

## Tax Stimulus as Crisis Response

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**Abstract** Many countries are contemplating stimulus packages as a response to the deepening economic crisis. This paper discusses the benefits of tax reform as a crisis-response measure. It provides a calculation of the benefits of such reform, taking as example the reduction of payroll taxes in Bulgaria. We also estimate the costs in terms of foregone revenue. We find that a reform to reduce the payroll tax by 7.5 percentage points, from 31.3% to 23.8%, would result in 130,000 jobs been created or saved, and a 0.5% increase in annual GDP growth. Taking the static and dynamic effects of such reform into account, the cost would amount to 0.52% of GDP. The reform has three additional benefits. First, it is not subject to corruption: the government is not in a position to distribute largesse as under a fiscal expansion program. Second, it works as a direct stimulus - every business and worker in the formal economy gets the benefit. Third, tax reform is quick to implement and can have immediate effects.

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## Introduction

Many countries are contemplating stimulus packages as a response to the deepening economic crisis. This has invigorated an old debate: should governments focus on fiscal expansion or on tax incentives? Some proposals have both: for example in Germany,<sup>2</sup> Latvia, the United Kingdom and the United States. Even in these countries, there is intense discussion on what the right mix between fiscal and tax stimulus is.

Fiscal expansion makes sense as a crisis-response device: it can be narrowly targeted, for example at low-skill jobs. The most obvious fiscal expansion is for infrastructure projects - these can create jobs and are highly visible, thus generating a sense that the government is being responsive.

But what if the government doesn't have money - say it is running a budget deficit? Then the ability to spend yourself out of a crisis is limited, unless you borrow internationally. Some countries have already done that. A more problematic case is when the existing government infrastructure projects are considered inefficient and corrupt. Then there is considerably less faith in the ability of government to handle an even bigger burden of projects.

Even in the absence of corruption, fiscal stimulus has recently been shown to have less of an effect on output expansion than tax stimulus. Ramey (2008) and Romer and Romer (2008) both look at the historical evidence of fiscal expansions in the United States, looking at events such as military build-up around the Korean and Vietnam wars, the Cold War fiscal expansion after the Soviet Union invaded Afghanistan, and the more recent 9/11 build-up. These policies are compared with tax stimulus package, for example in the second Reagan term and the first Clinton term. The results show that the multiplier effect of fiscal stimulus is 1.4 (for each dollar spent output increases by \$1.40), while the multiplier effect of a tax stimulus is about 3, twice as large.

This paper discusses the benefits of tax reform as a crisis-response measure. It provides a calculation of the benefits of such reform, focused on the reduction of payroll taxes, using the example of Bulgaria. It also estimates the costs in terms of foregone revenue. Bulgaria is chosen for two reasons. First, the data necessary to calculate the effects of the tax reform were readily available as one of the authors has done previous work in this area. Second, Bulgaria is one of two-dozen former transition economies which have yet to reform substantially their payroll tax system.

We find that a reform to reduce the payroll tax by 7.5 percentage points,<sup>3</sup> from 31.3% to 23.8%, would result in 130,000 jobs been created or saved, and a 0.5% increase in annual GDP growth. Taking the static and dynamic effects of such reform into account, the cost would amount to 0.52% of GDP. This is one-sixth of the projected budget surplus for 2009.

The reform would encourage employers to keep more workers during the crisis (thus working as an employment policy). It would also put more money in the hands of consumers, thus boosting the economy overall. Such a reform has three additional benefits: it is not subject to corruption: the government is not in a position to distribute largesse. The second benefit is that it works as a direct stimulus - every business and worker in the formal economy gets the benefit. Finally, it is quick to implement and can have immediate effects. This is in contrast to a fiscal stimulus

<sup>2</sup> See details here <http://news.bbc.co.uk/2/hi/business/7825513.stm>.

<sup>3</sup> A 5 percentage point reduction for employers and a 2.5 percentage point reduction for employees.

package, which takes time to implement. Some of the needed jobs may take months and even years to materialize.

This reform has implications for other countries too. Candidates include Albania, Belarus, Kazakhstan, Azerbaijan, Slovakia, and most other East European economies which have gone through a period of rapid economic growth and now face the prospect of a painful year or two of falling demand. It also applies to many Latin American and Asian countries, which see the demand for their exports dwindle, or the prices of their main commodities fall. In all these cases, payroll taxes are higher than the global average, as documented in the Doing Business database.<sup>4</sup>

The structure of this paper is as follows. Section 1 describes the payroll tax system in Bulgaria and gives some comparisons with other developing economies. Section 2 reports estimates of the job creating and economic growth effects of a tax incentive reform. Section 3 details the costs of such reform, and presents some robustness tests. Section 4 concludes.

### **1. What are Payroll Taxes?**

Payroll taxes cover health and pension benefits, maternity leave, unemployment insurance, and occupational accidents payments. Altogether, as of January 2009 these come to 31.3% of the gross salary of an average worker in Bulgaria. Of this amount, 18% goes to pensions (for workers born after 1959, 5% goes to private pension funds), 3.5% to sickness and maternity leave, 8% goes to health coverage, 1% to unemployment insurance, 0.7% to occupational accidents insurance, and 0.1% to wage insurance, in case the business goes bankrupt. The employer pays about 60% of payroll taxes, 18.3%, with the employee contributing the rest.

The payroll tax has fallen significantly in the last decade, from about 45 percent in 2000 to 31.3% as of January 2009.

The payroll tax now represents the bulk of what workers pay in taxes. For this reason, in some sectors of the economy there is widespread practice of under-reporting wages, so that the payroll tax can be recorded on a lower base. To reduce the incentives for such under-reporting, the government has introduced minimum wages in certain sectors, upon which the payroll tax is calculated. There is also a maximum level, currently at 2,000 leva (4 times the average national wage), after which income is not taxed for the purposes of social contributions.

The payroll taxes are used to finance the various parts of the social security system, the main part being the pension system. However, due to the high ration of retired people to working people, the government's budget provides the bulk of the financing. In particular, only 46% of social security funds came from direct taxation in 2006. This ratio has likely declined in the last two years, as the government has increased pensions and budget subsidies for the social security system. The remaining contributions came as follows: 37% as a central budget transfer; 15% as the state's contribution; and 2% indirect state contributions.<sup>5</sup>

There have already been some reductions in payroll taxes in this decade. In 2006, payroll taxes were cut by 6 percentage points; in 2007, an additional 3 percentage points; and in 2009, 2.4

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<sup>4</sup> The Doing Business database presents a breakdown of all taxes that businesses pay. For example, the tax burden for Albanian companies is available at <http://www.doingbusiness.org/ExploreTopics/PayingTaxes/Details.aspx?economyid=3>.

<sup>5</sup> See Mladenova (2007).

percentage points. Payroll tax can be cut within the fiscal year<sup>6</sup>, unlike other taxes that cannot be changed within the year.

Bulgaria is only one example of a country with relatively high payroll taxes. Businesses in Belarus, for example, pay 35% of the gross salaries of workers in payroll taxes. Businesses in Romania pay about 30% of gross salaries. In Poland, 28.1%. Countries in Asia and Latin America have generally high taxes on business, although not specifically linked to workers' wages. Colombia, for example, taxes nearly 78% of profits away from the business, in various types on national and municipal taxes. India taxes nearly 71% of profits. Brazil – 69%. Tax reforms as a crisis response is possible in any of these countries.

## **2. Employment and Growth Effects of Tax Stimulus**

To gauge the effect of a change in the tax burden on the real economy, we use cross-country analysis based on Djankov et al (2008). The authors have collected data on payroll taxes (or more generally, payroll taxes and social security contributions), as well as all other taxes that a business has to pay in a given year. These taxes are expressed as a percentage of the gross profit. The data are collected for 85 countries, including Bulgaria.

The data are constructed using a standardized case study of a business called “TaxpayerCo.” TaxpayerCo is a taxable corporation operating in the most populous city in the country. It is liable for taxes charged at the local, state/provincial, and national levels. It is 100% domestically and privately owned and has 5 owners, none of whom is a legal entity. TaxpayerCo performs general industrial/commercial activities.

Under these assumptions, Djankov et al (2008) calculate the taxes that TaxpayerCo must pay in its first year of operation. Respondents provide the full tax schedules for corporate income taxes, payroll taxes for which the statutory incidence is on the employer, property tax, asset and capital tax, turnover tax, business license tax, financial transactions tax, but also VAT and sales taxes. Taxes at all levels of government are considered.<sup>7</sup>

We use these data and regress the employment rate and the GDP growth rate on the level of taxes. We first look at payroll taxes (columns 1 and 2, table 1) and then, for robustness purposes, all business taxes (columns 3 and 4). The two should give similar comparative static results. The idea is to see how a change in taxes affects the real economic variables.

In particular, we see that a 10 percentage points decrease in payroll taxes is associated with a 3.5 percentage points increase in the employment rate. In the case of Bulgaria, this amounts to 260,000 jobs. The result is robust whether one looks at a change in payroll taxes or overall business taxes. Also, a 10 percentage points decrease in taxes is associated with about 1 percentage point increase in annual GDP growth. All specifications account for the initial level of income (using logGDP per capita).

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<sup>6</sup> There were several cases of payroll tax changes within the fiscal year: In 2007 the payroll tax was cut by 3 percentage points on October 1. In 1998 the payroll tax was cut on July 1 by 0.5%. In 1999 the payroll tax was increased by 2.7% on July 1.

<sup>7</sup> The data are available at [www.doingbusiness.org](http://www.doingbusiness.org).

We also test for robustness controlling for inflation, and regional dummies (Africa, East Asia, and Latin America). The economic magnitude remains unchanged.

The results here focus on a reduction of the taxes paid by businesses (the employer). If part of the payroll reduction goes to the worker (the employee), this effect is not captured here and in subsequent analyses. It will clearly have additional beneficial effects, most obviously on the purchasing power of workers, but also on the government budget (as the government won't have to pay unemployment benefits). In short, the results presented here are a conservative estimate.

**Table 1: Employment and Growth Effects**

	(1)	(2)	(3)	(4)
	Employment rate		Growth rate	
Payroll Tax	-0.348*** (0.097)		-0.119*** (0.033)	
All Business Taxes		-0.354*** (0.139)		-0.108*** (0.036)
Log GDPpc	-2.316*** (0.563)	-2.402*** (0.582)	-1.007*** (0.173)	-1.060*** (0.176)
Constant	82.38*** (4.744)	71.67*** (5.546)	15.972*** (1.654)	14.856*** (1.606)
Observations	85	85	84	84
R-squared	0.287	0.235	0.51	0.48

Standard errors in parentheses

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

Source: The analysis is based on Djankov et al (2008).

For our base specification, we assume a tax reform of 7.5 percentage points reduction in payroll taxes, including a 5 percentage points reduction in taxes for businesses and a 2.5 percentage points reduction for workers. Under this scenario, the reform could result in 130,000 jobs being created or saved during the crisis, and a half percentage point increase in GDP growth.

We also report a “low” and “high” scenario: a 5 percentage points reduction (3.5 percent for businesses and 1.5 percent for workers); and a 10 percentage points reduction (6.7 percent for businesses and 3.3 percent for workers). In the “low” scenario, employment would increase by 91, 000 jobs and the annual growth rate by 0.35 percentage points. In the “high” scenario, employment would increase by 195,000 jobs, and the annual growth rate by 0.75 percentage points.

### 3. Budget Effects of the Proposed Tax Reform

The proposed tax reform will have two types of effects on the government’s budget: static and dynamic effects.

#### *Static Effects*

Using the 2009 national consolidated budget as a base, we calculate that 7.5% payroll taxes contribute about 1.3 billion leva. In other words, the proposed reform would in the first instance result in a 1.3 billion leva loss. However, there are several immediate increases in budget

revenue.

First, the government as employer spends about 4.3 billion leva on officials' salaries (based on the 2009 budget), so the base reform (7.5 percentage points, ppt, payroll tax cut) would result in savings of 214 million leva (table 2).

Second, there are approximately 220,000 employees in state-owned companies (the post, railroads, electricity generation and distribution, other utilities, tobacco processing, etc.). Assuming average monthly salary of 900 leva<sup>8</sup>, the state would save approximately 108 million leva in payroll taxes.

Third, the reduction in payroll taxes implies an increase of the tax base for personal income taxes and corporate income taxes and dividends. Taking the 10% personal and corporate income tax rates and the 5% dividend tax rate, the additional revenues amount to about 125 million leva: 36 million from personal income taxes and about 90 million in corporate and dividend taxes.

Altogether, the net static effect of a 7.5 ppt reduction in payroll taxes is 845 million leva. In the "low" and "high" scenario, the budget effect is approximately a loss of 553 million and 1,074 billion, respectively.

**Table 2: Static Effects of the Tax Reform**

Scenario (tax reduction)	7.5ppt	5.0ppt	10.0ppt
Loss of revenue	1,293,511,875	862,341,250	1,724,682,500
Additional revenues			
1. lower budget expenditures	214,270,000	149,989,000	321,405,000
2. lower spending for state companies	107,892,000	75,524,400	161,838,000
3a. increased income tax revenues	35,974,729	21,370,568	35,081,938
3b. increased corporate and dividend tax revenues	89,936,823	62,330,822	131,557,266
<b>Total static loss</b>	<b>845,438,323</b>	<b>553,126,461</b>	<b>1,074,800,297</b>

Source: Authors' calculations.

### *Dynamic Effects*

The dynamic effects are due to the shrinkage of the informal (gray) economy, the increase of economic growth, and the savings as a result of the higher employment and the lower increase in unemployment.

According to various studies, about a quarter of the labor force has engaged in the informal economy. These are people who have not declared a formal job, and hence have not paid income and payroll taxes. At the same time, about a third of the formally-employed have declared income lower than their actual income, in an attempt to avoid taxes.

We assume that the reduction in payroll taxes will bring more people in the formal economy; and will incentivize more people currently under-reporting their income to report accurately. The Djankov et al (2008) study finds this to be the case. In particular, a 10 percentage point cut in the

<sup>8</sup> The average monthly salary in state companies was 787 leva in September 2008.

business tax rate reduces the informal economy as a share of economic activity by 2 percentage points. This is what we use to calculate the gray economy effect.

In our base scenario, the informal economy will shrink by 1 percent of GDP. As the consolidated budget revenues in recent years are above 40% of GDP, we assume that 40% of any increase of the formal economic activity will go into the consolidated state budget in one way or the other. This will result in additional revenues of about 294 million leva (table 3).

Second, the increase in economic activity, estimated in Table 1 to be 0.5% of GDP a year, would bring another 147 million leva in budget revenues. This takes a GDP figure of 73.5 billion leva as a base from the national budget forecast.

Third, fewer jobs would be lost/more jobs created (130,000 in total) and hence fewer people would need unemployment benefits. In particular, the 2009 budget foresees 6% unemployment, while the tax reform would result in 1.5 percentage points less unemployment than in the absence of reform. On net, the improvement in the labor market would generate about 25 million leva.

**Table 3: Dynamic Effects of the Tax Reform**

Scenario (tax reduction)	7.5ppt	5.0ppt	10.0ppt
1. Gray economy effect	293,940,000	205,758,000	393,879,600
2. Added GDP growth dynamic effect	146,970,000	102,879,000	196,939,800
3. Lower unemployment spending	25,270,975	17,689,683	33,863,107
<b>Total dynamic effect</b>	<b>466,180,975</b>	<b>326,326,683</b>	<b>624,682,507</b>

Source: Authors' calculations.

### *Net Effect*

Taking both static and dynamic effects into account, under the base scenario the reform would cost 379 million leva, or about 0.52% of GDP. Reform under the “low” scenario would cost 227 million leva, or 0.31% of GDP. Reform under the “high” scenario would cost 500 million leva, or 0.68% of GDP.

**Table 4: Net Fiscal Effects of Proposed Tax Reform**

Scenario (tax reduction)	7.5ppt	5.0ppt	10.0ppt
Total static loss	-845,438,323	-553,126,461	-1,125,150,208
Total dynamic effect	466,180,975	326,326,683	624,682,507
<b>Net Effect</b>	<b>-379,257,348</b>	<b>-226,799,778</b>	<b>-500,467,702</b>
<b>Net Effect as % of GDP</b>	<b>-0.52%</b>	<b>-0.31%</b>	<b>-0.68%</b>

Source: Authors' calculations.

### *Sensitivity analysis*

In all of the calculations of the dynamic effects we include the effect of the tax cut for business but we do not include the beneficial effect of the reduction in taxes for the workers in the estimates. Thus, under the base scenario we leave aside a third of the tax cut and its benefits - which make calculations more conservative and dynamic effects are underestimated. It can be expected that in a "normal" environment the positive effects of the tax reform would be higher than our base scenario.

On the other hand, the effect of the financial crisis might be expected to be negative. For example, if the gray economy effect is half of the estimate, the total dynamic effect will be about a third lower than we calculate. Thus, our conservative approach toward the dynamic effects is justified under crisis (although after the crisis is over, the full positive impact of the tax cut will quickly appear).

### **4. Conclusions**

The calculations in this paper show the benefits and costs of reforming taxes as a crisis response measure. The reform is illustrated with the example of payroll taxes in Bulgaria, but the findings apply generally to both other countries in Eastern Europe with relatively high payroll taxes, and to countries in other regions (most notably South Asia and Latin America) which have a high tax burden on businesses.

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