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Working Paper

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Economics Discussion Papers, No. 2016-32

Provided in Cooperation with:
Kiel Institute for the World Economy (IfW)

Suggested Citation: Campoy-Muñoz, Pilar; Cardenete Flores, Manuel Alejandro; Delgado, M. Carmen; Hewings, Geoffrey (2016) : Effects of a reduction in employers' social security contributions: Evidence from Spain, Economics Discussion Papers, No. 2016-32

This Version is available at:
http://hdl.handle.net/10419/142684

Economics
The Open-Access, Open-Assessment E-Journal

Discussion Paper
No. 2016-32 | July 04, 2016 | http://www.economics-ejournal.org/economics/discussionpapers/2016-32

Effects of a Reduction in Employers' Social Security Contributions: Evidence from Spain

Pilar Campoy-Muñoz, Manuel Alejandro Cardenete, M. Carmen Delgado, and Geoffrey J.D. Hewings

Abstract
Programs to reduce employers' social security contributions are being widely discussed in both the political arena and academic forums as tools for promoting economic growth and boosting employment. This paper employs a computable general equilibrium model to assess the economic impact on the national economy of the proposals from the Spanish Confederation of Enterprise Organizations about reducing the social security contributions paid by employers. The results show that the proposals fail to reduce unemployment when they are combined with compensation by revenues from indirect taxes; whereas compensation through increased personal income taxes shows positive results on unemployment in exchange for decreases in private consumption.

(Published in Special Issue Recent Developments in Applied Economics)

JEL C68 H20 H32
Keywords Computable general equilibrium models; social security contributions; tax reforms; fiscal consolidation

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Citation Pilar Campoy-Muñoz, Manuel Alejandro Cardenete, M. Carmen Delgado, and Geoffrey J.D. Hewings (2016). Effects of a Reduction in Employers' Social Security Contributions: Evidence from Spain. Economics Discussion Papers, No 2016-32, Kiel Institute for the World Economy. http://www.economics-ejournal.org/economics/discussionpapers/2016-32

Received June 7, 2016 **Accepted as Economics Discussion Paper** June 21, 2016 **Published** July 4, 2016

1 Introduction

The Great Recession triggered by the financial crisis has had a severe impact on economic growth and employment around the world and especially in Europe (ILO 2015). The high and persistent levels of unemployment reached require structural labor market reforms that need to be accompanied by employment-friendly fiscal policies with effects both in the short and long run. At the same time, fiscal consolidation is called for in many of these economies to reduce debt bias or rebuild fiscal buffers employed during the crisis. The effects of both fiscal policies and fiscal consolidation on labor market outcomes varies across countries and therefore its implementation has to take into account specific country characteristics as well as its cyclical position (Bova *et al*., 2015; Dell'Erba *et al*., 2014). For developed economies, the evidence shows that expenditure-based consolidations have smaller impacts on employment and a faster rebound in jobs than revenue-based consolidations in normal and short recession periods, whereas expenditure adjustments have larger short-term negative effects on employment than revenue-based consolidations in protracted recessions (IMF 2014).

The connection between labor and fiscal spheres has a clear example in those reforms concerning the tax wedge, that is, the net tax burden on labor income borne by both the employer and the employee. Reducing the tax wedge is found to have different effects on employment across developed economies, depending on interactions with the corresponding labor market institutions (Bassanini and Duval 2006; Turrini 2013). However, in reference to one specific tax component, cuts in employers' Social Security contributions (ESSC) seem to have a longer-lasting positive impact on employment than cuts in employees' contributions (HSSC) (IMF 2014). This result may stem from the fact that the ESSC usually are the larger component of the labor tax wedge and these cuts take time to pass through into higher take-home wages. This is particularly the case in countries with stronger hiring and firing regulations, which prevent market-clearing wage levels and more rapid wage adjustments.

On the financing side, the cuts in ESSC require offsetting measures that shift the financial costs to other taxes, ensuring budget neutrality for those countries without fiscal space in which to maneuver. Such a revenue-neutral shift is usually accomplished by increasing indirect taxes; this shift would have a positive but small impact on both employment and trade balance (European Commission 2013). Indeed, the empirical evidence suggests that the tax shift needs to be sizeable to generate a significant employment effect (De Mooij

and Keen 2013), and it could have negative impact in terms of inequality if compensatory measures are not taken (Decoster *et al*. 2011) .

The labor market in Spain, as in many other European countries, has been deeply affected by the economic crisis. Unemployment exhibits one of the highest figures among EU countries, outranked only by Greece, and it cannot be solved by expansionary fiscal policies due to its debt bias. As expected, this situation has raised a set of recommendations for tax reform by several supranational organizations, such us the International Monetary Fund (IMF), the Organization for Economic Cooperation and Development (OECD) and the European Union (EU) among others. These recommendations highlight fiscal consolidation as a priority task and the shifting of the tax burden from direct to indirect taxation, in order to achieve the potential benefits on efficiency, competitiveness, economic growth and employment levels.

Drawing on these recommendations, the Spanish Confederation of Enterprise Organizations (Confederacion Española de Organizaciones Empresariales, CEOE) has made a set of reform proposals concerning both the structure of the contributory system and primarily the reduction of the ESSC, since these contributions are higher than in neighboring countries. Specifically, CEOE proposed a reduction of 5 pp of ESSC in 2009 (Álvarez-Martínez and Polo 2014) but negotiations ended without agreement; and then a cut of 2 pp in 2014 (CEOE 2014), closer to the alternative proposed in previous negotiations with the Spanish government that has been more concerned with the public deficit. In Spain, income tax and employer social security contributions combine to account for 88% of the total tax wedge, compared with 77% of the total OECD average tax wedge (OECD 2015). In budgetary terms, revenues from SSC accounted for 12.1% in terms of GDP, compared to the EU average of 10.9% and 9% for the OECD countries in 2012; but above all, the ESSC represented 59 % on the SSC total for year 2011, 11 pp higher than the EU average (MINHAP 2014).

Therefore, the main goal of this paper is to assess, using a Computable General Equilibrium (CGE) model, the effect of the proposed tax reform, including two alternative compensating scenarios that adjust indirect and personal income taxes respectively. This analysis is in line with other studies analyzing fiscal reform in Spain, both at the regional (see Cardenete 2004; Llop and Manresa 2004) and at the national level, among which the works of Sancho and Polo (1990), Bajo-Rubio and Gómez-Plana (2004) and Álvarez-Martínez and Polo (2014) stand out.

The remainder of the paper is structured as follows. Section 2 presents the main features of the CGE model. In Section 3, the simulation scenarios are described and the results are discussed, followed by the main conclusions.

2 The model

Following (Cardenete and Sancho 2003), this section presents the main features of the intersectoral CGE model with one representative firm in each sector, a single representative consumer, one public sector and one foreign or rest of the world sector. Although the model is static, it includes a savings and investment sector whose behavior follows a simple but commonly used rule in applied general equilibrium, enabling us to account for an activity (savings from the point of view of agents as consumers and other agents, and investment from the point of view of final demand) that cannot be isolated from the flows of income the model attempts to capture.

2.1 Producers

The production sphere of the economy is represented by 26 production sectors, whose objective is to maximize after-tax profits, subject to specific technological constraints. Each productive sector produces a homogeneous good using a nested constant-returns-to-scale technology. This means that there will be no excess profits. Under these conditions, the key elements for the description of the behavior of production sectors are conditional input demand functions. The inputs to the production function are of two types: the domestic output of each sector XD_j and imports M_j from the trading partners. Domestic output is obtained as a combination of intermediate inputs (output of other sectors) and a composite primary factor called value-added (*VAj*), following a Leontief fixed-coefficients technology:

$$XD_j = min\left(\frac{X_{1j}}{a_{1j}}, \frac{X_{2j}}{a_{2j}}, \ldots, \frac{X_{26j}}{a_{26j}}, \frac{VA_j}{v_j}\right) \quad i,j = 1,2,\ldots,26 \qquad (1)$$

where X_{ij} indicates the amount of good *i* required for the domestic production of good *j*; a_{ij} are the equivalents to technical coefficients in the framework of input–output analysis; VA_j represents the value added of sector *j* and v_j stands out for the minimum amount of value added required to produce one unit of good *j*.

The value added of each sector *j* is obtained by combining the primary factors, labor and capital, using a Cobb-Douglas technology. Firms minimize the cost of the composite factor:

$$\begin{gathered} min\, w\left(1+\tau_j^{essc}\right)L_j + r_j K_j \qquad j = 1,2,\ldots,26 \\ s.t. VA_j = \delta_j L_j^{\alpha_j} K_j^{(1-\alpha_j)} \end{gathered} \tag{2}$$

where L_j and K_j are the endowments of labor and capital whereas l_j and k_j are the technical coefficients for the corresponding factor and τ_j^{essc} is the ESSC tax rate. δ_j is the scale parameter and α_j is the distribution parameter for the labor factor. The assumption of constant returns to scale implies that the distribution parameter for capital can be calculated as $1-\alpha_j$.

Finally, the total output X_j is obtained by combining the domestic output XD_j with the equivalent imports M_j using a Leontief fixed-coefficients technology. This representation of the total production function follows the Armington specification (Armington 1969), in such a way that sectorial imports are considered imperfect substitutes of domestic production. Thus, the production of sector *j* is given by:

$$X_j = min\,(XD_j, M_j) \quad j = 1,2,\ldots,26 \tag{3}$$

Given the production structure of the economy, consumption prices (p_j) are equal to the unitary cost of production plus indirect taxes:

$$p_j = (1+\tau_j^{it})\left[\sum_{j=1}^{n} a_{ij}q_j + \left(1+\tau_j^{essc}\right)wL_j + rK_j + p_{row}\, a_{mj}\right] \tag{4}$$

where τ_j^{it} indicates the *ad-valorem* indirect tax of sector *j*; τ_j^{essc}represents the Social Security tax paid by employers of sector *j*; *w* and *r* are the prices of labor and capital services, respectively; p_{row} can be defined as a weighted average of the prices of foreign goods; and a_{mj} stands out for the technical coefficients for these latter goods.

2.2 Consumers

The representative household maximizes the utility derived from consumption (CD_j) and savings (*SD*) by means of a Cobb–Douglas function subject to its disposable income (*DI*). Households obtain income as result of the sale of their endowments of labor L_j and capital K_j, for which they receive a salary *w* and a capital remuneration *r*. Every household also

receive social net transfers from the government (T_g), including retirement pension, unemployment benefits and so on, and transfers from the rest of the world (T_{row}). Thus, the disposable income is expressed in nominal terms and equals households' gross income minus personal income tax and social contributions paid by employees, calculated by applying the corresponding taxes, τ^{dt} and τ^{hssc} respectively:

$$Max\ U(CD_j, SD) = \left(\prod_{j=1}^{26} CD_j^{\beta_j}\right) SD^{\left(1-\sum_{j=1}^{26}\beta_j\right)}$$

$$s.t. \sum_{j=1}^{26} p_j CD_j + p_{inv} SD = DI \tag{5}$$

$$DI = wL_j + rK_j + cpi\ T_g + T_{row} - \tau^{dt}\left(rK_j + cpi\ T_g + T_{row}\right) - \tau^{dt}\left(\left(1-\tau^{hssc}\right)wL_j\right) - \tau^{hssc} wL_j$$

Where *SD* is defined as the amount of disposable income not consumed, β_j is the share parameter of consumption, p_{inv} is an investment price index and *cpi* is a consumer price index, which updates transfers made by public sector. As usual, *cpi* is calculated as a weighted average of the prices of all sectors according to the share of each one in the overall consumption of the economy. It should be noted that, in the definition of the disposable income, social contribution by employees are not subject to personal income tax due to the current tax legislation.

2.3 Government

The government acts both as a consumer and as a producer, demanding goods and services from the private sector and supplying public goods. These activities are financed by public revenues (*R*), obtained by levying taxes on income and on transactions among other economic agents. Thus, the public revenues come from indirect (*RI*) and direct (*RD*) taxation, and also from the payments to the Social Security System made by employers (*ESSC*) and employees (*HSSC*):

$$R = RI + RD + ESSC + HSSC \tag{6}$$

The public revenues from indirect taxation (*RI*) are calculated as follows:

$$RI = \sum_{j=1}^{26} \tau_j^{it} \left[\sum_{j=1}^{26} a_{ij} p_j XD_j + \left(\left(1 + \tau_j^{essc}\right) wl_j + rk_j + p_{row}\, a_{mj}\, X_j \right) VA_j \right] \quad (7)$$

Those coming from direct taxation (*RD*) are given by:

$$RD = \tau^{dt} \left[\left(1 - \tau^{hssc}\right) wL_j + rK_j + cpi\, T_g + T_{row} \right] \quad (8)$$

where τ^{dt} is the tax on personal income applied to the endowments of labor (L_j) and capital (K_j), sold by households to the firms, and also to transfers from both the government (T_g) and the rest of the world (T_{row}), discounting the payments to Social Security made by employees $\left(\tau^{hssc} wL_j\right)$.

In our model, the tax of Social Security paid by employers (τ_j^{essc}) works in the same way as other indirect taxes. Specifically, it operates by taxing wages paid by employers to workers. On the other hand, Social Security paid by employees (τ^{hssc}) works as a direct labor tax. The total revenues from both taxes, *ESSC* and *HSSC* respectively, are calculated as follows:

$$ESSC = \sum_{j=1}^{26} \tau_j^{essc}\, wl_j\, VA_j \quad (9)$$

$$HSSC = \tau^{hssc}\, wL_j \quad (10)$$

Notice that the collection of each tax category depends on the corresponding effective tax rate and the equilibrium prices and quantities.

Finally, the difference between revenues and payments represents the deficit or surplus of the administration (*PB*). Payments are due to the transfers to the private sector (T_g) and the demand of goods and services from each sector (DG_j). Under the government closure assumption, the public activity level remains constant, although government expenditure may vary due to changes in prices,[2] and the public deficit is endogenously determined:

[2] Both T_g and DG_j are real variables therefore they are multiplied by the relevant price variable to get the nominal version.

$$PB = R - cpi\ T_g - \sum_{j=1}^{26} p_j DG_j \quad (11)$$

2.4 Foreign sector

The 'foreign' or 'rest of the world' sector is a simplified agent that includes two trading partners (the European Union and "All other countries"). Imports (M_j), exports (E_j) and transfers (T_{row}) are exogenously fixed but the current account balance (FB) and the aggregate price index for the traded commodities (p_{row}) are endogenously determined. Thus, the closure rule for the foreign sector is defined as follows:

$$FB = \sum_{j=1}^{26} p_{row} M_j \ - \sum_{j=1}^{26} p_{row} E_j \ - T_{row} \quad (12)$$

2.5 Investment and savings

The investment activity is modeled following a fixed-coefficients technology, whose inputs are the sales of the productive sectors to the investment sector and whose output level is driven by the total savings in the economy. The closure rule therefore guarantees the macroeconomic equality between the total investment of the economy and savings at the aggregated level:

$$\sum_{j=1}^{26} p_{inv} I_j \ = \ p_{inv} SD \ + PB + FB \quad (13)$$

where p_{inv} is a weighted price index of investment goods and I_j is the investment level of the sector j.

2.6 Labor market

Labor and capital demands are computed under the assumption that firms minimize the cost of producing the value-added composite factor. In the labor market, the aggregate labor supply follows the real-wage unemployment equation (Kehoe *et al*., 1995) that captures the feedback effects between the real wage and the unemployment rate. This feedback represents the frictions in the labor market that cause unemployment (Oswald 1982). Thus, in equilibrium, the aggregate labor supply satisfies the following condition:

$$\frac{w}{cpi} = \left(\frac{1-u}{1-u_0}\right)^{1/\eta} \quad (14)$$

where w/cpi is the real wage, η is a constant that represent the degree of flexibility of the real wage to the unemployment rate, u_0 is the unemployment rate in the benchmark equilibrium and u is the endogenous unemployment rate.

The labor supply is perfectly elastic up to the level of the total labor endowment where it turns inelastic. On the other hand, in the capital market, it is assumed that supply is perfectly inelastic since this factor is not commonly thought of being utility producing for consumers in the short-term (Cardenete *et al*. 2012).

2.7 Equilibrium

The model follows the concept of Walrasian competitive equilibrium enlarged to the public and foreign sector, that is, supply and demand should be equal in all non-labor markets. In the labor market there might be a situation of excess of supply or unemployment. Therefore the equilibrium definition describes a situation in which the producers maximize net profits, the consumers maximize their levels of utility and the activity levels of the public and foreign sectors conditions the values of the public and trade balance respectively. From the previous situation, the model provides an equilibrium solution, that is, a price vector corresponding to commodities, services and production factors, an output vector, an unemployment rate and a level of tax revenues such that prices follow the unit cost rule.

2.8 Database and calibration

The database used in this paper is the SAMES-09 (Ordoñez 2011). It comprises 36 accounts, including 26 productive sectors (Figure 1), 2 inputs (labor and capital), a representative consumer, a saving/investment account, a government account, the taxes accounts according to the disaggregation required by the proposed model, and a foreign sector .

(Figure 1 about here)

Using the information contained in the SAMSP-09 database, numerical values for the parameters in the model are obtained by the usual procedure of calibration (Mansur and Whalley 1984). The following parameters are calibrated: the technical coefficients of the production functions, that is, those for the production sector, both domestic (a_{ij}) and foreign (a_{mj}); and those for the production factors, labor (l_j) and capital (k_j) that produce unitary value-added; the factor distribution parameter (α_j); the share parameter of

consumption (β_j); and all the tax parameters that allow us to define the effective tax rates for all taxes, both the direct and the indirect ones $\left(\tau_j^{it}, \tau^{dt}, \tau_j^{essc}, \tau^{hssc}\right)$ as follows:

$$
\begin{aligned}
a_{ij} &= SAM_{i,j}/XD_j \\
a_{mj} &= SAM_{foreign\ sector,j}/X_j \\
l_j &= L_j/VA_j \\
k_j &= K_j/VA_j \\
\alpha_j &= \frac{L_j\left(1+\tau_j^{sce}\right)}{L_j\left(1+\tau_j^{sce}\right)+K_j} \\
\beta_j &= SAM_{consumer,j}/YD \\
Tax_j &= Revenue_j/Taxable\ \ base_j
\end{aligned}
\tag{15}
$$

The calibration criterion is to reproduce the SAMSP-09 as an initial equilibrium used as a benchmark for all the simulations. In such a benchmark, all the prices and the activity levels are unitary in the benchmark equilibrium, so that, after any of the simulation exercises, it is possible to observe the rate of change of relative prices and activity levels in the resulting equilibrium. The nominal wage (w) is used as the numeraire in all simulations and therefore the variations of the remaining prices should be interpreted in terms of the nominal wage, that is, a price increases of 10 percent means that this price increased 10 percent more than the numeraire. The elasticity of the real wage to unemployment η is set at 1.2, according to García-Mainar and Montuenga-Gómez (2003), and the unemployment rate used for 2009 is 17.86% (INE, 2015)

3 Simulations

The CGE model outlined in the previous section is used to simulate the reductions of ESSC proposed by the Spanish Confederation of Enterprise Organizations, both for year 2009 (5 pp) and the most recent for year 2014 (2 pp). Three scenarios are deployed, a scenario without compensation and other two others in which the corresponding reduction is compensated with increases in indirect taxes (IT) and personal income taxes (DT) respectively.

The ESSC taxes for each sector *j* obtained from the calibration of the models using SAMSP09 are not statutory but effective rates. Notice the time-distance discrepancy between the second proposal and the database available, which is an unavoidable but fairly common restriction in the applied general equilibrium analysis. The results should therefore be interpreted as if that second proposal had taken place in 2009. Those results comes from perturbing the initial equilibrium with the reduced effective tax, yielding the effects on relative prices, unemployment rate, activity and investment levels, consumption and fiscal aggregates.

3.1 Results

Table 1 shows the results for the aforementioned scenarios. For the scenarios without compensation, the reduction of ESSC causes a fall in consumer prices (*cpi*) and the unemployment rate (*u*). The effects on the activity level are negligible while the investment level exhibits a slight reduction due to the decrease in saving for all the sectors, since the CGE is a savings-driven model. The decrease of savings can be explained by the cut in ESSC as follows: (1) the cut in ESSC reduces the labor cost and therefore modifies the firm's optimal labor-capital ratio; (2) but the nominal wage is the fixed (numeraire) in the CGE, so that the price of the capital must decrease in order to be fully employed; (3) this fall in capital price results in a decrease of the value-added factor price and therefore in the consumer (*cpi*) and investment prices (p_{inv}), fueling consumption and discouraging savings. The fiscal aggregates show the reduction in the fiscal burden due to the fall in ESSC. This reduction also increases the public deficit due to the decrease in public revenues, since the increase in direct taxes does not compensate for the fall in indirect taxation.

(Table 1 about here)

Turning attention to scenarios with compensation, the variation in the compensating tax rate is presented in the first row of the table 1. Under the compensation with the indirect tax scenario (*IT*), consumer prices and unemployment remain practically unchanged, even with a cut of 5 pp where the changes are in the third decimal position. In this latter case, the fall in the levels of activity and investment are still small but higher than in scenarios without compensation. The fairly slight increase in *cpi* and the fall in savings respectively explain both declines. The figures for consumption show different results depending on the size of the fall of ESSC. With a cut of 2 pp, the private demand for goods and services

decreases slightly due to a combination of no changes in *cpi* and a small dip in the capital price (-0.015). The latter results in a fall of the household's income from their endowment of capital. Whereas with a cut of 5 pp, the private consumption increases because the households' disposable income (*DI*) is higher. The increase in *DI* can be explained as follows: first, households receive higher transfers from the rest of the world (T_{row}), viewed as residents' consumption abroad minus non-resident's consumption domestically; and secondly, T_{row} increases because the increase in price of the rest of the world (p_{row}) is larger than in the domestic consumption prices. As expected, the figures for fiscal aggregates are better, especially in the case of public deficit ratio with a slight improvement, due to the compensation with the *IT* revenues but also the increase in revenues from direct taxation

Finally, in the scenario of personal income tax compensation (*DT*), the *cpi* exhibits a larger decrease than in simulations without compensation. It also happens to the unemployment rate. Both outcomes occur because the full employment of capital requires a larger drop in capital prices and consequently the value-added and the price of consumption and investment prices decrease, as explained before.

On the other hand, and in contrast to what happened in the non-compensatory scenarios, the simulations show a growth in the investment levels. However, this time the increase is not driven by the investment price but rather by the improvement in the public balance. Thus, the decline in the public deficit frees up resources for investment purposes, as expected in a saving-driven model. Regarding private consumption, the results are positive but smaller than in the non-compensatory scenarios. This fact can be explained by variables acting on *DI*. On the one hand, the decline in unemployment increase the *DI* and the fall in *cpi* fuels consumption, but on the other hand, the fall in gross fixed capital formation and the growth in the personal income tax reduces the *DI*. Finally, fiscal aggregates show that the increase in the fiscal burden is directly proportional to the increase in direct taxation revenues and greater than under *IT* compensation scenarios. However, the improvement in the public deficit ratio is larger compared with the previous scenarios, as noted above.

3.2 Sensitivity analysis

In this section, the previous simulations are performed for different values of the parameter η, which captures the sensitivity of wages with respect to unemployment. If η approaches zero, unemployment tends to its benchmark value and thus real wages adjusts. However, when η approaches infinity, the real wage tends to the benchmark value, that is, they are perfectly rigid and the unemployment rate is the adjusting variable in the labor market. The econometric literatures estimates that η ranges between 0.8 and 1.5 for Spain (García-Mainar and Montuenga-Gómez 2003); the sensitivity analysis adopts these as the lower and upper bounds. Tables 2 and 3 show the results for the main economic variables. As expected, the higher (lower) the value η, the larger (smaller) reduction in unemployment rate; whereas the rest of the variables exhibit the expected behavior.

(Table 2 and 3 about here)

4 Conclusions

This work analyzes the impact on Spanish economy of a reduction of the Social Security Contributions paid by employers following the proposals from the Spanish Confederation of Enterprise Organizations (CEOE). Taking into account the debt burden of the national economy, the analysis has been completed with two different revenue-neutral scenarios, that is, compensation with indirect taxes and compensation with personal income taxes.

The results shows that the proposal of for an uncompensated decrease in the ESSC proposed by CEOE has better results in terms of reduction of unemployment and increase of consumption. However, as expected, these measures are not possible within the scope of the fiscal consolidation that Spain has been forced to adopt. The shift in tax generation to indirect taxes does not provide good results in terms of unemployment. Indeed, under this scenario, a fall of ESSC in 5 pp results in a fairly slight decrease in price and unemployment, whereas the fall in 2 pp has no effects on those variable and also causes a small decline in consumption. The compensation with personal income taxes shows an overall positive effect on unemployment and prices, larger than the non-compensatory scenarios. It also drives an increase in private consumption, but smaller than in the scenarios without compensation. All these results are robust to changes in the elasticity of real wages to unemployment.

The revenue-neutral shift options presented above should be part of a more comprehensive approach to restore the fiscal stability in Spain. This approach would involve a rapid consolidation by reducing taxation on corporations and increasing the share of revenue from taxing real state property. Once sufficient consolidation has been achieved, tax reform would making the tax system more growth-friendly by fostering environmentally sustainable growth. Beside the revenue-based consolidation in the short and medium term, structural fiscal reforms should be accomplished to ensure a long-term fiscal sustainability, containing public age-related spending and improving budgetary rules across levels of government, in particular at regional level.

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Figure 1. Social Accounting Matrix of Spain. Year 2009

#Account	Sectors	#Account	Sectors
1	Agriculture and stockbreeding,	19	Other transportation equipment
2	Fishing	20	Various manufacturing industries
3	Coal	21	Construction
4	Petroleum and natural gas	22	Commerce
5	Extraction of minerals other than energy products	23	Transport, warehousing and communications
6	Petroleum refine and nuclear fuel processing	24	Other services
7	Electric power production and distribution	25	Commercial services
8	Gas and hot water production and distribution	26	Non-commercial services
9	Water collection, treatment and supply	27	Labor
10	Food, beverage and tobacco industry	28	Capital
11	Textile, clothing, leather and footwear industry	29	Consumption
12	Timber, cork and paper industry	30	Saving/Investment
13	Chemical, rubber processing and plastic materials industry	31	Employers' SSC
14	Construction materials	32	Indirect taxes
15	Ferrous metallurgy	33	Employees' SSC
16	Fabricated metal products	34	Direct taxes
17	Machinery industry	35	Goverment
18	Automobile	36	Foreign sector

Source: Own elaboration from (Ordoñez 2011).

Table 1. Effects of a cut in ESSC

	Benchmark	Fall in ESSC	Compensation		Fall in ESSC	Compensation	
			IT	DT		IT	DT
Tax rate[b]	-	**-2,00**	**0,48**	**0,45**	**-5,00**	**1,23**	**1,11**
CPI[a]	1	-0.015	0.000	-0.017	-0.038	0.007	-0.042
Unemployemnt rate[b]	17.86%	-1.532	0.000	-1.683	-3.934	0.007	-4.324
Activity level[a]	1	0.000	-0.005	0.001	0.000	-0.015	0.001
Investment level[a]	1	-0.006	-0.009	0.026	-0.016	-0.038	0.065
Consumption/GDP[b]	67.95%	1.259	-0.011	0.310	3.221	0.078	0.764
Fiscal burden[b]	38.61%	-0.513	0.208	0.709	-1.317	0.548	1.758
Indirect fiscal burden[b]	18.62%	-0.603	0.213	-0.587	-1.543	0.512	-1.506
Direct fiscal burden[b]	19.98%	0.090	-0.004	1.296	0.225	0.036	3.264
Public déficit/GDP[c]	12.41%	0.243	-0.053	-1.008	0.603	-0.125	-2.552

Note: (a) Variations on a per unit basis; (b) Variations on a per cent basis; (c) Monetary units. GDP is calculated from the expenditure point of view, by aggregating the values of private consumption, investment, public expenditure and net exports using constant prices.

Source: Authors' elaboration.

Table 2. Effects of a cut in ESSC with η=0.8

	Benchmark	Fall in ESSC	Compensation		Fall in ESSC	Compensation	
			IT	DT		IT	DT
Tax rate[b]	-	**-2,00**	**0,48**	**0,44**	**-5,00**	**1,23**	**1,11**
CPI[a]	1	-0.015	0.000	-0.017	-0.038	0.007	-0.041
Unemployemnt rate[b]	17.86%	-1.011	0.000	-1.105	-3.793	0.004	-4.123
Activity level[a]	1	0.000	-0.005	0.000	0.000	-0.015	0.001
Investment level[a]	1	-0.008	-0.009	0.021	-0.022	-0.037	0.055
Consumption/GDP[b]	67.95%	1.330	-0.011	0.440	3.412	0.048	1.062
Fiscal burden[b]	38.61%	-0.495	0.208	0.662	-1.268	0.541	1.706
Indirect fiscal burden[b]	18.62%	-0.604	0.213	-0.589	-1.545	0.513	-1.510
Direct fiscal burden[b]	19.98%	0.109	-0.004	1.251	0.277	0.028	3.216
Public déficit/GDP[c]	12.41%	0.336	-0.053	-0.838	0.849	-0.085	-2.171

Note: (a) Variations on a per unit basis; (b) Variations on a per cent basis; (c) Monetary units. GDP is calculated from the expenditure point of view, by aggregating the values of private consumption, investment, public expenditure and net exports using constant prices.

Source: Authors' elaboration.

Table 3. Effects of a cut in ESSC with η=1.5

	Benchmark	Fall in ESSC	Compensation		Fall in ESSC	Compensation	
			IT	DT		IT	DT
Tax rate[b]	-	**-2,00**	**0,48**	**0,45**	**-5,00**	**1,20**	**1,11**
CPI[a]	1	-0.015	0.000	-0.017	-0.038	0.005	-0.042
Unemployemnt rate[b]	17.86%	-1.535	0.000	-1.683	-4.977	0.006	-5.472
Activity level[a]	1	0.000	-0.005	0.001	0.000	-0.014	0.002
Investment level[a]	1	-0.004	-0.009	0.027	-0.011	-0.038	0.070
Consumption/GDP[b]	67.95%	1.205	-0.010	0.251	3.073	0.157	0.606
Fiscal burden[b]	38.61%	-0.527	0.208	0.692	-1.355	0.511	1.710
Indirect fiscal burden[b]	18.62%	-0.602	0.213	-0.586	-1.540	0.468	-1.503
Direct fiscal burden[b]	19.98%	0.075	-0.004	1.278	0.185	0.043	3.215
Public déficit/GDP[c]	12.41%	0.117	-0.053	-1.085	0.412	-0.146	-2.754

Note: (a) Variations on a per unit basis; (b) Variations on a per cent basis; (c) Monetary units. GDP is calculated from the expenditure point of view, by aggregating the values of private consumption, investment, public expenditure and net exports using constant prices.

Source: Authors' elaboration.