



## Taxes and Economic Growth: Implications for German Tax Reform

By Richard Vedder and Jonathan Robe

Munich, 7. December 2009

## Imprint



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## Preface

### It is time for a tax reform in Germany

High taxes massively lower the rate of economic growth, lower effective after-tax wages, and thus the wealth of people. The longer governments place high tax burdens on their population the higher are the losses in wealth.

This recent study by Professor Richard K. Vedder and Jonathan Robe delivers ample evidence, that high taxes are not only in theory significantly negatively correlated with economic growth (e. g. as illustrated in the Laffer curve). Rather, comparing the States with high tax burdens and the States with low tax burdens in the United States and also the high tax states and the low tax states of the OECD countries this study proves this strong negative correlation.

This study leaves no doubt: A cross-country analysis shows that Germany is a country with a high tax burden. Thus, Germany has not been able to exploit its potential for economic growth for many years now. If Germany wants to cope with its enormous present and future challenges in fiscal policy it has to dramatically lower its tax burden. Germany as sample of a country with a high tax burden shows: Tax cuts are beneficial. They allow higher economic growth and higher tax revenues in the long run. Tax cuts and higher tax revenues are not a contradiction. Quite the contrary! It is high time for Germany to act.

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## Greeting

# Message from the study "Taxation and Economic Growth: Implication for German Tax Reform" by Professor Richard Vedder, Ph.D.

No question on economic policy is currently under more debate than the one on shortand medium-term taxation policies in Germany.

The fundamental problem is clear to everyone involved: First, we need to strengthen the clear contours - fortunately – of an apparent economic recovery, not weaken it. Second, we must keep the interests of future generations firmly on our minds by acknowledging the fact that fiscal consolidation is an integral part of a prudent and responsible policy.

Taking a stance on fiscal policy, we will have to continue providing a targeted stimulus to the strengthening of economic growth, while also taking timely action on the problem of budget consolidation. This is a problem that will continue to confront us in the next fiscal years – no doubt an economic and fiscal balancing act.

If we keep in mind the fact that lasting and effective debt reduction and budget consolidation can be achieved primarily through economic growth, the question of how taxation and economic growth relate to each other becomes absolutely imperative.

This study conducted by the respected, prize-winning economist Richard Vedder, Ph.D., professor at the University of Ohio, dwells on the key issue confronting Germany at the current stage of the economic cycle.

It examines in particular the positive effects tax cuts have on economic growth, how tax cuts enhance the motivation to add value and how these impact on the total tax revenue situation.

Thus, the study by Professor Richard Vedder provides conclusions for Germany, which, when seen in the context of the tightrope act outlined above, provide vital recommendations for German tax policy in this and in subsequent years.

Munich, 7. December 2009

Franz Josef Pschierer Minister of State of the Bavarian Ministry of Finance

### Introduction

All governments require resources to carry out their missions, and the chief source of revenue is taxation. Taxes can be looked at as the "price" of government services. When governments are large, as they are in Europe and indeed in all industrialized economies, taxes are typically large as well, and they may impact significantly on economic behavior For example, if workers offer their labor services in greater amounts when the wage they receive is higher, taxes that lower the effective after-tax wage of workers can have the unintended effects of lowering also the quantity of labor provided –and in the process, this will lower output and the rate of economic growth. On the other hand, it is at least theoretically possible that government services financed by taxes could increase economic growth. In reality, what is the greater effect ---do taxes increase of decrease the rate of economic growth? A review of the evidence shows that in modern advanced economies, higher taxes almost always result in lower rates of economic growth.

## The Relationship Between Tax Burdens and Economic Welfare

The Laffer Curve is a well-known theoretical example of the negative effects high tax rates can have on tax revenues. The basic concept underpinning the Laffer Curve is that lower tax rates provide incentives for further economic growth which higher tax rates in effect discourage. As growth occurs, tax revenues (at the lower tax rates) will increase. For this reason, the Laffer Curve can be used more generally to depict the relationship between taxes and economic growth: higher taxes, other things equal, tend to discourage additional growth while lower taxes offer an incentive for growth because private entities can reap higher rewards for their economic activities.

A modified version of the Laffer Curve, shown in Figure 1, says that while tax burdens imposed by a government can vary from 0 to 100% of income or output, there is some tax rate which will be associated with maximum economic growth. Tax burdens of either 0% (no government) or 100% (complete confiscatory taxes) allow for essentially no economic growth, or, for that matter, income creation at all, and neither option is desirable. At a tax rate of zero, there is no way of creating or enforcing a rule of law, protect owners of private property, etc. At a tax rate of 100 percent, there are absolutely no incentives to work, save or invest -the government keeps everything. Thus extreme tax policies lower economic growth. The trick is to find the solution where growth is maximized. As Figure 1 shows, establishing taxes where none previously existed to a point actually increases economic growth, but there comes a point (shown by point *n* in Figure 1) where increasing taxation actually discourages and hampers growth, well before the 100% tax burden is reached.<sup>2</sup> Any tax rates which are above this point are said to be in the "prohibitive range" according to Laffer (2004), because tax rates which are any higher lead to a decrease in economic growth. It is the central argument of this paper that, in general, governments in western societies today are operating in this

<sup>&</sup>lt;sup>2</sup> It should be noted that although Figure 1 depicts the location of point *n* at a 50% tax rate, the Laffer Curve only states that there is some tax rate between 0% and 100% where economic growth is maximized. This point may actually be closer to 0% than to 100%.

prohibitive range, where tax increases are associated with lower rates of economic growth.



Figure 1: Relationship Between Tax Rates and Economic Growth

There is a substantial body of academic literature which supports the Laffer Curve's depiction of the relationship between tax burdens and economic growth. A significant portion of this literature has analyzed the evidence in the United States. In what was possibly the earliest empirical study on the effects that increases in the state and local tax burden have on economic growth, Genetski and Chin (1978) found that states which had increased their tax burdens experience slow growth while decreases in tax burdens was associate with above average rates of growth. Further research, confirmed these results, including that done by Vedder (1981, 1995) for the Joint Economic Committee of the United States Congress.

Some studies, such as Laffer (2004) have examined the effects of specific tax cuts in the U.S. income tax rates, concluding that reductions in the tax rates are correlated with higher economic growth once the lower rates have become effective.

In order to assess the full extent of tax burdens on economic activity, some researchers have calculated the "excess burden" of higher tax rates. The excess burden of taxes (also referred to as "deadweight loss") is the "loss in welfare over and above what people transfer to the government in taxes" Carroll (2009). In other words, not only do taxes take from people resources which they would have used to purchase some other goods and services but higher tax rates also provide a disincentive for higher levels of production. According to a recent study conducted for the Tax Foundation in the United States concluded that the excess burden for the income tax in 2009 was 11.4% of the total income tax revenue. Thus, the total tax burden was actually considerably more than just the income tax revenues collected by the government.

Other studies have detailed how higher tax burdens affect more than output growth. For instance, Cox and McMahon (2009) found that the massive out-migration of residents of New York State to other locales in the United States during the 1990s and up to 2008 is

largely attributable to high state and local tax burden in that state relative to the U.S. average. McGrattan and Prescott (2001) concluded that significant decreases in the U.S. income tax rates are an important factor in explaining the rise in corporate equity wealth between 1962 and 2000.

Studies have also assessed the effect on economic growth using cross-country data. For instance, Lee and Gordon (2005) found that "statutory corporate tax rates are significantly negatively correlated with economic growth" for 70 countries during the period 1970-2007, perhaps because lower corporate tax rates, other things equal, are an incentive for entrepreneurial activities. This strong correlation has led even researchers such as Jones and Tsutsumi (2008) who advocate for increases in taxation to grudgingly admit that lower corporate tax rates facilitate economic expansion. One researcher, specifically analyzing the effect the German tax burden has on U.S. investment in Germnay, concluded that tax reforms reducing this burden would make Germany more competitive for U.S. investments. (Spengel 1999)

More recent cross-country analysis by Furceri and Karra (2009) found that for the twenty-six countries examined from 1965 to 2007, the effect of "an increase in taxes on real GDP is negative and persistent: an increase in the total tax rate by 1% of GDP has a long-run effect on real GDP per capita of -0.5% to -1%." Higher rates of taxation also have a negative effect on the labor supply. Prescott (2004), a winner of the Nobel Memorial Prize in Economics, found that the most important factor for explaining why Americans work more hours during a year than do Europeans was the lower rate of tax burdens in the United States.

Over a decade ago, Engen and Skinner (1996) attempting to quantify the growth effects of reductions in tax burdens for the U.S., predicted that a reduction of marginal tax rate by 5 percentage points and of average tax rates by 2.5 percentage points would "increase long term growth rates by between 0.2 and 0.3 percentage points," a year, which compounded over time would imply a major impact on living standards.

Other research examining the "deadweight loss" due to higher rates of taxation has shown that adverse effects result from higher tax rates on both labor income and on investment income. In fact, Feldstein (2006) found that higher rates of taxation on investment income distort the labor supply by "reduc[ing] the future consumption that results from more work today." Thus, although Feldstein notes that U.S. tax rates have indeed fallen over time, the high marginal rates which remain introduce economic inefficiencies for investment and labor decisions.

There is evidence which suggests that different forms of taxation have different effects on economic growth. A cross-country analysis done by Engen and Skinner (1996) confirmed the general view that income taxes have a more negative effect on growth trends than consumption based taxes, for instance. This same study also found that capital income taxes also had a stronger negative effect than consumption tax rates, across countries.

An analysis of the effects higher tax burdens on labor supply in the Dutch economy by Bovenberg, Graafland, and de Mooij (1998) found that tax cuts in higher tax brackets

improve both the quantity and quality of the labor supply, though the researchers concluded that the tax cuts were not as effective in cutting unemployment. These studies are merely representative samples from a vast literature showing that high taxes typically have an adverse effect on economic growth.

### **Evidence from the United States**

The United States and Germany, at a basic level, share some commonalities in their governmental structures. Both countries have a federal structure set up in their constitutional frameworks. Although this similarity is limited in extent, it suggests that an analysis of tax policies at the different levels of government in the United States can yield applicable lessons for the German system. By looking at the tax policies of the state and local governments in the United States, general conclusions can be drawn from the empirical evidence which may be valid for the German *Länder*. These generalizations are in addition to the conclusions that can be drawn at the national level between these two countries.

Half a century ago, economists did not generally hold to the view that taxes have a significant impact on economic behavior; in fact, one expert in the field of public finance once declared that research "suggests very strongly that the tax effects cannot be of major importance" for business location Due (1961). A similar conclusion was drawn by Oakland (1978) in a survey of the literature. However, by the early 1970s, a growing body of economic research found that taxation does have an important effect on economic behavior in the United States. Much of this research culminated in the political ascendancy of "supply-side" economics in the 1980s and the tax reform policies of U.S. President Ronald Reagan.

The misery index, as an economic indicator, was developed by the economist Arthur Okun. This measure, the sum of the annual rates of unemployment and inflation, posits that both high levels of unemployment and high inflation rates pose significant threats to overall economic growth, particularly when both the rate of unemployment and that of inflation are simultaneously high. Over the past half century, the misery index in the United States has averaged about 10%, with a maximum of over 20% occurring in 1980 (roughly the midpoint in this period).

One way to augment the misery index is to account for annual GDP growth. While higher rates of inflation and unemployment increase the "misery" (and therefore decrease the well-being) of people, higher rates of annual GDP growth would increase the well-being of people and therefore decrease their "misery." The augmented misery index, then, is the sum of the rates of inflation and unemployment less the annual rate of GDP growth. This adjusted misery index for the United States and its change over time is shown in Figure 2.

According to this measure, the economic outlook was poor in 1980 when the adjusted misery index exceeded 20% and reached its lowest in 1965, the only year during this period when it was actually negative and also the first year in which the tax cuts under President Kennedy took effect which reduced the maximum income tax rates for the

U.S. from 91 to 70 percent. Since 1980, although there have been some fluctuations in the adjusted misery index, in the long-run it has been relatively low, only exceeding 7% during the recession which occurred in the early 1990s. At this writing, the possibility of a relatively high misery index for 2009 looks very good.



Figure 2: Adjusted Misery Index for the United States (1960-2007)

*Sources*: The Economic Report of the President, United States Bureau of Labor Statistics

Importantly, from 1967 to 1980, the misery index rose substantially, increasing from 6.9% in 1967 to well over 20% in 1980, a period in which the maximum income tax rate for the national income tax rate was 70%. By 1982, the maximum tax rate had decreased to 50% and continued to decrease in the long-run over the next two

decades, a period which saw a marked general decline in the misery index from just over 20% to 7.4%. In 1988 the maximum federal U.S. income tax rate had decreased to 28% (the lowest it had been in the United States since 1931) but had increased to 35% by 2007. Thus, over the past three decades, the top national income tax rate in the United States was slashed in half—from 70% to 35%. Surely it is not mere coincidence that the U.S. misery index declined markedly during the same period that saw a 50% reduction in the top national income tax rates.

#### Domestic Migration and the Income Tax

"Quality of life" is difficult to measure with any accuracy, but some social indicators can be used to approximately gauge the perceived quality of life. Migration in general serves as a good measure of the "revealed preferences" people have for those places which they view as having superior quality of life. Those places which have net in-migration (more people migrating into the area than out of it) are those locations which are viewed as providing a higher quality of life compared to those regions which have net outmigration. Domestic migration (within a single national political entity) provides even clearer picture on peoples revealed preferences because it assumes that other possible variables affecting migration decisions may be held equal. Analyzing domestic migration rates in federal national entities such as the United States or Germany are particularly useful because of the striking regional differences existing throughout countries such as these.

In the United States, there are marked differences between the States regarding tax policy. Particularly notable is that some state governments have no income taxes, while other states derive 40 percent or more of their tax revenues from this source. Although the vast majority of the American States do, in fact, have income taxes (and mostly progressive income taxes at that), nine States do not.<sup>3</sup> The evidence shows that Americans prefer those States without income taxes over those States which do. For instance, from April 2000 to June 2008, U.S. governmental records indicate that 2,854,000 people moved from income tax States to non-income tax States; this is shown in Figure 3. When given a choice, it appears that Americans strongly prefer to live without an income tax than with one.



Figure 3: Domestic Migration within the United States and Income Tax Incidence (2000-2008)

Sources: U.S. Census Bureau, IRS

Of course, income taxes are not the only form of taxation imposed upon people by law. Expanding the analysis to include the full tax burden will show more broadly how taxes impact the lives and economic activities of Americans.

<sup>&</sup>lt;sup>3</sup> According to the Internal Revenue Service of the United States government, 9 states (18% of all states) have no income tax, including: Alaska, Florida, Nevada, New Hampshire, South Dakota, Texas, Tennessee, Washington, and Wyoming. See http://www.irs.gov/efile/article/0,,id=130684,00.html.

#### Top 10/Bottom 10 tax states in terms of taxes

Comparing the economic performances of those states with the highest tax burdens and those states with the lowest burdens is a relatively simple method for determining the impact of taxes on income growth (and other economic indicators) within the United States. According to the Tax Foundation, the state and local tax burden is defined as the percentage of income that is paid to any state or local government in the United States. Thus, the tax burden includes not only income taxes but also consumption, property and other forms of taxes. If increased tax burdens are detrimental to economic growth and to the quality of life, then it would be expected that, other things equal, those State in the U.S. with lower tax burdens would have relatively higher income growth, thus performing better economically. This does indeed is the case when high tax States are compared to low tax States.

The effect of taxes on migration patterns can be expanded by comparing migration trends over a period of years with the average tax burden during that same period. Because the latest domestic migration data from the U.S. Census Bureau covers the years 2000-2008, the average tax burden during this period will be used for the comparison. During this nine year period, the 10 states with the highest average tax burdens were Ohio, Hawaii, Maine, Maryland, Wisconsin, California, Rhode Island, Connecticut, New Jersey and New York, and the 10 States with the lowest average tax burdens were Alaska, Nevada, Wyoming, New Hampshire, South Dakota, Florida, Tennessee, Texas, Alabama and Montana.

The data shows that the same trend which applies to the state income tax also applies to the state tax burden in general, i.e., other things equal, people prefer to live in those jurisdictions which have lower tax burdens). The net domestic migration rate<sup>4</sup> (for the period of April 2000 to June 2008) for the 10 U.S. states with the lowest tax burden is highly positive while that for the 10 states with the highest tax burdens is highly negative. Figure 4 shows this stark contrast between high tax burdens and low tax burdens: the rate for the high tax states was almost equal in magnitude but opposite in direction from the rate for the low tax states.

<sup>&</sup>lt;sup>4</sup> Net domestic migration rates are defined as the ratio of net domestic migration for the entire period divided by the actual population (in thousands) at the start of the period. Thus, a net domestic migration of 1 indicates that for every thousand persons originally in the jurisdiction, 1 person more moved into that area than moved out. A net domestic migration rate of -1 indicates that one person more left than moved in for every thousand originally there.





Sources: The Tax Foundation, U.S. Census Bureau

The effect high tax burdens have on long-term economic growth can be investigated by taking the average tax burden over a much longer period of time. Instead of looking at the average tax burden over only a nine year period, looking at the average tax burden over a thirty year period (1977-2008) can show whether or not high taxes have a positive or negative effect on growth in the long-run.

From 1977 to 2008 only 10 of the States in the U.S. increased their tax burden, and the national average state/local tax burden fell from 10.3% in 1977 to 9.7% in 2008. The ten states with the highest average tax burden over this same thirty-one year period include: Rhode Island, California, Idaho, Connecticut, Maryland, Hawaii, Minnesota, New Jersey, Wisconsin and New York. During this same period, the 10 States with the lowest average tax burdens were: Alaska, Nevada, Wyoming, New Hampshire, Florida, Louisiana, Texas, Tennessee, South Dakota and Alabama.

The growth in incomes is a good measure to assess the economic performance of these states; however, there are two different measures of income growth which can be used: the growth in inflation adjusted (real) total personal income and the growth in real per capita personal income, which takes into account the change in population. The growth in real total incomes is "a better indicator of overall economic change" but the growth in real per capita personal income is "the better measure of income available for individuals for consumption and other uses."<sup>5</sup>

As Figure 5 shows, the growth in real total personal income for the 10 lowest tax States was substantially higher than the growth for the 10 highest tax States. In fact, the growth in the low tax States (123% from 1977-2008) was above the average growth for

<sup>&</sup>lt;sup>5</sup> Vedder, Richard. September 2001. "Taxes and Economic Growth." Cedarburg, Wisconsin: Taxpayers Network Inc.

the United States as a whole (U.S. growth in real total personal income growth was 112%) while the growth in the 10 high States was clearly below average (104% during this same period).



Figure 5: Growth in Real Total Personal Income for 10 Lowest and 10 Highest Tax States (1977-2008)

Source: United States Bureau of Economic Analysis

With respect to per capita income growth, the results are similar for the high and low tax states, although both groups outperformed the national average. We would note that high in-migration into the low tax states led to population growth that tended to temporarily reduce per capita income<sup>6</sup>. This is supported by Figure 6. While nationally, the United States population grew by 38% from 1977-2008, the low tax States grew by 46% and the high tax States grew by less than 27%. Basically, these data are further confirmation of the picture painted by the domestic migration data for the United States discussed previously: those states which have low tax burdens grow faster economically which is likely a major factor in driving migration patterns. Although population growth slows per capita income growth in the short run, it is not possible without growth in total personal incomes.

<sup>&</sup>lt;sup>6</sup> When persons migrate into an area, they do not necessarily earn income (or less income) at the moment they move. It sometimes takes time for them to fully establish themselves, for their wives (or husbands) to find a job, etc. Also of course, migrant families tend to be young, meaning they are still in fairly lower earnings jobs – and they tend to have a number of non-income producing children.



Figure 6: Growth in Population for 10 Lowest and 10 Highest Tax States (1977-2008)

Source: United States Bureau of Economic Analysis

If we expand this analysis to include all of the states and look at the 25 States with the lowest tax burdens and the 25 States with the highest tax burdens, similar results hold for income growth. For instance, for the 25 States with low average tax burdens, real personal income growth was 130% from 1977-2008 compared to only 97% for the 25 States with high average tax burdens. In fact, real per capita income growth in the 25 low tax States (52.5%) was also slightly greater than that for the 25 high tax states (50.9%) during the same period.

### Income Growth and the Income Tax

The negative impact the income tax has on income growth appears to be even stronger than the effect of taxes in general. The median growth in income from 1977 to 2008 for the nine states which have no income tax rate was substantially higher than the income growth for the states which have income taxes. Interestingly enough, the states with no income taxes saw much higher growth both in real total income and also in real per capita income despite the fact that the population growth in the states with no income taxes were much higher than the population growth in the states which have income taxes. Figure 7 shows the difference in growth in real total personal income while Figure 9 shows the comparison in growth for real per capita income.

The negative impact of the income tax specifically on total income growth is stronger than the negative impact of taxes in general. Furthermore, the income tax has a strong negative relationship to per capita income tax as well.



Figure 7: Growth in Real Total Personal Income (1977-2008) for States with No Income Tax and States with an Income Tax

*Sources*: United States Internal Revenue Service, United States Bureau of Economic Analysis





*Sources*: United States Internal Revenue Service, United States Bureau of Economic Analysis

### Economic Growth Model

The simple analysis to this point is easy to understand but subject to the criticism that non-tax factors not included in the analysis may be the true cause of the observed relationships. In order to account for other factors which influence economic growth, the effect of higher tax burdens on growth can be analyzed using more sophisticated techniques. Regression analysis confirms the relationship between tax burdens and growth that was previously shown using simpler analysis. As Table 1 shows, both overall tax burden and increases in tax burden are negatively correlated with economic growth, defined as the percentage growth in real per capita income (RPCI).

Model 46: OLS, using observations 1-48							
Dependent variable: RPCI_Growth19							
	coefficient	std. error	t-ratio	p-value			
const	2.16302	0.300673	7.194	1.01E-08			
Tax Burden (1977)	-4.79085	1.66964	-2.869	0.0065			
Increase in Tax Burden (1977- 2008)	-5.03242	1.86583	-2.697	0.0102			
Population Growth	-0.08337	0.03207	-2.6	0.013			
Total Land Area	-7.35E-07	3.14E-07	-2.346	0.024			
BA Attainment	2.89182	0.452882	6.385	1.36E-07			
HS Attainment	-1.76714	0.347723	-5.082	9.11E-06			
Average Unemployment	-0.05059	0.014456	-3.5	0.0012			
Mean dependent var	0.545509	S.D. dependent var	0.14212				
Sum squared resid	0.312634	S.E. of regression	0.088407				
R-squared	0.670674	Adjusted R- squared	0.613042				
F(7,40)	11.63717	P-value(F)	5.83E-08				
Log-likelihood	52.70513	Akaike criterion	-89.4103				
Schwarz criterion	-74.4406	Hannan-Quinn	-83.7532				

#### Table 1: Regression Results

Sources: See text

The analysis includes non-tax variables such as population growth, physical characteristics of the areas examined (land area), measures of educational attainment, and unemployment rates –in addition to tax variables –the average tax burden at the beginning of the period examined, as well as the change in that burden over the 31 years examined. Data are for the 48 geographically contiguous American states. Strong and statistically significant negative relationships are observed between both of the tax variables and per capita income growth. Compare two states, one with a 9 and the other with a 10 percent state and local tax burden (as a percent of personal income). Suppose the low tax state lowered its burden further to 8.5 percent over the 1977 to 2008 period, while the high tax state raised it burden from 10 to 11 percent. We would predict, other things remaining the same between the two states, that the state with the

low and declining taxes would have over a 12 percentage point increase in per capita income relative to the high and rising tax state –for example, the difference between 48 and 60 percent. Supposed both states had per capita income in 1977 equal to \$22,000 2008 U.S. dollars. The model predicts the high and rising tax state would have income in 2008 of \$32,560, compared with \$35,200 in the low and falling tax state. The low tax state would gain an income advantage of \$2,640 per person –over \$10,500 (well over 7,000 Euros) for a family of four.

In short, taxes matter. Not only do they matter, but they matter a great deal. Moreover, there is reason to believe that the impact might be even higher in Europe, where the overall tax burden is considerably higher than in the United States, and nations are further away from the growth-maximizing size suggested by Figure 1.

## **Overview of Europe and OECD**

Over the past several decades, some tax *rates* in European countries, particularly on income, have fallen somewhat, probably in recognition of the economically debilitating effect of high marginal tax rates on economic growth, although the extent of the decline varies from country to country. Despite this decrease in tax rates, some countries in Europe continue to have some of the highest tax burdens in the world. Table 2 shows the decline in personal income tax rates from 1979 to 2007 while Table 3 shows the decline in corporate income tax rates from 1981 to 2009.<sup>7</sup> Rising VAT and other taxes offset in many cases the impact of falling marginal tax rates.

<sup>&</sup>lt;sup>7</sup> Due to limitations in the available data, not all current OECD countries are included in both of these tables. Some countries included in one table may not be available in the other due to lack of available data for these years.

Country	1979 Rate	2007 Rate
Mexico	55%	28.0%
Korea	89.3%	38.5%
Luxembourg	58.4%	38.9%
New Zealand	60%	39.0%
Greece	60%	40.0%
Norway	75.4%	40.0%
United Kingdom	83%	40.0%
Ireland	60%	41.0%
United States	70%	41.4%
Portugal	80%	42.0%
Switzerland	41%	42.1%
Spain	65.5%	43.0%
Italy	72%	44.9%
Canada	61.9%	46.4%
Australia	61.5%	46.5%
Germany	56%	47.5%
France	60%	47.8%
Austria	62%	50.0%
Japan	93%	50.0%
Finland	51%	50.5%
Netherlands	72%	52.0%
Belgium	76.3%	53.5%
Sweden	86.5%	56.5%
Denmark	66%	59.7%

# Table 2: Top Personal Income Tax Ratesin Selected OECD Countries

Source: The Tax Policy Center

Country	1981 Rate	2009 Rate
Ireland	45.0%	12.5%
Switzerland	33.0%	21.2%
Austria	55.0%	25.0%
Denmark	40.0%	25.0%
Greece	45.0%	25.0%
Netherlands	48.0%	25.5%
Finland	61.5%	26.0%
Sweden	57.8%	26.3%
Portugal	49.0%	26.5%
Italy	36.3%	27.5%
Mexico	42.0%	28.0%
Norway	50.8%	28.0%
United Kingdom	52.0%	28.0%
Australia	46.0%	30.0%
New Zealand	45.0%	30.0%
Spain	33.0%	30.0%
Germany	60.0%	30.2%
Canada	50.9%	31.3%
Belgium	48.0%	34.0%
France	50.0%	34.4%
United States	49.7%	39.1%

# Table 3: Top Corporate Income Tax Rates in Selected OECD Countries

Source: OECD

Although it is true that tax *rates* have fallen over the past three decades in OECD countries, since 1970, tax revenues, as a percentage of GDP, have risen in all of the OECD countries. Thus, while tax rates have fallen throughout the OECD, the total tax burden on the economies of these various countries has actually risen over time. In fact, according to the statistics published by the OECD, total tax revenues as a percentage of national GDP has increased from 27.5% in 1970 to 32.9% in 2006.

### Top 5/ Bottom 5 tax countries

The top and bottom tax countries for the OECD are determined by taking the five year average of tax revenues as a percentage of GDP for the period 1970-2006. This average provides a measure for the tax burden on the economy at large for each country in the OECD. The five countries with the highest average tax burdens (Denmark, Sweden, Belgium, Finland, and France) are the top tax countries while the five with the lowest burdens (Mexico, Turkey, Korea, Japan, and the United States) are the bottom five tax countries. The average tax burdens for all of the OECD countries are shown in Table 4:

Country	1970 Tax Revenues as Percentage of GDP	2006 Tax Revenues as Percentage of GDP	Average (1970- 2006)
Turkey	9.3%	24.5%	16.4%
Korea	12.5% <sup>8</sup>	26.8%	19.1%
Japan	19.6%	27.9%	25.8%
Greece	20.0%	31.3%	26.2%
Switzerland	19.3%	29.6%	26.2%
United States	27.0%	28.0%	26.8%
Portugal	18.4%	35.7%	27.3%
Australia	21.5%	30.6%	27.6%
Spain	15.9%	36.6%	28.1%
Ireland	28.4%	31.9%	31.8%
Iceland	27.4%	41.5%	32.8%
New Zealand	25.9%	36.7%	32.9%
OECD average	27.5%	35.9%	32.9%
Canada	30.9%	33.3%	33.5%
Italy	25.7%	42.1%	35.3%
Luxembourg	23.5%	35.9%	35.5%
United Kingdom	37.0%	37.1%	35.5%
Germany	31.5%	35.6%	35.7%
Austria	33.9%	41.7%	40.1%
Finland	31.5%	43.5%	40.9%
France	34.1%	44.2%	40.9%
Netherlands	35.6%	39.3%	41.0%
Norway	34.5%	43.9%	41.4%
Belgium	33.9%	44.5%	42.3%
Denmark	38.4%	49.1%	45.6%
Sweden	37.8%	49.1%	47.3%

### Table 4: Average Tax Burden for the OECD Countries

Source: OECD

In order to assess the effects of tax burdens on OECD countries, the economic trends in the top tax countries can be compared to the trends in the low tax countries.

<sup>&</sup>lt;sup>8</sup> The 1970 figure for tax revenue for Korea is the 1972 figure since no figure is reported by the OECD for 1970.

As Figure 9 shows, the annual GDP growth rate for the five low tax countries was much higher than the annual growth rate for the five high tax countries: 4.0% compared to 2.8%. Countries with lower taxes appear to be experiencing higher growth rates. However, these data are severely limited. After all, many different factors, only one of which is taxation, may affect a single year's output and growth rates. In order to take the many year-to-year variations into account, it is better to examine GDP growth over a longer period of time.

Because the tax data cover the period from 1970 to 2006, it is convenient to look at the growth in real GDP over that entire period. The results, shown in Figure 10, confirm that lower taxation is correlated with higher economic growth while higher taxation is correlated with lower economic growth. In terms of real total output, countries which have lower average tax burdens experienced growth of over 132% from 1970 to 2007 while those countries which are high tax experienced only 89% growth over those same thirty-seven years. The combined total output of the five low tax countries far exceeded the combined total output of the five high tax countries at the beginning of this period, so the higher growth in the low tax countries means that the gap in combined total output between these two groups of five countries actually grew over time.



Figure 9: 2007 Annual GDP Growth Rate for 5 Low Tax Countries vs. 5 High Tax Countries

Source: OECD



Figure 10: Growth in Real GDP (1970-2007) for 5 Low Tax Countries vs. 5 High Tax Countries

It is also important to examine the effect taxes have on per capita output in these countries. The data show that on a per capita basis, growth in GDP in the five low tax countries exceeds the growth in the five high tax countries during the period 1970-2007, as Figure 11 shows. Looking at the growth in per capita output rose 89.1% in the low tax countries while it grew only 71.6% in the high tax countries. It should, of course, be noted that per capita GDP during this period was higher in the five high tax countries than it was in the five low tax countries and remained so in 2007. However, the higher growth in per capita GDP for the low tax countries means that the gap in per capita output between the high and the low tax countries fell over time as the low tax countries increased in per capita wealth over this period.

Source: OECD



# Figure 11: Growth in Real Per Capita GDP (1970-2007) for 5 Low Tax Countries vs. 5 High Tax Countries

The available data from the OECD for measuring migration trends is somewhat limited, but the data which do exist suggest that when people have a choice about where to live, generally they prefer to live in jurisdictions with lower tax burdens. Thus, a comparison of the migration trends between countries gives similar results to those found from the comparison of domestic migration trends between the various states of the United States as stated earlier. During the seventeen years from 1990 to 2007, over 17 million foreigners moved to one of the five low tax countries while only 2.7 million moved to one of the five high tax countries. See Figure 12.

There are several limitations to these data which makes this analysis between countries weaker than the analysis of the United States. First, these date only account for inflows, not net migration and therefore do not take outflows into account. Second, these data are for a limited time span-less than half of the period for which we have data on taxes or GDP for the OECD countries. Despite these limitations, the large gap between inflows, however, remains evidence that taxes are an important factor in personal migration decisions.

Source: OECD



Figure 12: In-migration of Foreign Population (1990-2007) for 5 Low Tax Countries vs. 5 High Tax Countries (in Millions of People)

Source: OECD

The evidence also shows that taxes influence foreign investment. As Figure 13 shows, in 2006 inflows of foreign direct investment (in US dollars) was \$22 billion for the five low tax countries but only \$18.8 billion for the high tax states. These data suggest that higher taxes probably discourage foreign investment because they raise the cost of that investment. Other things equal, investors prefer to invest in jurisdictions where the cost of the investment is lower and where they can expect higher returns on their investments after taxation is taken into account.

In fact, Ireland's relatively high growth in recent decades (though the global economic downturn has hit that country particularly hard) relied heavily on foreign investment. When Ireland dramatically cut its corporate income tax rate, foreign investment flocked to Ireland, causing tremendous growth in that historically low growth country. We return to that later in the paper.



Figure 13: Foreign Direct Investment: 2006 Inflows for 5 Low Tax Countries vs. 5 High Tax Countries (in Billions of US Dollars)<sup>9</sup>

Countries with lower taxes also appear to have lower unemployment rates. As Figure 14 shows the unemployment rate in the five low tax countries was lower than the unemployment rates in the five high tax countries or in OECD countries as a whole. One important reason why lower tax countries have lower unemployment is that lower taxes provide an incentive to increase employment; with fewer resources absorbed by taxation, employers have more resources to invest in hiring more workers who are actively seeking productive employment.



Figure 14: Median Unemployment Rates for 5 Low Tax Countries vs. 5 High Tax Countries<sup>10</sup>

<sup>&</sup>lt;sup>9</sup> The data are in 2006 U.S. Dollars. Currency conversions were made using Purchasing Power Parity. <sup>10</sup> The unemployment rates used for each country were calculated by taking the five year average of the annual unemployment rates for 2003-2007.

Taxation also seems to have a high effect on the number of hours worked by average workers. As Figure 15 shows, *the average worker in 2007 in the five low tax countries works 17% more hours each year than an average worker in the five high tax countries.* The average worker in the high tax countries works less than both the five low tax countries and the OECD average. While workers in the low tax countries worked about 3% more than the OECD average, average workers in the high tax countries worked nearly 15% fewer hours per year than the OECD average. These data suggest that higher taxes decrease the quantity of labor supplied and the amount of time workers are actually engaged in productive labor (at least that labor which is reported), while lower taxes remove that disincentive and instead are associated with a higher level of total work, consistent with the writings of Nobel laureate Edward Prescott and others.



Figure 15: Total Hours Worked per Year per Worked in 2007 for 5 Low Tax Countries vs. 5 High Tax Countries

## US and Germany vs. OECD average

As Table 4 showed, the German tax burden (measured as the proportion of GDP absorbed in tax revenues) exceeds the OECD average. The United States, on the other hand, is a relatively low tax country (in fact, it was one of the five low tax countries discussed in the previous section). In order to illustrate the negative impact of higher taxes on German economic growth, the economic performance of the United States and Germany will be compared to the OECD average during the time period from 1970 to 2007. The data clearly show that the United States has enjoyed much higher levels of economic growth as a low tax country compared to the growth in relatively higher taxed Germany over this thirty-seven year period.

From 1970 to 2007, average growth in real GDP for OECD countries was 75%. But, as Figure 16 shows, growth varied widely by country: the lowest growth rates were below 25% while the fastest growing nation during this period (Korea) grew by almost 500%. Interestingly enough, the two fastest growing countries were Korea and Ireland. The next two fastest growing countries—Norway and Luxembourg—are outliers because of the peculiar factors which have contributed to their growth (Norway relies heavily on oil revenues while Luxembourg is something of a tax haven in Europe). As will be discussed in further detail later on, Korea is one of the five lowest tax countries throughout this period and much of Ireland's growth during this period occurred while it was slashing tax rates, particularly the corporate income tax until it became one of the lowest tax countries in the OECD.



Figure 16: Growth in Real GDP per Capita for OECD Countries (1970-2007)

During this period, the growth for Germany in particular (69%) was below the OECD average but also marginally lower than the growth in the United States (70%). However, during this entire period, Germany's level of economic production per capita was significantly below the United States, meaning that in absolute terms, the growth in the United States far outpaced the growth in Germany. Figure 20 shows that per capita GDP (in real U.S. dollars) in the United States went from \$27,000 in 1970 to nearly \$46,000 by 2007—an increase of \$19,000 per person in thirty-seven years. On the other hand, German real per capita production increased from just over \$20,000 to \$34,000—an increase of \$14,000 per person. It is, however, true that Germany's level

of per capita production remained above the OECD, but the gap between Germany and the OECD average was smaller in 2007 than it was in 1970.



Figure 17: Real GDP per Capita for Germany and the United States (1970-2007)<sup>11</sup>

Over the past four decades, tax revenues as a percentage of GDP in the United States have generally been lower than the OECD average (only a few other countries, including Korea, Mexico, and Turkey have consistently been even lower than the United States during this period. While the level of taxation in the United States economy was essentially equal to the OECD average in 1970, the long-term trend for the United States was a significant decline relative to the OECD average from 1970 to 2007. During this thirty-seven year period, tax revenues as a percentage of GDP rose from 27.5% to 28.3% in the United States, but the OECD average rose much faster from 27.5% to 35.9%.<sup>12</sup> In contrast to this downward trend in the United States relative to the average, Germany has historically been much higher than average, though in recent years tax revenues as a percentage of GDP has fallen to roughly the average, as Figure 18 shows.

<sup>&</sup>lt;sup>11</sup> The data are in 2007 U.S. Dollars. Currency conversions were made using Purchasing Power Parity. <sup>12</sup> It should be noted that the 35.9% OECD average figure is actually for 2006, not 2007. The OECD has not yet made available the OECD average for 2007, though an estimate using provisional data for the OECD countries in 2007 is that the 2007 OECD average is 36.6%.



## Figure 18: Total Tax Revenue as a Percentage of GDP for Germany and the United States (1970-2007)

Nobel Laureate Edward Prescott has argued that the reason Americans work more now than their European counterparts is the direct result of the lower tax burden on American workers.<sup>13</sup> In fact, Prescott (2009) found that "virtually all the large differences between the U.S. labor supply and those of German and France are due to differences in tax systems." In other words, workers in Germany and France worked less than their American counterparts primarily because tax rates in America were lower than the tax rates in those two European countries.

As Figure 19 shows, in 1970 the average American worker worked fewer hours per year than the OECD average, by the mid-1990s, the United States work hours was average compared to other OECD countries and by 2007, the United States was above average in annual hours worked. Interestingly enough, during this period when the trend in the U.S. was upward relative to the OECD average, the average for Germany dramatically fell relative to the average. While in 1970 the average German employee spent 71 more hours annually working than the typical American worker, in 2007 the average American worker worked 361 hours (over 45 8-hour work days) more than his German counterpart.

These data indicate that during the same period in which the tax burden (taxes as a percentage of GDP) in Germany increased relative to the U.S. tax burden, there was a corresponding decline in the German labor pool relative to the American labor pool. This decline in available labor was not so much due to a decline in the actual labor force in

<sup>&</sup>lt;sup>13</sup> Edward C. Prescott, "Why Do Americans Work More Than Europeans?" *Wall Street Journal*, October 21, 2004.

Germany but was rather a marked decline in the amount of labor (measured in time) that the average worker in Germany would provide. It appears that, other things equal, higher taxes increase the marginal cost of working additional hours. Workers therefore substitute other activities for the time they could have spent in productive labor.





Similar generalizations drawn from an analysis of the effect taxes on hours worked can also be made regarding the nature of labor force. In other words, the same negative effect taxes have on hours worked can also apply to the percentage of people in the workforce who are unable to obtain gainful employment. An examination of the workforce in Germany and the United States is a study of contrasts; while the unemployment rate in the United States generally was falling over this period, the unemployment rate in Germany was actually increasing, as shown in Figure 20. Rising unemployment rates indicate that the marginal cost of finding and maintaining a job exceed the marginal benefits of working for more and more workers, no doubt as a consequence of the impact of high taxes on the after tax pay of workers on the one hand, and the large tax-financed benefits provided to unemployed workers on the other.

It is true that nations with an extensive welfare state and generous unemployment benefits require extensive tax revenues to fund such programs. In this sense, others may argue that it is not really the tax burden, per se, which causes the growth in unemployment but it is rather the high unemployment which necessitates increasing the tax burden to subsidize those who cannot find productive employment. But this argument fails to consider that by shifting resources from the private sector to the public welfare system, any potential gains in the private sector are crowded out because of that government enforced resource shift.

Source: OECD

Thus, in reality, it is entirely possible that lowering the tax burden will eventually lead to a decrease in the unemployment rate. When fewer resources are crowded out from the private sector and reallocated into government programs, there is greater incentive for the private sector to be more productive. As the private sector grows, unemployment can fall because marginal benefit of hiring additional workers increases. This appears to be exactly what happened in the United States since 1980. While the top marginal income tax rates began falling in the United States in the early 1980s, the unemployment rate for the United States began an overall decline over the next twentyseven years; by 2007, the unemployment rate in the U.S. was less than half of what it was in 1982. In contrast, the unemployment rate in Germany doubled between 1992 (following the reunification of Germany after the Cold War) and 2007. Thus, the trend in Germany was almost exactly the opposite of the trend in the United States.



Figure 20: Unemployment Rates in Germany and the United States (1982-2007)

Figure 21shows the tax burden on the average worker in Germany, compared with the OECD average tax burden as well as the United States from 2000-2007 (this is the only period for which these data are available from the OECD database). Not only is the tax burden for the German worker significantly above the burden for the American worker, it is also significantly higher than the OECD average. During this eight year period, the German tax burden ranged from 54% in 2000 to 52.2% in 2007 while the OECD average tax burden remained slightly lower than 38% and the U.S. tax burden was never higher than 30.4%. In fact, during this period, only two OECD countries had higher tax burdens on the average worker than Germany: Belgium (55.5% in 2007) and Hungary (54.4% in 2007). Several countries, including Korea, had extremely below-average tax burdens which never exceeded 20% during this period.





Labor is the most important factor of production. High unemployment and low numbers of working hours means that Germany is utilizing its potential human resources at a low rate relative to other nations, in large part because of destructive tax policies. The failure of labor resources to grow over time almost certainly is a major factor in the very low rate of economic growth in Germany relative to such other industrialized nations as the United States, China, and even such European neighbors as Ireland or even Great Britain.

## Tale of Two Countries: Ireland vs. Sweden

When it comes to taxes and economic growth, Ireland and Sweden are nearly complete opposites: one has seen a relative decline in income coupled with its high tax burden while the other has seen significant increase in income once it lowered its tax rates. Laffer (2004) has used the example of Ireland as empirical confirmation of the theory embodied in the Laffer Curve. *Changes in Tax Burden* 

Historically, Sweden was one of the first countries to move towards the welfare state, and its acceptance of a large governmental role in the provision of social services and individual income security has gone farther than almost any other nation. Indicative of the welfare state in Sweden is its unusually high tax burden. From 1970-2007, total tax revenues as a percentage of GDP have been significantly higher in Sweden than for the average OECD country. Not only was the tax burden in Sweden high in 1970, but over

the next four decades, that burden continued to rise. As of 2007, taxes absorbed nearly 50% of the Swedish GDP while tax revenues were only 35% of GDP for the OECD average for this year; the gap between the Swedish tax burden and the OECD average tax burden has grown over time.

In contrast to the Swedish trend of increasing the tax burden, Ireland has seen a decline in its overall tax burden relative to the OECD average.. The increase in the Irish tax burden was relatively modest, as it increased from 28.5% in 1970 to 32.2% in 2007. However, since 1994 the Irish tax burden has actually fallen, reaching the lowest point it has been during this period in 2002.



Figure 22: Total Tax Revenue as a Percentage of GDP for Ireland and Sweden (1970-2007)

### Economic growth: The Irish Explosion

In 1970, per capita production was twice as high in Sweden as it was in Ireland. Sweden was also substantially higher on a per capita income basis than the OECD average—Sweden was 32% higher than average. In contrast, Ireland's level of per capita GDP was substantially below the OECD average and less than half the level prevailing in Sweden. By European standards, Sweden was a rich country, Ireland a poor one. From 1970 to 2007, Sweden, Ireland and the OECD in general exhibited economic growth, but economic growth was far higher in the OECD (75%) than in Sweden (48%), but both growth rates paled compared with the explosive of Ireland. Between 1970 and 2007, Ireland experienced 265% growth in per capita GDP. Although it was below average in 1970, by the mid 1990s, Irish per capita income and output creation exceeded the OECD average and by the dawn of the 21<sup>st</sup> century, Ireland surpassed Sweden. As of 2007, Irish per capita GDP was 38% higher than the OECD average and even 23% higher than Sweden (see Figure 23).



Figure 23: Real GDP per Capita for Ireland and Sweden (1970-2007)<sup>14</sup>

<sup>&</sup>lt;sup>14</sup> Data are in 2007 U.S. Dollars. Currency conversions were made using Purchasing Power Parity.

#### Unemployment and Migration

In the early 1980s, the unemployment rate in Ireland was very high and climbing, in both absolute terms and relative to the OECD average. In 1985, the unemployment rate in Ireland was nearly 17%, roughly two-and-a-half times the average unemployment rate in OECD countries (6.7%) and almost six times higher than the very low unemployment rate (2.9%) for Sweden. However, the Irish unemployment rate saw a precipitous decline from 1994, falling from 14.4% to 4.7% in 2007.

The trend in Sweden was in the opposite direction. In 1990, the Swedish unemployment rate was 1.7% but rose to 9.9% by 1997. Over the next decade, the Swedish fell back down to 6.2% in 2007 but was slightly higher than the OECD average. In 2007, the unemployment rate in Sweden was over 20% higher than the unemployment rate in Ireland.



Figure 24: Unemployment Rates in Ireland and Sweden (1982-2007)

Source: OECD

The tax burden on the average worker in Sweden has been much higher than the tax burden on the average Irish worker since the turn of the century. In 2000, taxes were 50% of the labor cost in Sweden, compared to only 25.8% in Ireland and 37.5% for the OECD average. Although from 2000-2007 the tax burden on the average worker in Sweden declined relative to the OECD average (which remained fairly constant during this period), the decline in Ireland was even greater: by 2007 the Swedish burden was 45.4% but only 22.3% in Ireland. That year the tax burden on the average worker in the OECD was 37.5%. In Ireland, where the tax burden was half that of Sweden, unemployment went from being substantially greater than in Sweden to being substantially smaller. Tax reductions created job opportunities in Ireland, while high

taxation reduced job opportunities in Sweden. Tax reduction benefited not only the affluent, but those marginal individuals for whom obtaining employment is difficult (see Figure 25 for details).



## Figure 25: Taxes on the Average Worker as a Percentage of Labor Cost in Ireland and Sweden (2000-2007)

Net migration trends for Ireland from 1970-2007 have had large up and down swings over the past decades; in fact, for a substantial portion of this period (1978-1990) the net migration rate for Ireland was actually negative (see Figure 26). What is particularly significant about the Irish net-migration trends from the late 1980s to 2007, more people moved into Ireland than moved out of the country. Historically, Ireland has experienced massive out-migration. In fact, the infamous "Potato Famine" of the mid 19<sup>th</sup> century was a major factor in causing people to move from Ireland and resulting in the Irish population sinking since then. However, with the draw of lower corporate tax rates and a reduction in the overall tax burden, it appears that people actually view Ireland favorably as a place to live. During the period when Ireland saw sharp increases in its net-migration rate, Sweden saw no effective change, indicating that since implementing its tax reductions, people increasingly viewed the Irish quality of life as superior to the Swedish quality of life.



Figure 26: Net Migration Rate per 1000 Inhabitants for Ireland and Sweden (1970-2007)<sup>15</sup>

 $<sup>\</sup>overline{^{15}}$  A smooth curve has been fitted to the data in Figure 26.

## Conclusions

Government has grown beyond the size that allows for full expression of human entrepreneurial talent and productivity. Therefore, governments that increase taxes to finance their operations increasingly imposing negative economic impacts on their own citizens. Areas in the world - the United States is an example, Hong Kong, Korea and Singapore are others - that have maintained relatively low taxes have prospered more than areas that have raised taxes aggressively. There are no free lunches in this world - well intended programs of the German welfare state that received its beginnings with Chancellor Otto von Bismarck over a century ago may seem humane and nice - but the burden they often place on workers and investors are great, lowering work effort, investment spending and therefore output and incomes.

The private sector strives to be efficient because it is competitive and market-driven, and higher profits arising from greater efficiency produce high financial rewards.

Governments are more monopolists, less impacted by competition, without the "bottom line" of profits or the incentives to be efficient. Higher taxes take resources from the highly productive private sector and give them to the less productive public one. It is no surprise then that this results in lower economic growth.

The evidence is clear: taxes matter, they indeed matter a great deal, and Germany would be well advised to learn the lessons of lower tax jurisdictions like Ireland or even the United States in determining its future government fiscal policies.

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