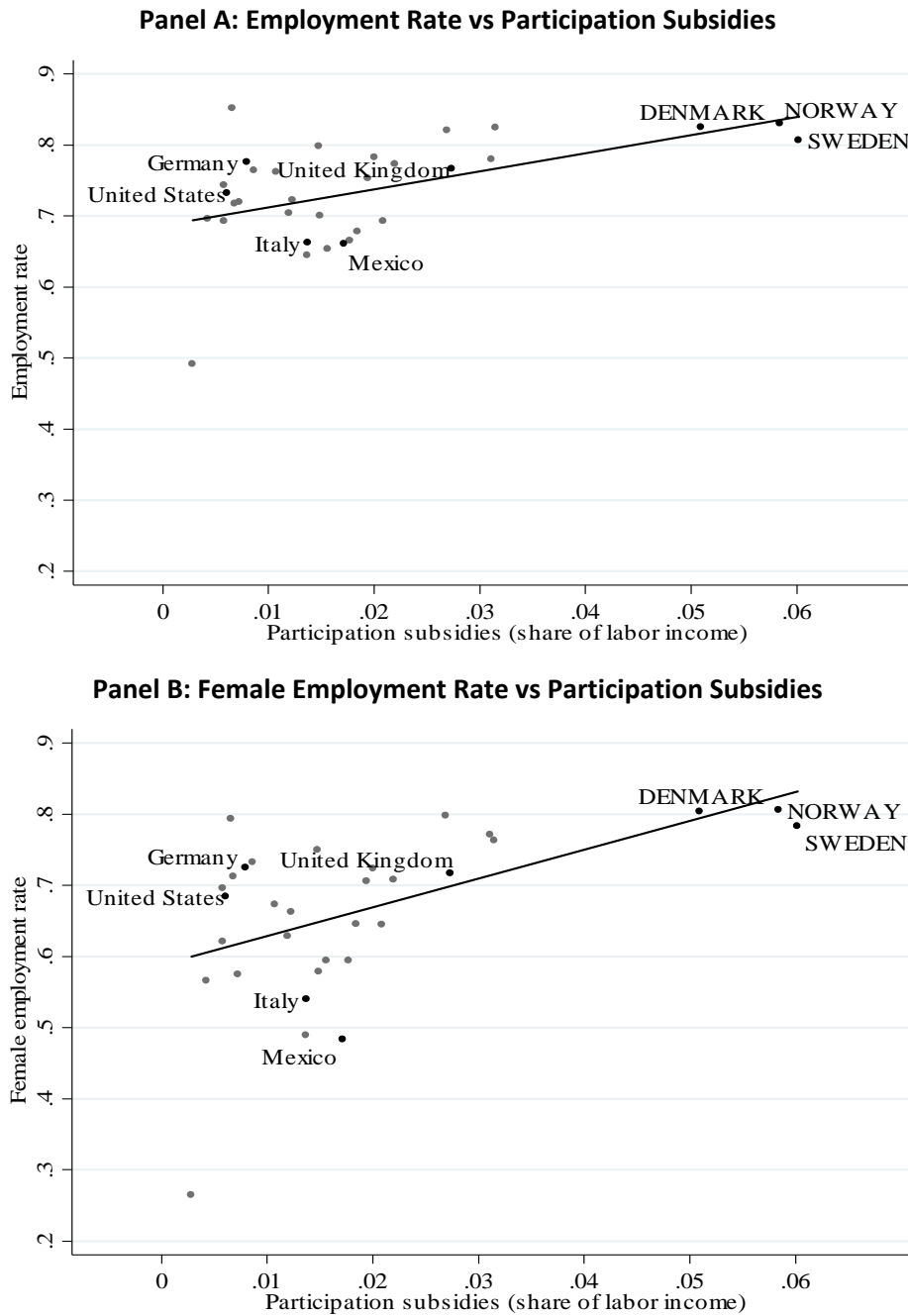

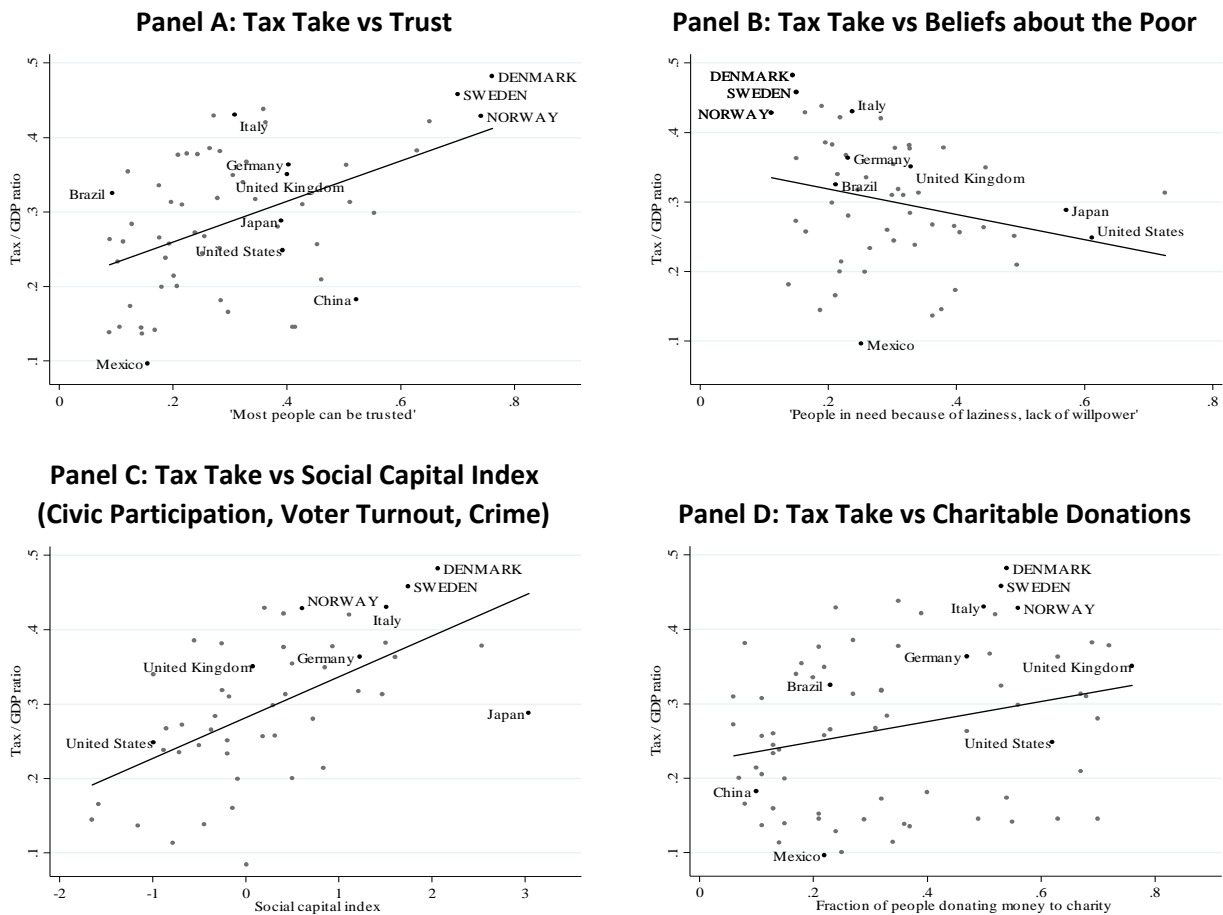### Panel B: Female Employment Rate vs Participation Net-of-Tax Rate
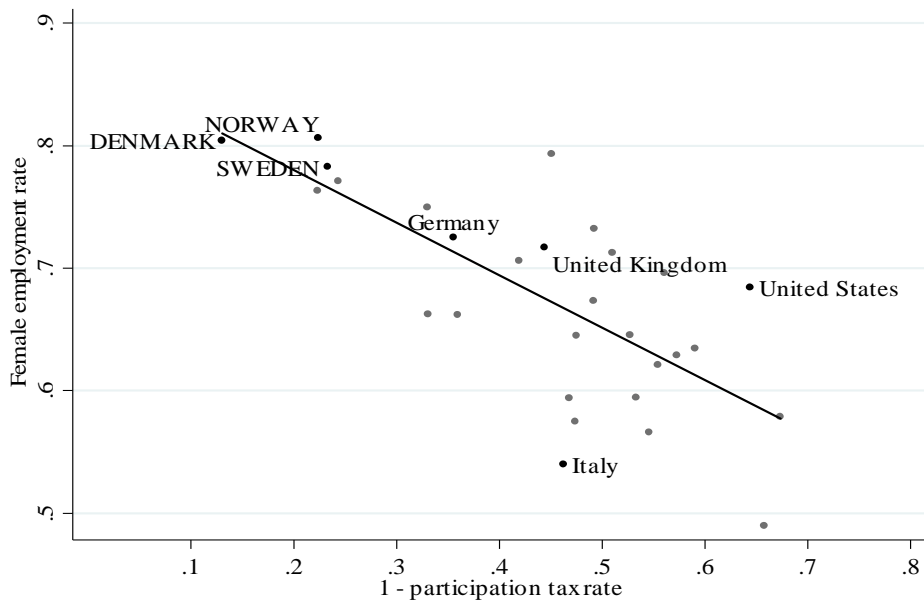
Notes: Country-level observations, latest available year. Non-OECD countries are excluded. The y-axes depict employment rates among those aged 20-59 for the full population in Panel A and for the female population in Panel B (source: OECD Labor Force Statistics). The x-axes depict the net-of-tax rate on participation as defined in equation (1) and calculated using the methodology described in the notes to Figure A1 in the appendix. Regression line is plotted in each panel.

Figure 5: Employment Rate vs Participation Subsidies across Countries

Panel A: Employment Rate vs Participation Subsidies

Panel B: Female Employment Rate vs Participation Subsidies

Notes: Country-level observations, latest available year. Non-OECD countries are excluded. The y-axes depict employment rates among those aged 20-59 for the full population in Panel A and for the female population in Panel B (source: OECD Labor Force Statistics). The x-axes depict participation subsidies (as a fraction of labor income), defined as public expenditures on child-care, pre-school, and elderly care. Regression line is plotted in each panel.

Figure 6: Tax Take vs Social and Cultural Indicators across Countries

Panel A: Tax Take vs Trust

Panel B: Tax Take vs Beliefs about the Poor

Panel C: Tax Take vs Social Capital Index
(Civic Participation, Voter Turnout, Crime)


Panel D: Tax Take vs Charitable Donations

Notes: Country-level observations, latest available year. Countries with GDP per capita below $5000 (in 2005 PPP terms) or natural resource rents as a fraction of GDP above 20% are excluded from the sample. Tax/GDP ratio is the share of tax revenue in a given country's nominal GDP in 2012 (source: Index of Economic Freedom, Heritage Foundation). Panel A: weighted-average survey response to the question of whether most people can be trusted, on a binary scale (source: WVS). Panel B: weighted-average survey response to the question of whether people live in need because of laziness or lack of willpower, or because of circumstances beyond individual control (injustice, luck, etc.). Panel C: social capital index is obtained from a principal component analysis of the following variables: 1) civic participation: weighted-average of a binary indicator for active membership of an organization (latest available year, source: WVS, various waves), 2) average voter turnout in elections held after 2000, excluding the European Parliament elections (source: Voter Turnout Database, IDEA), and 3) the inverse of the homicide rate (latest available year, source: UNODC). Panel C includes only democratic countries, defined as those with a Polity2 score above zero (source: Polity IV). Panel D: share of people donating money to charitable organizations in 2012 (source: World Giving Index, Charities Aid Foundation). Regression line is plotted in each panel.

Figure A1: Macro-Based vs Micro-Based Participation Tax Rates across Countries

Panel A: Micro-Based Participation Tax Rates on Average Worker
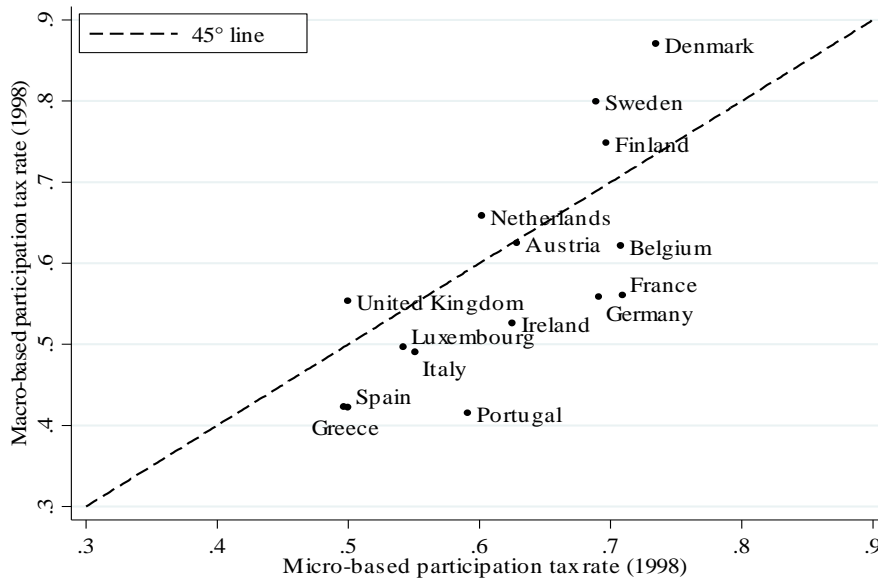

Panel B: Micro-Based Participation Tax Rates in Bottom-Three Earnings Deciles
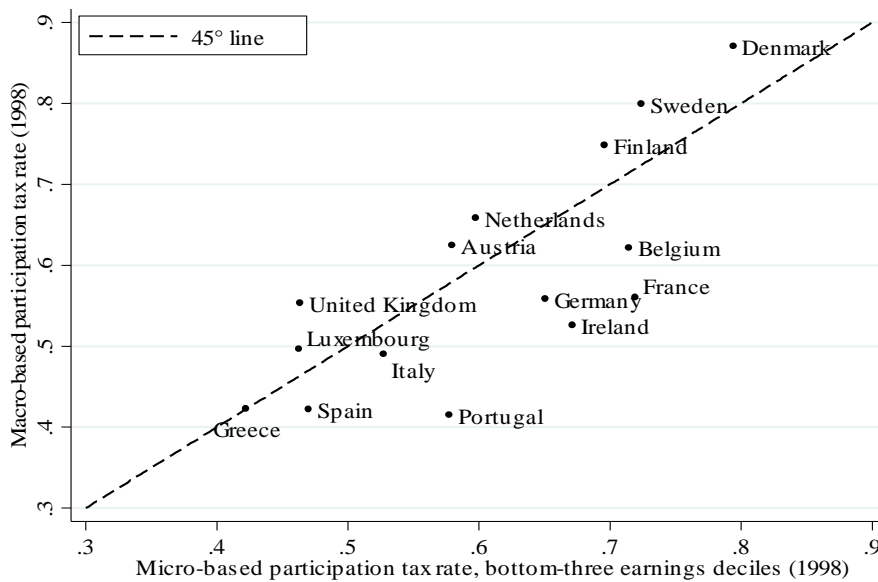

Notes: The figure compares macro-based participation tax rates (on the y-axis) to micro-based participation tax rates from Immervoll et al (2007) (on the x-axis). The micro tax rates are available for 15 countries in 1998, so the figure considers macro tax rates for the same countries and year. The macro tax rates are calculated according to equation (1) in footnote 2, with the different tax and benefit rates in the formula estimated using OECD Revenue Statistics, OECD Social Expenditure Statistics, and OECD National Accounts. In particular, referring to OECD tax classification numbers, the consumption tax rate is calculated as (5110+5121+5123+5126+5128+5211)/(C-GW-5110-5121-5123-5126-5128-5211), where C is national consumption (household and government), GW denotes government wage outlays, and 5110 = general consumption taxes, 5121 = excise taxes, 5123 = customs and imports, 5126 = taxes on specific goods, 5128 = other taxes on specific goods and services, and 5211 = household motor vehicle taxes. The income tax rate is calcuated as (1110)/W, where W is aggregate labor income and 1110 = taxes on income and profits of individuals. The payroll tax rate on employees (workers) is calculated as (2100+2300+2400)/W, where 2100 = social security contributions by employees, 2300 = social security contributions by self-employed or non-employed, and 2400 = unallocable social security contributions. The payroll tax rate on employers (firms) is calculated as (2200+3000)/W, where 2200 = social security contributions by employers and 3000 = taxes on payroll and workforce. The benefit rate is calculated as (B/(1-P))/(W/P), where B denotes aggregate expenditures on means-tested and work-tested transfers and P is the employment rate between ages 20-59. We include in B all social assistance benefits (in cash and in kind), housing assistance, unemployment insurance, and disability insurance. Panel A considers an earnings-weighted average of micro tax rates in the full population of each country, while Panel B considers an earnings-weighted average of micro tax rates in the bottom three earnings deciles of each country.

Figure A2: Participation Tax Rates and Employment Elasticity

Panel A: Participation Tax Rates and Employment Elasticity
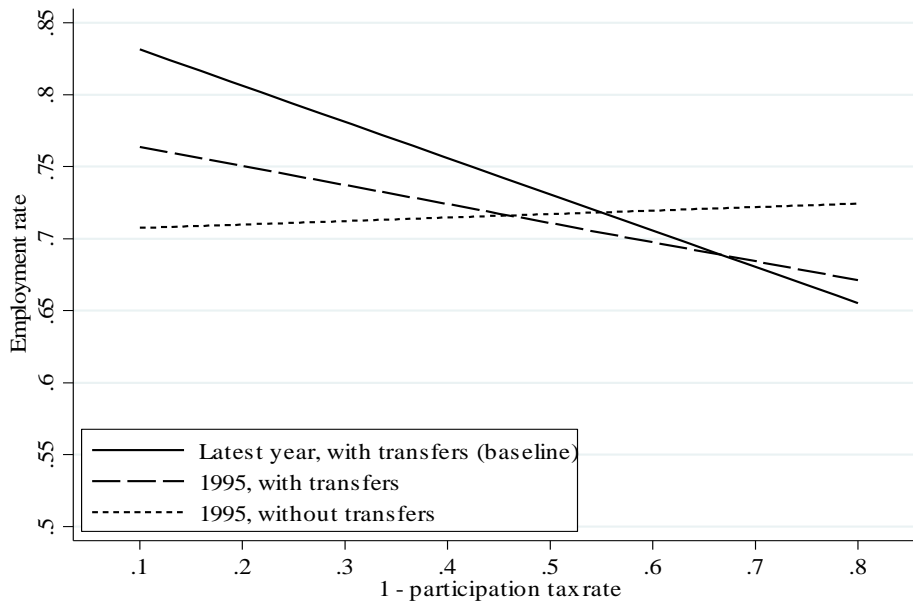

Panel B: Participation Tax Rates and Female Employment Elasticity
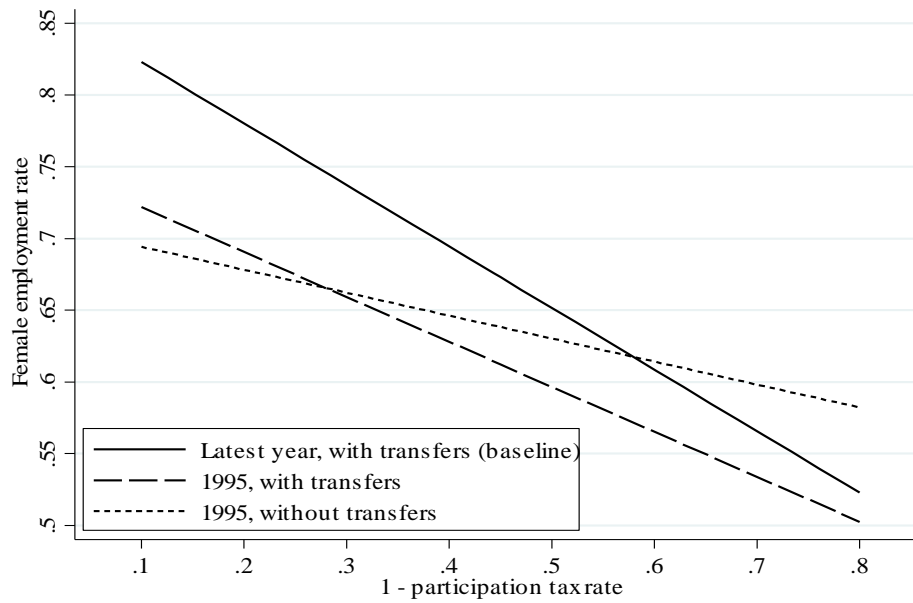
Notes: The figure shows how the cross-country relationship between the employment rate and the net-of-tax rate on participation changes when we consider a different year (latest available year vs 1995) and/or a different method of measuring the participation tax rate. The solid line corresponds to the regression line shown in Figure 4: we consider the latest available year (2009 or 2010 for most countries) and the participation tax rate accounts for the effect of social transfers as in equation (1) in footnote 2. The long-dashed line is instead based on data from 1995, but the participation tax rate still accounts for transfers as in equation (1). The short-dashed line uses data from 1995 and at the same time drops transfers from the calculation of the participation tax rate (equation (1) without the benefit rate b).

Figure A3: Average Annual Hours Worked vs Top Marginal Net-of-Tax Rate
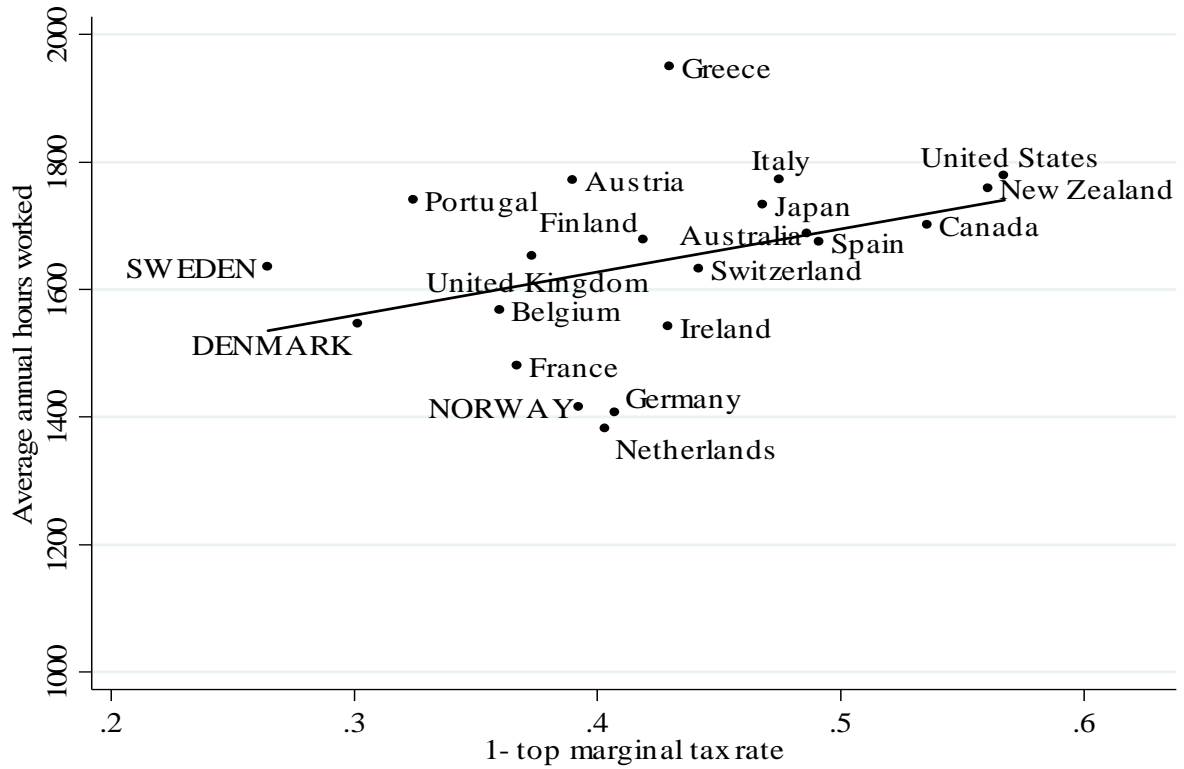
Notes: Country-level observations, latest available year (2008, 2010, or 2011). The y-axis depicts average annual hours worked among the employed population (source: OECD Labor Force Statistics). The x-axis depicts top marginal tax rates (sources: Kleven, Landais, and Saez 2013; Piketty, Saez, and Stantcheva 2014).