

Bernoeth, Kerstin; Burauel, Patrick; Engler, Philipp

Article

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Fiscal Devaluation: Economic Stimulus for Crisis Countries in the Euro Area

by Kerstin Bernoth, Patrick Buraue, and Philipp Engler

Member countries of the euro area, and the peripheral states in particular, face an especially difficult problem: on the one hand, they urgently need stronger economic growth to reduce high debt and unemployment levels. On the other hand, however, they have no scope to use fiscal policy to stimulate the economy. One way to strengthen economic growth without burdening public finances might be to implement a "fiscal devaluation." This concept includes reducing social security contributions for employers—and therefore ancillary wage costs—making companies more price competitive than their foreign competitors. This, in turn, should stimulate exports and result in positive employment effects. Reducing ancillary wage costs could be financed by an increase in value-added tax. This study shows that a fiscal devaluation in the individual member countries of a currency union may help to boost economic growth in the short term. This instrument should therefore be particularly important for the crisis countries in the euro area, though it by no means replaces the structural reforms required to increase economic growth in the long term.

The current situation in some euro area countries is marked by three mutually reinforcing crises: a public debt crisis, a banking crisis, and an economic growth crisis.¹ Together, these problems have led to a long-lasting recession accompanied by in some cases extremely high unemployment. Resolving all three crises at the same time would appear to be an insurmountable task. Austerity measures to address public debt, for example, would exacerbate problems with the banks and further curb economic growth.² Conversely, fiscal policy measures to stimulate growth would cause an increase—at least in the short term—in public debt, and would not address the banking crisis.

Policy measures which stimulate economic growth without burdening national budgets might be one way out of this dilemma. With the help of automatic stabilizers, they would even improve the public debt situation and facilitate bank recovery. One way member states of a currency union could achieve such effects would be through fiscal devaluation. This mechanism involves a revenue-neutral shift of the burden of employers' social security contributions toward value-added tax (VAT) in order to improve the competitiveness of a country. Reducing social security contributions would lead to a reduction in production costs, which, in sufficiently competitive markets, would result in price reductions. Con-

¹ J.C. Shambaugh, "The Euro's Three Crises," *Brooking Papers on Economic Activity* (Spring 2012).

² The size of fiscal multipliers, i.e., the effect that changes in public spending have on economic growth, continues to be a controversial issue. Müller suggests that austerity measures have a growth-stimulating effect in cases where the budget situation is poor; G. Müller, "Fiscal austerity and the multiplier in times of crisis," *German Economic Review* 15, no. 2 (2014): 243-258. Nonetheless, the budget surpluses required for sustainable budget consolidation could be too large and may have to be maintained for too long for them to be realistic; B. Eichengreen and U. Panizza, "Can large primary surpluses solve Europe's debt problem?," *voxeu.org* (July 2014). An empirical study by Guajardo, Leigh, and Pescatori, in contrast, refutes the expansive effect of austerity policies; J. Guajardo, D. Leigh, and A. Pescatori, "Expansionary Austerity? International Evidence," *Journal of the European Economic Association* 12, no. 4 (2014); see also A.F. Alesina, and S. Ardagna, "Large Changes in Fiscal Policy: Taxes versus Spending," *Tax Policy and the Economy* 24 (2010).

Box 1

Fiscal Devaluation in a Theoretical Model

Engler et al. (2013) calibrate a dynamic-stochastic general equilibrium model (DSGE) of the EMU using two countries representing the central-northern and southern regions of the EMU.^{1,2} They examine the effect of a fiscal devaluation in the South on the South itself and on the rest of the currency union. Ancillary wage costs are reduced by one percent of GDP and the VAT rate increased by one percent.³

Reducing ancillary wage costs in the South reduces the marginal costs of production and leads companies to reduce prices, resulting in a relative drop in prices for export goods compared to the central-northern region. A shift in demand from Central-North to the South occurs, causing net exports and production in the latter to increase.⁴

At the same time, there are countervailing effects due to the increase in value-added tax. The resulting reduction in real wages causes employees to demand higher nominal wages. Based on well-known empirical evidence it is assumed that the wage adjustment takes

place only gradually⁵. As a result, marginal costs revert upward only slowly so that the impact of reduced social security contributions predominates in the short run.

The short-term effect on the central-northern region is also positive. Falling prices in the southern region cause the Central Bank to lower interest rates,⁶ resulting in a slight increase in production in the North despite the demand shift in the South. Over the course of time, more and more producers in the South will be able to respond to the price changes and cut their own prices accordingly. This intensifies the shift in demand. In the North, this will outweigh the positive interest effect in the medium term, causing production to decrease slightly. This reduction in production dissipates slowly due to the gradual phase-out of the demand shift effect. The fact that all effects are transitory in nature in the Center-North-region is a crucial difference to the South-region where positive effects remain in the long-run. Looking at these effects cumulatively, conclusions can be drawn as to the external economic position of the southern region of the EMU. As the terms of trade deteriorate due to the changed prices, consumption increases less than production. This results in a better net external assets position and a slightly better trade balance. This effect vanishes in the mid-term as net external assets position returns to balance by assumption.

In the medium term, production remains high owing to the shift of tax and contribution burdens in favor of domestic production and to the detriment of foreign production. The cause for this is the relatively high decrease in ancillary wage costs as compared with the VAT increase.

1 P. Engler, G. Ganelli, J. Tervala, and S. Voigts, "Fiscal devaluation in a Monetary Union," Discussion Papers 2013, no. 18, (Freie Universität Berlin, School of Business & Economics, 2013).

The central-northern region includes Belgium, Germany, Finland, France, Luxembourg, the Netherlands, and Austria; the south includes Greece, Ireland, Italy, Portugal and Spain.

2 Other studies also examine fiscal devaluation using two-region models, for example F. Franco, "Improving competitiveness through fiscal devaluation, the case of Portugal," Universidade Nova de Lisboa (2011); L. von Thadden and A. Lipinska, "On the (In)effectiveness of Fiscal Devaluations in a Monetary Union," Papers submitted for the annual conference of the German-speaking economists association, the Verein für Sozialpolitik (2013).

3 For the numbers to add up, this requires a permanent reduction in the social security contribution rate by 1.7 percentage points and an increase in value-added tax by one percentage point. This is approximately equivalent to twice the revenue shift in Germany for the year 2007 with additional revenue from higher value-added taxes amounting to 0.6 percent of GDP and a loss of 0.4 percent of GDP due to lower social security contributions (OECD, Stats, and calculations by DIW Berlin).

4 Since producers are assumed to reduce their prices gradually, the intensity peak is not reached until after several quarters.

5 For empirical analyses on wage rigidity see, inter alia, J. Babecký, P. Du Caju, T. Kosma, M. Lawless, J. Messina, and T. Rööm, "Downward Nominal and Real Wage Rigidity: Survey Evidence from European Firms," *The Scandinavian Journal of Economics* 112, no. 4 (2010): 884–910.

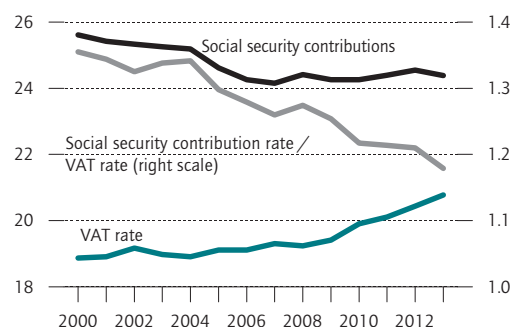
6 The Central Bank applies what is known as the Taylor Rule, responding to deflation by reducing interest rates.

sequently, goods manufactured on domestic markets become relatively cheaper than those produced abroad, causing a shift in domestic demand in favor of domestic products and a stimulation of exports. This can in turn lead to increased employment and lower unemployment levels. The loss of public revenue owing to lower social

security contributions is offset by an increase in VAT. This causes a rise in prices for products consumed on the domestic market, but this applies equally to goods produced abroad. In short, a fiscal devaluation—similar to a nominal currency devaluation in economies that

Figure 1

Average Employer Social Security Contributions and VAT Rates in the Euro Area



Source: OECD; calculations by DIW Berlin.

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VAT rates in the euro area have gone up considerably.

One advantage of fiscal devaluation is that it can be implemented without the consent of the other euro area countries. In times when monetary policy stimulus is no longer possible since interest rates are already at or near zero, revenue-neutral yet growth-oriented fiscal policy measures could be crucial.⁴

Fiscal Devaluation in Practice

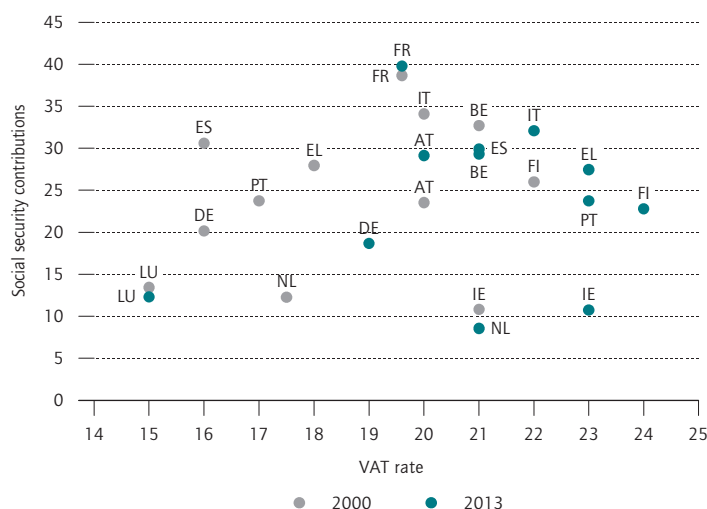
Looking at the euro area as a whole, there is a general trend towards implementing changes to tax and social contribution structures (see Figure 1). Between 2000 and 2013, the average non-weighted rate of employer social security contributions fell by 1.2 percentage points to 24.5 percent.⁵ In the same period, average VAT went up by approximately two percentage points, taking it to 20.8 percent. From 2000 to 2013, there were 28 cases in the EMU where VAT was raised as opposed to just five cases where it went down. At the same time, there were two dozen cuts of more than 0.5 percentage points to employer-side social security contributions (see Figure 2).

A closer look at cases of simultaneous changes in VAT rates and employer social security contributions shows that there have been six cases of fiscal devaluation in the EMU since 2000: Ireland (2002), Germany (2007), Spain, Finland (both in 2010), the Netherlands (2012), and finally France (2014) (see Figure 3, top graph).⁶ As regards the amount of ancillary wage costs, France implemented the most radical fiscal devaluation; the employer social security contribution rate was reduced by around 2.5 percentage points,⁷ followed by the Netherlands, Germany, and Finland with a reduction of 1.1 to 1.5 percentage points. The lowest cut in employer social security contributions in this group of countries was Spain (0.25 percentage points).

With the exception of Finland and France, the parallel increase in VAT was greater than reductions in social security contributions: in Germany, VAT was raised by

Figure 2

Employer Social Security Contributions and VAT Rates of Euro Area Countries in 2000 and 2013



Source: OECD; calculations by DIW Berlin.

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Most euro area member states have implemented a fiscal devaluation since the introduction of the euro.

have their own currency—improves the international competitiveness of a country's businesses (see Box 1).³

³ For a partial replacement of social security contribution by an increase in consumption taxes in order to strengthen employment in a national context, see 2005/06 Annual Economic Report by the German Council of Economic Experts, 388 ff.

⁴ Mario Draghi at this year's Jackson Hole central bank meeting: "Second, there is leeway to achieve a more growth-friendly composition of fiscal policies. As a start, it should be possible to lower the tax burden in a budget-neutral way." (August 22, 2014).

⁵ The euro area countries Latvia, Malta, and Cyprus are not included in this calculation owing to a lack of relevant data. The data source is the OECD: stats.oecd.org/Index.aspx?DataSetCode=TABLE_15.

⁶ According to the data, minor adjustments to social security contributions are often carried out over several years, as opposed to one-off increases in the VAT rate. For this reason, to calculate the change in social security contribution rates in the year of a VAT increase, social security contribution adjustments for the current, previous, and following year are added together.

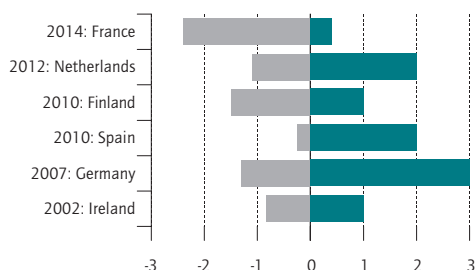
⁷ At the time of writing, OECD data for social security contributions in France in 2014 were not yet available, which is why only the tax changes for ancillary wage costs up to 2013 could be factored in here.

Figure 3

Cases of Fiscal Devaluation 2000 - 2014: Simultaneous VAT Increase and Social Security Contribution Decrease

Change in tax and social security contribution rates

In percentage points



Change in revenue from VAT and employer social security contributions

As percentage of GDP



Source: OECD; calculations by DIW Berlin.

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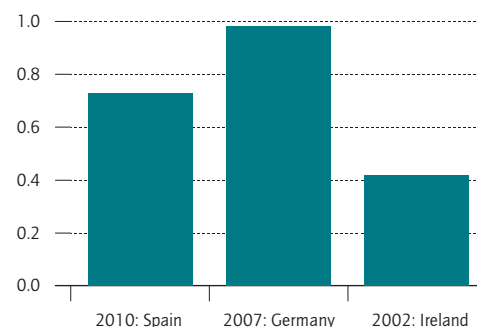
During the period of observation, six countries simultaneously lowered social security contributions and raised VAT rates.

three percentage points, in the Netherlands and Spain by two percentage points each, and in Finland and Ireland by one percentage point. In France, VAT went up by as little as 0.4 percentage points to 20 percent.

The asymmetry in the changes in social security contributions and VAT rates hints to the fact that fiscal devaluations are not generally implemented in a revenue-neutral fashion. Rather, it is likely that the recovery of national budgets constitute an equally important objective than the improvement of international competitiveness. This supposition is confirmed by the changes in tax revenue for the aforementioned countries at the time of the fiscal policy measure (see Figure 3, bottom). With the exception of Finland, every case of fiscal devaluation described here was “over-financed”; the higher VAT revenue outweighed the losses resulting from the lower

Figure 4

Indicator of Revenue Neutrality with Fiscal Devaluation



Source: OECD; calculations by DIW Berlin.

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In Ireland and Spain, the fiscal devaluations in 2002 and 2010, respectively, were highly over-financed.

social security contributions.⁸ Given the large number of other factors, however, it is difficult to attribute the changes in revenue to the changes in tax and contribution rates. Nevertheless, with the exception of Finland and the Netherlands, the revenue figures are moving in the expected direction.

In order to be able to vet the revenue-neutrality of tax and contribution measures, DIW Berlin developed a revenue neutrality indicator ranging from zero to 100 percent (see Figure 4 and Box 2). An indicator value of 100 percent shows that the measures were revenue-neutral, i.e., the loss in revenue resulting from a reduction in social security contributions was offset by an increase in VAT revenue of equivalent scale. An indicator value of zero denotes that the change in revenue caused by the reduction in employer social security contributions was not offset by the increase in VAT rate at all. The latter is the case in approximately 50 cases where tax and social security contribution changes were implemented during the period of analysis. An indicator value between zero and 100 signifies that fiscal devaluation was implemented and to what extent it was either under- or over-financed. All cases analyzed here are cases of over-financing. Therefore, the higher the degree of over-financing, the lower the indicator value will be. The results show that fiscal devaluation implemented in Germany was virtually

⁸ The fact that countries where fiscal devaluation has been implemented will not have to worry about the onset of budget problems is an important argument in favor of this balancing mechanism; D. Cavallo and J. Cottani, “Making fiscal consolidation work in Greece, Portugal, and Spain: Some lessons from Argentina,” Vox.eu.org (February 2010).

Box 2

An Indicator of Revenue Neutrality with Fiscal Devaluation

To make the concept of fiscal devaluation tangible for statistical analyses, the relevant data is aggregated to produce a meaningful indicator for revenue neutrality. Two things are of relevance in this regard: first, the scope of fiscal devaluation, i.e. the magnitude of changes in tax and contribution rates, and, second, the dominance of budgetary surplus or budgetary deficit, i.e. the degree to which the social security revenue reduction was under- or over-financed.

An index is calculated for each EMU country that implemented a value-added tax increase and a simultaneous reduction in social security contribution rates between 2000 and 2013. This index reflects the degree of balance in the financing and ranges from 0 to 100 per cent.¹ This factor is defined as follows:

$$\frac{\sqrt{|\Delta VAT_{rev} \times \Delta SSC_{rev}|}}{|\Delta VAT_{rev}| + |\Delta SSC_{rev}|}$$

Here, ΔVAT_{rev} is the change in VAT revenue in percentage of GDP and ΔSSC_{rev} is the change in public revenue from employer social security contributions as a percentage of GDP (as a sum of the changes in the year of the VAT increase, as well as the previous and following year). Germany, for example, reduced social security contributions by 1.31 percentage points in 2007. Since this reform was only slightly over-financed, the revenue neutrality indicator is relatively high at 98.1 percent.

¹ At the time of writing, the tax statistics for 2014 were not yet available, which is why the fiscal devaluation in France has not been factored in here.

revenue-neutral, whereas the degree of over-financing was highest in Ireland.⁹

⁹ In the case of fiscal devaluation in Finland (2010) and the Netherlands (2012), changes in tax revenue occur that do not reflect the changes in the tax rates. For instance, VAT revenue is falling despite the increase in VAT. For this reason, no indicator is calculated for these two countries.

Estimated Short-Term Effects of Fiscal Devaluation in the Euro Area

A regression analysis was performed to examine whether and to what extent the instrument of fiscal devaluation can actually affect the price competitiveness of a member state of the European Monetary Union. The estimations are based on annual data for all EMU member states (with the exception of Latvia, Malta, and Cyprus) for the period 2000–2013. The dependent variable under analysis is the per capita trade balance of a country. Social security contribution and VAT rates, the revenue neutrality indicator, and various other macroeconomic variables that studies have shown to be useful were taken as explanatory variables.¹⁰ All the explanatory variables are measured relative to the euro area average.¹¹ The reason for this is that the aforementioned fiscal devaluation mechanism can only work if fiscal changes cause the relative price structure between two trade partners to change; in other words, the more countries implement fiscal devaluations at the same time, the lower the expected effect on international competitiveness. Besides “fixed effects” for countries, annual dummies were also added to the regression in order to factor in time-specific effects.¹²

The empirical model explains around 70 percent of the variation in the per capita trade balance figures (see Table, column A). The estimation results show a significantly negative effect of the employers’ social security contribution rate on a country’s per capita trade balance.¹³ This indicates that individual countries are able to boost their competitiveness on the international stage by lowering social security contributions for employers.

¹⁰ These are the rate of inflation, the growth rate of GDP, the net international investment position (in percentage of the GDP), the unemployment rate, and the age dependency ratio.

¹¹ Besides different model interpretations, the analysis of relative sizes is one of the main differences to the related study by R. de Mooij and M. Keen, “Fiscal Devaluation and Fiscal Consolidation: The VAT in Troubled Times,” NBER Working Paper 17913 (2012). The relative size of a variable x is calculated as follows: $\frac{x - \bar{x}}{|\bar{x}|}$, where \bar{x} denotes the average of x across all euro area countries.

¹² The estimations are performed with panel-corrected standard errors to compensate for possible heteroscedasticity and correlation in the error terms; N. Beck and J. N. Katz, “What to do (and not to do) with time-series cross-section data,” *American Political Science Review*, 89 (1995): 634–647.

¹³ If the social security contribution rate in a country is three percent lower than the average in the euro area (e.g., 29 per cent as opposed to 30 percent in the euro area), the trade balance per capita for this country will be 300 percent higher than the average trade balance per capita for all the countries in the euro area. When evaluating this figure, which may seem rather high at first glance, it should be borne in mind that the trade balance per capita is normally low in relation to the level of exports (imports), which is why even moderate changes in exports—here, owing to the improved price competitiveness as a result of fiscal devaluation—can lead to considerable changes in the balance of trade.

Table

Trade Balance Per Capita

	(A)	(B)
Rate of inflation	-1.60	-1.59
GDP growth	-0.36	-0.35
Net international investment (as a percentage of the GDP)	3.29***	3.30***
Unemployment rate	21.34**	20.99**
VAT rate	-100.38	-99.83
Employer social security contribution	-98.20***	-98.50***
Age dependency ratio ¹	412.360**	410.51**
Revenue neutrality indicator	22.206*	22.08*
Labor-intensive industrial structure ²		3,816.23
Labor-intensive industrial structure* social security contribution rate		-42.88
Constant	-15,142.97***	1,370.62
R ²	0.71	0.71
N	172	172

1 Age dependency ratio: population aged 65 or older relative to population aged 15 to 64 years.

2 Dummy labor-intensive industrial structure: dummy takes the value 1 if the proportion of labor-intensive industries in a country is greater than 30 percent; otherwise 0.

With the exception of the revenue neutrality indicator, the dependent variable and all the explanatory variables are given as deviations (in percent) from euro area averages.

Sources: Eurostat, OECD, S. Totev and G. Sariiski (2008).

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The lower the employer social security contributions, the higher a country's balance of trade.

In contrast, the VAT rate has no effect on a country's balance of trade. This is not particularly surprising. Given that consumption taxes apply solely to domestic consumption, they do not influence the relative price structure vis-à-vis a trading partner and should therefore not have any effect on trade.

The regression results also show that a revenue-neutral reduction in social security contributions for employers (fiscal devaluation in the traditional sense) has an additional positive effect on a country's trade balance. This may well be due to the high level of credibility associated with a fully financed easing of the burden on companies. In that case the reduction in contributions is considered a permanent change and companies are less prone to suspect a reversal of tax fortunes in the foreseeable future. As a consequence, companies are expected to implement larger price reductions which lead to correspondingly larger effects on the trade balance. In the case of over-financing, i.e., lower indicator values, the additional positive effect on the balance of trade is less pronounced.

Since fiscal devaluations work through lowering ancillary wage costs, it is reasonable to assume that the impact on labour-intensive sectors is more substantial.¹⁴ Consequently, the effect of fiscal devaluations in countries with more labor-intensive production, as is often the case in the crisis countries in the euro area, should be even greater.¹⁵ However, if the proportion of labor-intensive sectors of a given country is taken into account in the regression analysis, no such effect can be determined (see Table, column B).

Other Possible Effects of Fiscal Devaluation

As well as providing a positive stimulus for a country's balance of trade, fiscal devaluations also constitute a step toward a more growth-oriented tax system.¹⁶ Shifting ancillary wage costs to consumption taxes has a positive effect on employment and might increase the savings ratios of private households. This is confirmed by Johansson et al., who believe consumption taxes hinder growth less than ancillary wage costs and corporate taxes.¹⁷ In addition, these adjustments are in line with the efforts of the European Commission to harmonize tax systems and, in particular, VAT rates in the euro area.¹⁸ The resulting push for deeper integration in the Single Market would boost efficiency and promote growth. In other words, besides the short-term-effects via increased external trade, fiscal devaluation would also bring about long-term stimuli.

¹⁴ R. de Mooij and M. Keen, "Fiscal Devaluation and Fiscal Consolidation: The VAT in Troubled Times," Working Paper, no. 17913, (National Bureau of Economic Research, 2012).

¹⁵ In Spain and Italy, the proportion of labor-intensive industries is higher than 30 percent and in Portugal and Greece more than 40 percent. In France and Germany, in contrast, this figure is far lower (less than 25 and 20 percent, respectively); see S. Totev and G. Sariiski, "The Spatial Distribution of Labour Intensive Industries in the EU," *Regional and Sectoral Economic Studies* 8, no. 1 (2008): 5-28.

¹⁶ J.M. Arnold, B. Brys, C. Heady, A. Johansson, C. Schwellnus, and L. Vartia, "Tax policy for economic recovery and growth," *Economic Journal* 121 (2011): F59-F80.

¹⁷ Å. Johansson, et al., "Taxation and Economic Growth," OECD Economics Department Working Papers, no. 620 (2008).

¹⁸ The VAT Directive of the European Union requires the standard VAT rate to be at least 15 percent. The Council of the European Union refers explicitly to the threat of „structural imbalances“ caused by divergent VAT rates, Directive 2010/88/EU of the European Council, available on eur-lex.europa.eu/legal-content/DE/TXT/HTML/?uri=CELEX:32010L0088&from=EN. See also "Green Paper on the future of VAT – Towards a simpler, more robust and efficient VAT system," European Commission (2010), [ec.europa.eu/taxation_customs/resources/documents/common/consultations/tax/future_vat/com\(2010\)695_en.pdf](http://ec.europa.eu/taxation_customs/resources/documents/common/consultations/tax/future_vat/com(2010)695_en.pdf).

Burda and Weder also point out the stabilizing effect of lowering ancillary wage costs on cyclical fluctuations.¹⁹ They show that financing social security benefits with employer social security contributions explicitly reserved for that purpose strengthens business cycles. If social security payments are financed by corresponding taxes with a balanced budget rule and social security tax revenue decreases during a downturn, a financing gap opens up. This gap will be closed by increasing the social security tax rates and this, in turn, leads to an even deeper downturn. The undesirable link between the social security budget and the business cycle would be broken by a move towards consumption taxes.

Conclusion

In view of huge debt levels and simultaneously high unemployment rates in the crisis countries of the euro area, one should focus on policy measures that can stimulate growth without increasing the burden of public finances. A fiscal devaluation, i.e., lowering employer-side social security contributions while increasing VAT at the same time, would constitute one such measure. It would have a positive effect on a country's trade balance and possibly also on the rate of economic growth. If fiscal devaluation is to reduce trade imbalances between the member states of the euro area, it is imperative that this instrument be employed primarily in the crisis countries with chronic trade balance deficits

By no means will fiscal devaluation alone be sufficient to solve the problems of the crisis countries in the euro area. However, given that the current reform agenda of the European Commission is focused on restrictive fiscal policy and structural reforms whose positive effects on economic growth will only unfold in the long term, fiscal devaluations could serve as a tool to boost economic growth in the period of transition.

Kerstin Bernoth is Deputy Head of the Department of Macroeconomics at DIW Berlin | kbernoth@diw.de

Patrick Buraue was an Intern in the Department of Macroeconomics at DIW Berlin

Philipp Engler is Junior Professor for Macroeconomics at the Freie Universität Berlin

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¹⁹ M.C. Burda and M. Weder, "Payroll Taxes, Social Insurance and Business Cycles," (computer printout, Humboldt Universität zu Berlin, 2014).

**DIW Berlin—Deutsches Institut
für Wirtschaftsforschung e. V.**
Mohrenstraße 58, 10117 Berlin
T +49 30 897 89 -0
F +49 30 897 89 -200

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