

# **In Face of Public Debt Buildups: Is Social Spending Sustainable in the Long Run?**

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## I. INTRODUCTION

Say that you are burdened by debt. The initial amount of your loan was used to purchase your house. As long as the price of your house stays high or even better, is on a continuous rise, then you can be in a financially sustainable state – at least in the short run. However, if the price of your house falls, or if you make further loans with your income remaining the same, you are not considered to be in a sustainable position. In this light, the concept of sustainability used in this paper does not reflect the typical image of a “green environment”, but rather signifies something that is long-term, permanent, robust and healthy.

Nowadays, many of the advanced industrial countries face unprecedented levels of public debt. These incredible levels of central government debt have been looming larger and larger over the recent decades. As Table 1 illustrates, the level of public debt as percentage of GDP almost doubled in America and in the European periphery. In the US, the central government debt as percentage of GDP grew from 33.9 in 2000 to 61.3 in 2010; in the UK, the same figure grew from 42.2 to 85.5; in Ireland, it grew from 34.8 to 60.7; in Portugal, it grew from 52.1 to 88.0; and in Greece, it grew from 108.9 to 147.8. For Japan, this figure is more serious, as its central government debt, as measured by percentage of GDP, grew from 106.1 in 2000 to 164.5 in 2005. Even in South Korea, a country traditionally considered to be debt-free, the level of public debt is growing. The figure grew from 16.7 in 2000 to 31.9 in 2010.

Conventional wisdom dictates that such mounting levels of public debt are due to the increases in government spending on social programs. Numerous political economists have documented the simultaneous rise of government expenditure on welfare programs and levels of public debt over the past decades. In particular, Alesina and Perotti (1995) focus on the productivity and commitment aspects of welfare spending, in order to show that the governments' social expenditures inevitably lead to public debt buildups. Indeed, it seems to be the case that current public debt buildups are occurring more in affluent countries, where there are extensive welfare programs, than in the developing countries where social protection provided by the government is meager. According to IMF's latest Fiscal Monitor, the ratio of aggregate debt to aggregate GDP, for the emerging market economies, fell from 28 percent in 2007 to 21 percent in 2011, while the corresponding ratio for the advanced industrial economies rose from 46 percent in 2007 to 70 percent in 2011<sup>1</sup>.

However, this paper raises the question whether government spending on social programs necessarily leads us to an unsustainable end. Specifically, my question is, does government spending throughout all social policy areas uniformly lead to public debt buildups, or does it have different impacts on levels of public debt depending on the nature of the policy area? For instance, it seems intuitive and clear that social spending on pensions and unemployment benefits would lead to high levels of public debt, as the populations targeted by these programs are usually not productive in the economical sense. On the other hand, it is hard to understand

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<sup>1</sup> Fiscal Monitor, April 2011 and June 2011 Update.

why government spending to support individuals to keep their jobs and remain in employment should lead to growth in public debt.

Accordingly, I hypothesize that although government spending on social programs targeted to the *unemployed* may contribute to growing levels of public debt, government spending on social programs targeted to the *employed* do not necessarily lead to public debt buildups. Using two different kinds of dataset for the OECD countries, I will conduct a rigorous statistical analysis to test the hypothesis. Findings are in support of the hypothesis. Regression results show that while government spending on social programs, targeted to the unemployed, have positive contributing effects on the levels of public debt, government spending on social programs, targeted to the employed, have negative reducing effects on the levels of public debt. In other words, government spending on social programs targeted to the employed, such as parental leave compensation and day care services, do not cause the public debt to buildup, but instead it helps reduce the levels of public debt. Hence, this paper deems that government spending on social programs targeted to the employed is sustainable in the long run.

The rest of this paper is organized as follows: conventional understanding of the relationship between social spending and public debt is elaborated in Section 2; then, I state my hypothesis in Section 3; methodology and data are described in Section 4; and findings are summarized in Section 5. The last section concludes.

## II. THE CONVENTIONAL UNDERSTANDING

Before I elaborate on the conventional understanding of how government spending on social programs contributes to the growth in public debt, I will first explain why public debt buildups are unsustainable in the long run. There are three reasons why increasing levels of public debt paint an unsustainable future ahead of us.

First, with high levels of public debt, continuous economic growth cannot be sustained. Recent studies show that central government debt increases the long-term interest rate, thereby discouraging investment activities and hampering economic growth. Most notably, Ardagna et al. (2004) use a panel of 16 OECD countries over several decades to investigate the effects of government budget deficits and public debt on the long-term interest rates. In simple static specifications, Ardagna et al. (2004) find that one-percentage-point increase in the primary budget deficit, as measured by percentage of GDP, raises the long-term interest rates by 10 basis points. In a vector autoregression, the corresponding shock leads to a cumulative increase of almost 150 basis points. Similarly, for countries with above-average levels of public debt, the authors show that an increase in the level of central government debt raises the long-term interest rates. Such effects on long-term interest rates are problematic, as high interest rates discourage investment and growth and may also induce inflation. Indeed, this is why a country like Japan, whose government has accumulated exorbitant levels of public debt, experiences restrained investment and growth, with high price levels.

Secondly, increasing levels of public debt is unsustainable, as the issue of fiscal solvency is at stake and financial crisis may follow. In the short run, a country may sustain its public debt but as its level of public debt builds up exceedingly, other countries could deem that the troubled country would not be able to pay back its loans. Other countries are likely to start questioning about the troubled nation's fiscal solvency, and if the indebted nation loses its credibility, then other countries and foreign investors would withdraw money out of the troubled nation. Once this withdrawal occurs, and if the troubled country declares itself as insolvent, the contagious spiral of financial crisis occurs. In "Lost Decades", Chinn and Frieden (2010) explain that this was the scenario for the recent 2008 global financial crisis – only this time, the troubled nation was the US.

Lastly, in the globalized world today, even one country's precarious level of public debt can threaten the sustainability of the entire international financial structure. For instance, if the US government officially declares itself as insolvent, another giant financial crisis like the recent one in 2008 may occur. It is not unlikely that many would find fault with the current global financial system, harshly disparaging the IMF. Moreover, if the troubled countries in the European periphery, such as Greece, Ireland, and Portugal, also go into government bankruptcy, then the European Union and its entire system of common currency would be called for reevaluation<sup>2</sup>. The strengthening of surveillance mechanisms and fiscal reforms may not be enough, and the whole international financial structure may need to be revised.

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<sup>2</sup> [http://www.brookings.edu/articles/2011/0731\\_debt\\_burden\\_prasad.aspx](http://www.brookings.edu/articles/2011/0731_debt_burden_prasad.aspx)

Aforementioned reasons explain why the worsening public debt dynamics paint a sobering future ahead of us. The conventional wisdom dictates that the present growth of public debt levels is due to the increases in government spending on welfare programs. Political economists point out that the levels of public debt started to build up in OECD countries ever since the composition of government expenditures changed from government purchases of goods and services to government spending on social programs (Green, 1977; Roubini and Sachs, 1989; Grilli, Masciandaro, and Tabellini, 1991; Alesina and Perotti, 1995). In particular, Alesina and Perotti (1995) provide two chief mechanisms on how increases in government spending on welfare programs lead to growth in public debt.

One mechanism has the productivity aspect. Whereas the traditional government spending on goods and services carried productive aspect, government spending on welfare and transfer programs has no productive aspect. Instead, government spending on social spending only uses up the scarce government resources. In the long run, governments are bound to the fate of debt buildups and so, welfare programs are deemed to be unsustainable. Indeed, many critics of welfare states point out such unproductive aspect, when arguing that it should be the responsibility of the private sector – and not the public sector – to provide social protection for the workers in the economy.

The other mechanism, in which social spending leads to the accumulation of public debt, contains a commitment aspect. Alesina and Perotti (1995) argue that

because transfers are “notoriously more difficult to cut”<sup>3</sup>, the evolution of the composition of government expenditures makes fiscal adjustments in the face of high debts extremely challenging. Hence, even if the amounts of public debt are building up to exorbitant levels, governments cannot cut their spending on welfare, because of their commitment to many of these social programs. The social agreement between the people and the government is institutionalized, and the government cannot opt out of its provision for social protection<sup>4</sup>. In fact, this seems true for the American case today, as the country struggles with fiscal reforms that are at a standstill. In brief, the conventional wisdom claims that because social spending inevitably leads to public debt buildups, it is unsustainable in the long run.



### III. HYPOTHESIS

Though I am not arguing against the fact that high levels of public debt are unsustainable in the long run, I am questioning whether or not it is the case that government spending on all social programs uniformly contributes to the increase

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<sup>3</sup> Alesina, Alberto and Roberto Perotti. 1995. “Fiscal Expansions and Fiscal Adjustments in OECD Countries”. NBER Working Paper No. 5214 (August).

<sup>4</sup> Eichengreen, Barry. (1996). “Institutions and economic growth: Europe after World War II” in Nicholas Crafts and Gianni Toniolo (ed) *Economic growth in Europe, after 1945*. (Cambridge; New York : Cambridge University Press).



in levels of public debt. In this section, I make a crucial distinction amongst the main social programs. According to OECD Statistics, there are six main social programs: pensions, unemployment benefits, family allowances, active labor market policy, health care, and housing<sup>5</sup>. I categorize these social programs into two types, based on who is targeted by the program. The first group of programs – targeted to the unemployed – consists of pensions and unemployment benefits. The second group of programs – targeted to the employed – consists of family allowances and active labor market policies. It is ambiguous where health and housing programs would fit into, as they can benefit both the unemployed as well as the employed. Hence, I do not include these two programs into either one of these groups.

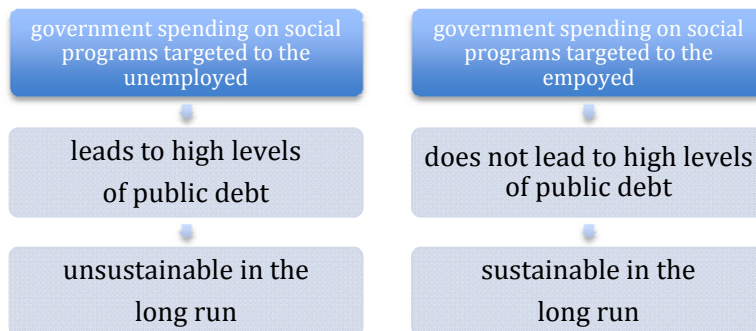
In terms of the effects of government's welfare spending on the levels of public debt, I hypothesize that government spending on social programs, targeted to the unemployed, lead to high levels of public debt and is thus unsustainable in the long run. By contrast, government spending on social programs, targeted to the employed, does not necessarily lead to high levels of public debt and is thus sustainable in the long run.

The reasoning behind such different impacts on levels of public debt is that while social programs targeted to the unemployed redistribute to those who are not economically productive, social programs targeted to the employed redistribute to those who are in the workforce and are thus productive. Whereas the old-aged and unemployed populations would not have the incentive to become productive, and would rely more heavily on the government, the employed workers would secure

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<sup>5</sup> <http://stats.oecd.org/index.aspx>

their jobs and remain productive, being able to pursue various services on their own and not through the government. The effects of government spending on health and housing programs are ambiguous; in fact, they may not have any impact on the levels of public debt.



## IV. METHODOLOGY AND DATA

### Statistical Analysis

To test my hypothesis stated in the previous section, I employ two different statistical analyses. The first one is the cross-country, multivariate OLS model. With the multivariate OLS model, I examine the effects of government spending in two types of social programs – one targeted to the unemployed and the other targeted to the employed – on the levels of public debt across the advanced economies. I use the following set of multivariate OLS regression equations in (a)-(b):

$$(a) \text{ Debt } i = \alpha_1 + \beta_1 \text{ Spending Targeted to Unemployed } i + \theta_1 \text{ Controls } i$$

$$(b) \text{ Debt } i = \alpha_2 + \beta_2 \text{ Spending Targeted to Employed } i + \theta_2 \text{ Controls } i$$

It is expected that  $\beta_1$  and  $\beta_2$  are different;  $\beta_1$  should be a positive value, as social spending on programs targeted to the unemployed would contribute positively to the levels of public debt, while  $\beta_2$  should be a negative value, since social spending on programs targeted to the employed would contribute negatively to the levels of public debt.

To examine whether the different effects of government spending in two types of social programs hold across countries *and* over time, I use a panel data and employ the country-fixed and time-fixed effects analysis. Theoretically, if some omitted variables are constant over time but vary across countries (i.e. attitudes towards social policy), while others are constant across countries but vary over time (i.e. international norms on redistribution), then it is appropriate to include both the country-fixed effects and time-fixed effects. This paper uses the following set of country-fixed and time-fixed effects regression equations in (c)-(d). Again, it is expected that  $\beta_1$  and  $\beta_2$  are different;  $\beta_1$  should be a positive value, while  $\beta_2$  should a negative value.

$$(c) \text{ Debt } it = \alpha_1 + \beta_1 \text{ Spending Targeted to Unemployed } it + a_i + b_t + \theta_1 \text{ Controls } it$$

$$(d) \text{ Debt } it = \alpha_2 + \beta_2 \text{ Spending Targeted to Employed } it + a_i + b_t + \theta_2 \text{ Controls } it$$

## **Data**

I use the country-level data for OECD countries available from the OECD statistics portal online. Although the present total number of OECD member countries is 34, four of these countries (Chile, Estonia, Israel, and Slovenia) gained membership just last year, in 2010, and so the country-level data are not available for these countries

in the years of my interest. As well, because not all the data were available for Turkey, the maximum number of countries studied in this paper is 29 countries.

The cross-country data used to estimate the multivariate OLS regression equations in (a)-(b) are for the year of 2007, which is the year when the latest data for cross-country levels of social expenditures is available. The panel data used to estimate the country-fixed and time-fixed effects regression equations in (c)-(d) are also for the same number of countries for the time period of 2000-2007. The following space is devoted to describe my dependent, independent, and control variables.

### **Dependent Variable**

#### **Debt**

I measure the level of public debt across OECD countries with the level of central government debt as percentage of GDP.

### **Independent Variables**

#### **Pension**

The pension program includes old age and early retirement pensions, other cash benefits and benefits in kind. The level of government spending on pension is measured as percentage of GDP.

#### **Unemployment Benefit**

Unemployment benefits include unemployment compensation, severance pay, social assistance, and other benefits in kind. The level of government spending on unemployment benefit is measured as percentage of GDP.

### **Family Allowance**

Family allowances include maternity and parental leave compensation, day care services, and other cash benefits as well as home help services. The level of government spending on family is measured as percentage of GDP.

### **Active Labor Market Policy**

Active labor market policy consists of training, employment incentives, start-up incentives, direct job creation, supported employment and rehabilitation. The level of government spending on this social policy area is measured as percentage of GDP.

### **Health**

The health program includes health insurance assistance and other benefits in kind. The level of government spending on health is measured as percentage of GDP.

### **Housing**

The housing program includes housing assistance and other benefits in kind. The level of government spending on housing is measured as percentage of GDP.

### **Control Variables**

#### **Income Tax**

When explaining the cross-country variation in the level of public debt, the variation in income tax rate across countries may matter. For instance, it may be the case that countries with higher income tax rates are less likely to accumulate public debt, as these countries simply have higher revenues, while countries with lower income tax rates are more likely to accumulate high levels of public debt, as they have lower revenues. I measure this variable with the average rate of income tax, based on the family type of single person at 100% of average earnings, with no child.

### **Total Spending**

As the average income tax rate, the total government spending may matter in explaining the cross-country variation in the level of public debt. For example, it may be the case that countries with high levels of government spending are more likely to accumulate high levels of public debt, as these countries simply have higher government expenditures, while those countries with low levels of government spending are less likely to accumulate public debt, as they have lower government expenditures. This control variable is measured in terms of total government expenditure as percentage of GDP.

### **Current Accounts**

Current accounts may matter in explaining the cross-country variation in levels of public debt, because it may be the case that countries with current accounts deficits have higher levels of public debt, while countries with current accounts surplus do not have high levels of public debt. I use the US-dollar converted and seasonally-adjusted measure of current accounts balance.

### **Unemployment**

Macroeconomic conditions may affect the levels of public debt. For instance, the unemployment rate may affect the levels of government spending on social programs, such as unemployment benefits, family allowances, and active labor market policies.

### **Inflation**

Like the unemployment rate, the inflation rate may affect the levels of public debt.

I measure the inflation rate with the consumer price index, for all items; it is the percentage change, on the same items, from the same period of the previous year.

### **Real GDP per Capita**

The income levels of countries may matter in explaining the cross-country variation in levels of public debt, because it may be the case that affluent countries have less public debt, while the not-so-affluent countries have higher levels of public debt. As there is a wide variation in the levels of real GDP per capita amongst the OECD countries, I include this variable to control for such income effects.

### **Population Growth**

Demographics may matter in explaining the cross-country variation in the level of public debt. For instance, it may be the case that countries with high population growth rates have high levels of public debt, while countries with lower population growth rates have lower levels of public debt. Hence, I control for the countries' population growth rates.

## **V. FINDINGS**

I estimated the multivariate OLS models in (a)-(b) and the regression results are reported in Table 2. In Table 2, columns (1) and (2) have levels of government spending on pension and unemployment benefit – the two social programs targeted to the unemployed – as my independent variables. Columns (3) and (4) have levels of government spending on family allowances and active labor market policies – or the two social programs targeted to the employed – as my independent variables.

As expected, the signs of the coefficients in front of the first two independent variables, government spending on pension and unemployment benefit, are positive. In contrast, the signs of the coefficients in front of the last two independent variables, government spending on family allowances and active labor market policies, are negative. However, the coefficients are statistically significant at the five percent level only in columns (1) and (3). Nonetheless, such finding that the effects of social spending on the levels of public debt are different, depending on to whom the benefits of the social program is targeted, is in support of my hypothesis.

This key finding shows that while government spending on social programs, targeted to unemployed, contribute positively to the levels of public debt, government spending on social programs, targeted to employed, actually reduces the levels of public debt. I changed my independent variables to government spending on health and housing assistance programs, and the regression results are reported in Table 3. The signs of the coefficients in front of the two independent variables are positive, but they are not statistically significant. Hence, the effects of government spending on social programs such as health and housing are ambiguous.

To ensure that my key finding holds across countries as well as over time, I estimated the country-fixed and time-fixed effects models in (c)-(d). The regression results are reported in Table 4. As in Table 2, the first two columns of Table 4 have levels of government spending on pension and unemployment benefit – the social programs targeted to the unemployed – as the independent variables. Likewise, columns (3) and (4) in Table 4 have levels of government spending on



family allowances and active labor market policies – or the social programs targeted to the employed – as the independent variables.

As shown in the first row of Table 4, the coefficient in front of the pension variable is a positive value and is statistically significant at the ten percent level. As well, the coefficient in front of the family allowance variable is a negative value and is statistically significant at the ten percent level. These additional findings, shown in Table 4, is in support of my hypothesis and further backs up the previous finding that while government spending on social programs, targeted to unemployed, increases levels of public debt, government spending on social programs, targeted to employed, reduces the levels of public debt.

One notable difference from the results in Table 2, however, is that the sign of the coefficient in front of the active labor market policy variable is positive in Table 4. This is not too surprising, as some components of the active labor market policy target the employed, while other components target the unemployed populations. For instance, policies like ‘supported employment’ surely target those who are already employed, other policies like ‘employment incentives’ target the unemployed individuals who need job training and incentives to enter employment. Nevertheless, as in Table 2, the coefficients in columns (2) and (4) of Table 4 are not statistically significant.

Table 5 reports the country-fixed and time fixed effects regression results, with government spending in health and housing assistance programs as the independent variables. As was the case in Table 3, the coefficients in front of the independent variables are not statistically significant. However, it is interesting to

note that in Table 5, the signs of these coefficients switched directions and are now negative. Again, the effects of government spending on social programs such as health and housing are unclear.

## **Robustness of Results**

To further ensure that I am capturing the differential effects of government spending on programs targeted to the unemployed and those targeted to the employed, as accurately as possible, I break down the social policy area of active labor market policy into two smaller spending areas. These areas are 1) 'supported employment' and, 2) 'employment incentives'. As mentioned above, the benefits of 'supported employment' are targeted to those individuals already in employment, while the benefits 'employment incentives' are targeted to those individuals not yet in employment and thus, in unemployment.

I use the levels of government spending in these two areas as my new independent variables and employ the multivariate OLS regression analyses. Unfortunately, I cannot run the country-fixed and time-fixed effects regression because I do not have a panel data, with these two areas as my new independent variables. Data for government spending in such micro-level areas are not provided across my set of OECD countries, over the time period 2000-2007.

The multivariate OLS regression results are reported in Table 6. As expected, the coefficient in front of the 'supported employment' variable is a negative value and is statistically significant at the five percent level. In contrast, the sign of the coefficient in front of the 'employment incentive' variable is positive, but it is not

statistically significant. Even though the coefficient in front of the ‘employment incentive’ variable was not statistically significant, the fact that the statistically significant negative sign of the coefficient in front of the ‘supported employment’ variable confirms that not all social spending contribute to the growth of public debt. In fact, government’s social spending to support those already in employment actually reduces the level of public debt and is thus deemed as sustainable in the long run.

I rerun all of my regressions using different measures of the control variables. In particular, I use a different measure of the income tax rate as well as the unemployment rate. For the case of the tax rate variable, I change the family basis of an average rate of income tax from ‘single person family with no children’ to ‘one-person earner family with two children’ as well as to ‘two-person earner family with two children’<sup>6</sup>. In addition, I change the measure of unemployment rates from ‘harmonized unemployment rates’ to ‘survey based unemployment rates’<sup>7</sup>. Nevertheless, the key finding that there are differential effects of governments’ social expenditure on the levels of public debt, depending on whom the policy is targeted to, is not altered. In the regressions that I re-ran, I found that government spending on social programs targeted to the unemployed lead to high levels of public debt, while government spending on social programs targeted to the employed reduce the levels of public debt.

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<sup>6</sup> Data is available at the OECD statistics portal in Social and Welfare Statistics.

<sup>7</sup> Data is available at the OECD statistics portal in Social and Welfare Statistics.

## VI. CONCLUSION

In this paper, I question against the conventional wisdom that government spending on social programs necessarily lead to public debt buildups, thereby making our future unsustainable. In particular, I ask whether or not government spending on all social programs uniformly contribute to the growth of public debt across OECD countries. In order to tackle this question, I first make the crucial distinction amongst the big social programs, depending on whom the policy is targeted to. I hypothesize that although government spending on social programs that target the unemployed lead to high levels of public debt, government spending on social programs that target the employed do not contribute to high levels of public debt.

Using the country-level data across 29 OECD countries, I employ both the multivariate OLS model and the panel regression model to test my hypothesis. The empirical evidence was in support of my hypothesis. The regression results indicate that while government spending on social programs, targeted to unemployed, contribute positively to the levels of public debt, government spending on social programs, targeted to employed, actually reduce the levels of public debt. From various kinds of robustness tests, I find that my key finding that government spending on social programs targeted to those already in employment does not lead to growth in public debt is robust.

The logic behind this different impact on the levels of public debt is that while social programs targeted to the unemployed redistribute to those who are not

productive, social programs targeted to the employed redistribute to those who are productive. Whereas the old-aged and unemployed populations do not have the incentive to become productive and instead rely more heavily on the government, burdening the government with debt buildups, the employed workers would keep their jobs, receive various services with their own earnings, and not otherwise claim government benefits. As social programs targeted to the employed increase the independence of individual households and decrease the degree of household reliance on the government, social policies like parental leave compensation, day care services, supported employment and rehabilitation are deemed to be desirable and sustainable in the long run.

The currently ongoing research at the Brookings Institute also demonstrates that federal subsidies for family planning have similarly sustainable aspects. In “An Ounce of Prevention”, Sawhill et al. (2010) find that an expansion in subsidies for family planning services would likely save taxpayers more than five dollars for every one dollar that the government spends. Sawhill et al. (2010) explain that public expenditure on family planning services more than pay for themselves, because publically financed contraception prevents unintended pregnancies, and preventing these pregnancies – even if they are simply delayed until the women in question have improved their financial situations – saves taxpayers’ money. The pregnancies that are prevented by publicly financed contraception also tend to involve low-income women who, if they were to become pregnant, would be

disproportionately likely to claim government benefits (Medicaid, welfare cash assistance, food stamps, and so forth) for themselves and their families<sup>8</sup>.

Overall, this paper hopes to serve as a guide for countries in face of public debt buildups to set their priorities in social expenditures well. If the level of government spending on social programs targeted to the unemployed is too high, then the central government should seriously consider cutting spending – even though there may be political costs. As it is found in this paper, social spending on pensions and unemployment benefits only increase the levels of public debt and are unsustainable. On the other hand, if the level of government spending on social programs targeted to the employed is too low, then the central government should continue to spend, or even increase its support on programs targeted to the employed. Government spending on welfare programs targeted to the employed does not lead to public debt buildups and is sustainable in the long run.

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<sup>8</sup> [http://www.brookings.edu/opinions/2011/0412\\_family\\_planning\\_thomas\\_sawhill.aspx](http://www.brookings.edu/opinions/2011/0412_family_planning_thomas_sawhill.aspx)

## Tables

**Table 1. Central Government Debt in OECD Countries, 1980-2010**

<b>Time Period</b>	<b>1980</b>	<b>1985</b>	<b>1990</b>	<b>1995</b>	<b>2000</b>	<b>2005</b>	<b>2010</b>
Australia	8.0	11.3	6.1	18.6	11.4	6.3	11.0
Austria	24.8	36.9	46.0	56.2	61.2	62.1	65.8
Belgium	53.5	97.3	106.7	113.8	99.5	91.8	96.8
Canada		41.0	46.6	56.8	40.9	30.3	36.1
Chile					13.6	7.3	9.2
Czech Rep				10.5	13.2	23.2	36.6
Denmark	34.6	69.9	62.4	74.9	54.8	39.3	39.6
Estonia					3.3	2.1	3.2
Finland			10.2	62.6	48.0	38.2	41.7
France				41.6	47.4	53.3	67.4
Germany	13.0	18.3	19.7	21.1	38.4	40.8	44.4
Greece				104.8	108.9	110.6	147.8
Hungary				82.4	54.1	58.1	73.9
Iceland	22.9	31.6	32.0	52.3	33.8	19.4	81.3
Ireland		104.6	86.8	72.2	34.8	23.5	60.7
Israel					83.4	92.1	74.7
Italy	52.7	77.2	92.8	113.1	103.6	97.7	109.0
Japan	37.1	48.6	47.0	65.2	106.1	164.5	
Korea	4.1	16.7	12.8	8.7	16.7	27.6	31.9
Luxembourg			1.8	2.6	3.2	0.8	12.6
Mexico	16.0	36.3	42.3	37.3	21.2	20.3	27.5
Netherlands	25.7	51.0	58.4	58.9	44.1	43.0	51.8
New Zealand				49.1	32.1	22.1	30.5
Norway		25.8	22.4	30.8	19.3	17.2	26.1
Poland				49.6	35.8	44.8	49.7
Portugal	29.2	51.6	51.7	60.1	52.1	66.2	88.0
Slovak Rep				19.0	23.9	33.1	39.1
Slovenia						26.9	36.0
Spain	14.3	38.2	36.5	52.4	49.9	36.4	51.7
Sweden	38.2	60.0	39.6	75.8	56.9	46.2	33.8
Switzerland			12.3	22.0	25.6	28.1	20.2
Turkey		14.8	10.8	13.0	38.2	51.1	42.9
UK					42.2	43.5	85.5
US	25.7	35.4	41.5	49.0	33.9	36.1	61.3

\*Data is from OECD statistics portal in the finance section.

**Table 2. Effects of Social Spending on Levels of Public Debt, by Policy Area (2007)**

	(1) Old Age Pension	(2) Unemployment Benefits	(3) Family Allowances	(4) Active Labor Market Policy
	11.81**	3.18	-24.84*	-57.99
	[3.60]	[14.68]	[11.88]	[35.35]
Income Tax	-0.534	-1.570	-0.785	-0.160
	[1.675]	[2.117]	[1.777]	[1.710]
Total Spending	-2.632	2.905	5.698*	4.932
	[2.423]	[2.102]	[2.214]	[2.561]
Current Accounts	-0.000018	0.000010	0.000042	0.000021
	[0.000021]	[0.000044]	[0.000050]	[0.000042]
Unemployment	-2.513	-2.854	-5.007	-2.754
	[2.392]	[3.946]	[3.395]	[3.491]
Inflation	3.382	0.507	6.662	-4.158
	[3.924]	[4.028]	[4.186]	[5.699]
Real GDP per Capita	-0.00080	-0.00057	-0.00018	-0.00086
	[0.00056]	[0.00071]	[0.00064]	[0.00070]
Population Growth	-5.75	-20.68	-12.05	-9.45
	[13.19]	[20.32]	[15.34]	[14.19]
Observations	29	28	29	29
R-squared	0.606	0.231	0.394	0.354

Note: Robust standard errors in brackets (\*\* p<0.01, \* p<0.05).



**Table 3. Effects of Health and Housing Spending on Levels of Public Debt (2007)**

	(1) Health	(2) Housing
	11.91	1.55
	[11.65]	[10.73]
Income Tax	-1.595	0.766
	[2.126]	[1.284]
Total Spending	1.773	1.877
	[2.276]	[1.557]
Current Accounts	0.000025	-0.000119
	[0.000051]	[0.000071]
Unemployment	-2.543	0.460
	[3.712]	[2.690]
Inflation	1.854	1.950
	[4.123]	[3.405]
Real GDP per Capita	-0.00062	-0.00067
	[0.00074]	[0.00059]
Population Growth	-22.57	-3.98
	[18.93]	[12.33]
Observations	29	26
R-squared	0.275	0.415

Note: Robust standard errors in brackets (\*\* p<0.01, \* p<0.05).

**Table 4. Effects of Social Spending on Levels of Public Debt, by Policy Area (2000-2007)**

	(1) Old Age Pension	(2) Unemployment Benefits	(3) Family Allowances	(4) Active Labor Market Policy
	6.044*	0.790	-8.497*	9.087
	[3.394]	[7.770]	[4.313]	[5.833]
Income Tax	0.933*	1.523**	1.490**	1.310**
	[0.546]	[0.643]	[0.595]	[0.549]
Total Spending	0.268	1.400	2.470	1.344
	[0.675]	[1.827]	[1.606]	[1.290]
Current Accounts	-0.000013	0.000018	0.000022	0.000023
	[0.000011]	[0.000032]	[0.000029]	[0.000031]
Unemployment	0.749	0.183	0.0700	0.212
	[0.511]	[0.497]	[0.678]	[0.643]
Inflation	-0.0324	0.0901	0.279	0.257
	[0.439]	[0.623]	[0.643]	[0.632]
Real GDP per Capita	-0.00140**	-0.000333	-0.000271	-0.000160
	[0.000670]	[0.000369]	[0.000451]	[0.000435]
Population Growth	-1.350	-4.511	-3.856	-4.952*
	[2.627]	[2.232]	[2.337]	[2.324]
Observations	232	224	232	232
R-squared	0.341	0.230	0.248	0.239
Number of Country	29	28	29	29

Note: Robust standard errors in brackets (\*\*\*)  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$ .

**Table 5. Effects of Health and Housing Spending on Levels of Public Debt (2000-2007)**

	(1) Health	(2) Housing
	-4.884	-2.814
	[4.517]	[4.492]
Income Tax	1.153*	1.008*
	[0.475]	[0.385]
Total Spending	2.862	-0.007
	[2.157]	[0.465]
Current Accounts	0.000014	0.000015
	[0.000028]	[0.000016]
Unemployment	-0.079	0.780
	[0.721]	[0.495]
Inflation	0.121	-0.513*
	[0.630]	[0.245]
Real GDP per Capita	0.00004	-0.00102*
	[0.00071]	[0.00041]
Population Growth	-4.834	-1.116
	[2.454]	[1.755]
Observations	232	208
R-squared	0.247	0.326
Number of Country	29	26

Note: Robust standard errors in brackets (\*\* p<0.01, \* p<0.05).

**Table 6. Effects of Active Labor Markets Policy Expenditures on Levels of Public Debt (2007)**

	(1) Supported Employment	(2) Employment Incentives
	-110.30*	13.32
	[65.43]	[92.55]
Income Tax	-0.525	-1.811
	[2.065]	[2.405]
Total Spending	3.264	3.306
	[1.962]	[2.793]
Current Accounts	-0.000068	-0.000009
	[0.000034]	[0.000040]
Unemployment	-4.509	-1.729
	[4.176]	[3.730]
Inflation	-5.189	-1.422
	[6.190]	[5.504]
Real GDP per Capita	-0.00088	-0.00036
	[0.00071]	[0.00077]
Population Growth	-25.09	-28.46
	[19.29]	[20.85]
Observations	27	27
R-squared	0.385	0.287

Note: Robust standard errors in brackets (\*\* p<0.01, \* p<0.05).

## References

- Alesina, Alberto and Roberto Perotti. 1995. "Fiscal Expansions and Fiscal Adjustments in OECD Countries". NBER Working Paper No. 5214 (August).
- Alt, James, Ian Preston, and Luke Sibieta. (2009). "The Political Economy of Tax Policy" in *Tax By Design: The Mirrlees Review* (Oxford: Oxford University Press). pp.1228-39.
- Ardagna, Silvia, Francesco Caselli, and Timothy Lane. (2004). "Fiscal Discipline and the Cost of Public Debt Service: Some Estimates for OECD Countries". NBER Working Paper No. 10788 (September).
- Chinn, Menzie and Jeffrey Frieden (2010). *Lost Decades: The Making of America's Debt Crisis and the Long Recovery* (New York: W.W. Norton).
- Edwards, Martin S. and Frank C. Thames. (2007). "District Magnitude, Personal Votes, and Government Expenditures." *Electoral Studies*, 26: 338-45.
- Eichengreen, Barry. (1996). "Institutions and economic growth: Europe after World War II" in Nicholas Crafts and Gianni Toniolo (ed) *Economic growth in Europe, after 1945*. (Cambridge; New York : Cambridge University Press).
- Esping-Andersen, Gøsta. (1999). *Social Foundations of Postindustrial Economies* (New York: Oxford University Press). Chs.3-5.
- Esping-Andersen, Gøsta. (1990). *The Three Worlds of Welfare Capitalism* (Princeton, NJ: Princeton University Press). Chs.1-2.
- Fiscal Monitor, April 2011 and June 2011 Update.
- Green, Jerry. (1977). "Notes on the Public Debt and Social Insurance". NBER Working Paper No. 188 (July).
- Grilli, Masciandaro, and Tabellini. 1991. "Political and Monetary Institutions and Public Financial Policies in the Industrial Countries". *Economic Policy*, 6(13): 342-392.
- Iversen, Torben and David Soskice. (2001). "An Asset Theory of Social Policy Preferences." *American Political Science Review*, 95: 875-93.
- Meltzer, Allan and Scott Richard. (1981). "A Rational Theory of the Size of Government." *Journal of Political Economy*, 89: 914-27.

Moene, Karl Ove and Michael Wallerstein. (2001). "Inequality, Social Insurance and Redistribution." *American Political Science Review*, 95(4): 859-74.

Moene, Karl Ove and Michael Wallerstein. (2003). "Earnings Inequality and Welfare Spending: A Disaggregated Analysis." *World Politics*, 55(4): 485-516.

Prasad, Eswar and Mengjie Ding. (2011). "Debt Burden in Advanced Economies Now a Global Threat". 07/28/2011  
[http://www.brookings.edu/articles/2011/0731\\_debt\\_burden\\_prasad.aspx](http://www.brookings.edu/articles/2011/0731_debt_burden_prasad.aspx)

Przeworski, Adam. (2003). *States and Markets* (Cambridge: Cambridge University Press). Chs. 4,10,11.

Roemer, John. (1998). "Why the Poor Do Not Expropriate the Rich: An Old Argument in New Garb." *Journal of Public Economics*, 70: 399-424.

Roubini, Nouriel and Jeffrey Sachs. (1989). "Government Spending and Budget Deficits in the Industrial Economies". NBER Working Paper No. 2919 (April).

Sawhill, Isabel, Adam Thomas and Emily Monea. (2010). "An Ounce of Prevention: Policy Prescription to Reduce the Prevalence of Fragile Families". *The Future Children*, 20(2): 133-155.

