Work-related tax expenditures in the EU: impact on tax revenues

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1. Introduction and motivation

- Reforming tax expenditures is a promising avenue to raise revenue in times of fiscal consolidation…

- … but not all tax expenditures are equal in terms of revenue loss /economic effects:

- behavioural reactions might have substantial effects on budgetary (and macroeconomic) outcomes

- **What we do**: decompose the revenue impacts of tax expenditures reforms into a mechanical (i.e. without behavioural reactions) and a behavioural component

1. Introduction and motivation

- Here, we consider <u>marginal reforms</u> to specific **existing** tax reliefs, i.e., <u>work-related tax expenditures</u>

  ➔ This is consistent with real-life institutions and with the political economy literature on economic reforms (gradualism)

  ➔ But the "shocks" (1% reduction in the size of the tax expenditure) are *not fully comparable* across countries, since depending on the size of the initial tax expenditures

- Our approach combines:

  i) a simple theoretical model for labour supply,

  ii) a EU-wide micro-simulation model and

  iii) heterogeneous labour supply elasticities taken from the empirical literature.

- We cover France, Spain and the UK, and use 2010 tax rules

Which policies do we actually "shock"?

- **France**: _Employment Bonus (Prime pour l'emploi – PPE)_ is an individual tax credit, whose amount depends on earned income, the tax unit income, the number of hours worked. It increases with the number of dependent children, and is phased out above € 16,251 (for single earners)

- **Spain:** _non-refundable tax allowance for taxpayers who receive "employment income"_. The amount of the allowance diminishes as the level of net employment income increases, , varying between € 2,652 and € 4,080.

- **UK:** _The working tax credit (WTC)_ is an income-tested refundable tax credit. WTC contains a number of elements depending on family composition (basic, couple and lone parent element), health (disability and severe disability element), number of hours worked (30 hour element) and age of the claimant (50+ element).

2. Methodology: theoretical background

- Standard static labour supply model with (individual-specific) fixed costs

- Individuals differ for exogenous productivity and preferences, and face a non-linear income tax schedule

- In order to facilitate welfare aggregation, income effects are disregarded: using uncompensated – Marshallian - elasticity

  ➔ equilibrium labour supply along the extensive and the intensive margin (Saez, 2001)

2. Theoretical background

- Following Immervoll et al. (2007), the change in revenues from a marginal tax reform (∂z) can be decomposed into a mechanical and a behavioural effect:

$$DR = DM + DB = \sum_{i=1}^{I}\left[\underbrace{\frac{\partial T_i}{\partial z}E_i + \frac{\partial T_0}{\partial z}(N_i - E_i)}_{mechanical} - \left(\underbrace{\frac{\tau_i}{1-\tau_i}\frac{d\tau_i}{\partial z}E_i w_i l_i \varepsilon_i}_{intensive\,margin} + \underbrace{\frac{a_i}{1-a_i}\frac{\partial(T_i - T_0)}{\partial z}\eta_i E_i}_{extensive\,margin} \right)_{behavioural} \right].$$

- Mechanical effect:

$$DM = \sum_i^I \left(\frac{\partial T_i}{\partial z} E_i + \frac{\partial T_0}{\partial z} (N_i - E_i) \right)$$

- Behavioural effect:

tax parameters

$$DB = \sum_i^I \left(\underbrace{\frac{\tau_i}{1-\tau_i} \frac{d\tau_i}{dz} E_i w_i l_i \varepsilon_i}_{intensive\,margin} + \underbrace{\frac{a_i}{1-a_i} \frac{\partial(T_i - T_0)}{\partial z} \eta_i E_i}_{extensive\,margin} \right)$$

- E_i : employed people in group (decile) i

- N_i : total population in group (decile) i

- T_i (resp. T_0): (net) tax liability when in (out of) employment

- τ_i : effective marginal tax rate

- a_i : participation tax rate

- $w_i l_i$: labour income

Elasticities are derived from Saez (2001) as:

- Participation (extensive margin):

  η_i : the percentage change in the number of workers in group *i* as result of a one percentage change in the difference in consumption between working and not working.

- Hours-of-work (intensive margin):

  ε_i : the percentage change in hours worked in group *i* as result of a one percentage change in the net-of-tax wage rate.

2.2 Elasticities

- We need to account for heterogeneity across types of individuals and countries, particularly through the extensive margin, in line with the empirical findings

- Point estimates for the elasticities are taken from the literature.

- Baseline values are:

|	France		Spain		UK	
	hours-of-work	participation	hours-of-work	participation	hours-of-work	participation
Married women*	0.02	0.1	0.08	0.43	0.02	0.07
Married women **	0.02	0.96	0.08	1.51	0.02	0.08
Married men *	0.02	0.04	0.07	0.07	0	0.06
Single women *	0.02	0.09	0.04	0.19	0.04	0.24
Single men *	0.02	0.12	0.09	0.47	0.01	0.22
* As in Bargain et al. (2012)						
** Married women extensive elascticity as in Laroque & Salanié (2001) for France						
** Married women extensive elascticity as in García & Suarez (2003) for spain						
** Married women extensive elascticity as in Blundell, Ham & Meghir (1987) for the UK						

2.2 Elasticities

- We simulated 3 scenarios:

    - S1: participation and hours-of-work elasticities – country-specific and aggregate (invariant) value across income distribution. For *lone parents* only, participation elasticities are decreasing across deciles but not varying across countries.

    - S2: as in S1. For *lone parents* and *married women*, participation elasticities are decreasing across deciles but not varying across countries.

    - S3: as in S1, also for *lone parents*. For *married women*, participation elasticities - country-specific and constant across deciles – are taken from country-specific studies.

2.3 Tax-benefit parameters

- Some parameters (EMTRs, participation tax rates) depend on the tax-benefit system

- We use EUROMOD, the EU-wide micro-simulation tools to retrieve those

- Advantages: comprehensive picture of tax burden and benefit entitlements at the individual level. Relevant as some tax relief are also conditioned on individual and family characteristics (interactions!)

3. Results

EMTRs:
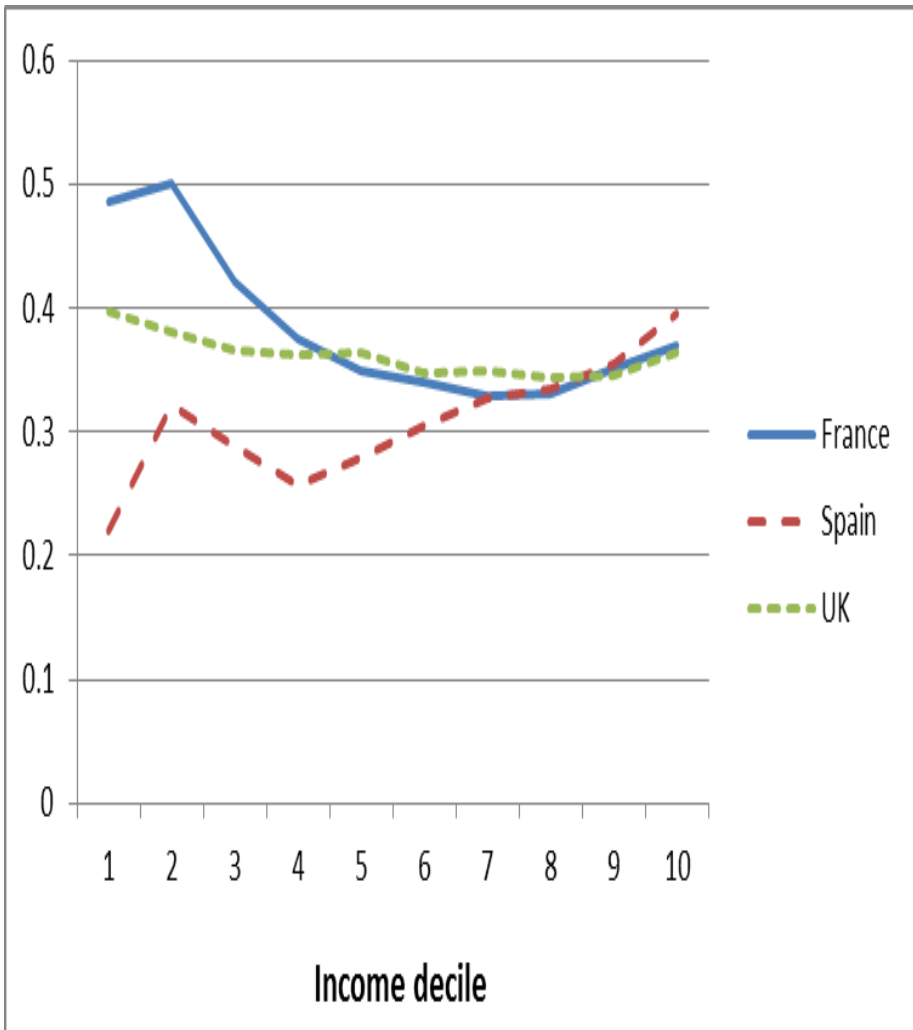
Participation tax rates :
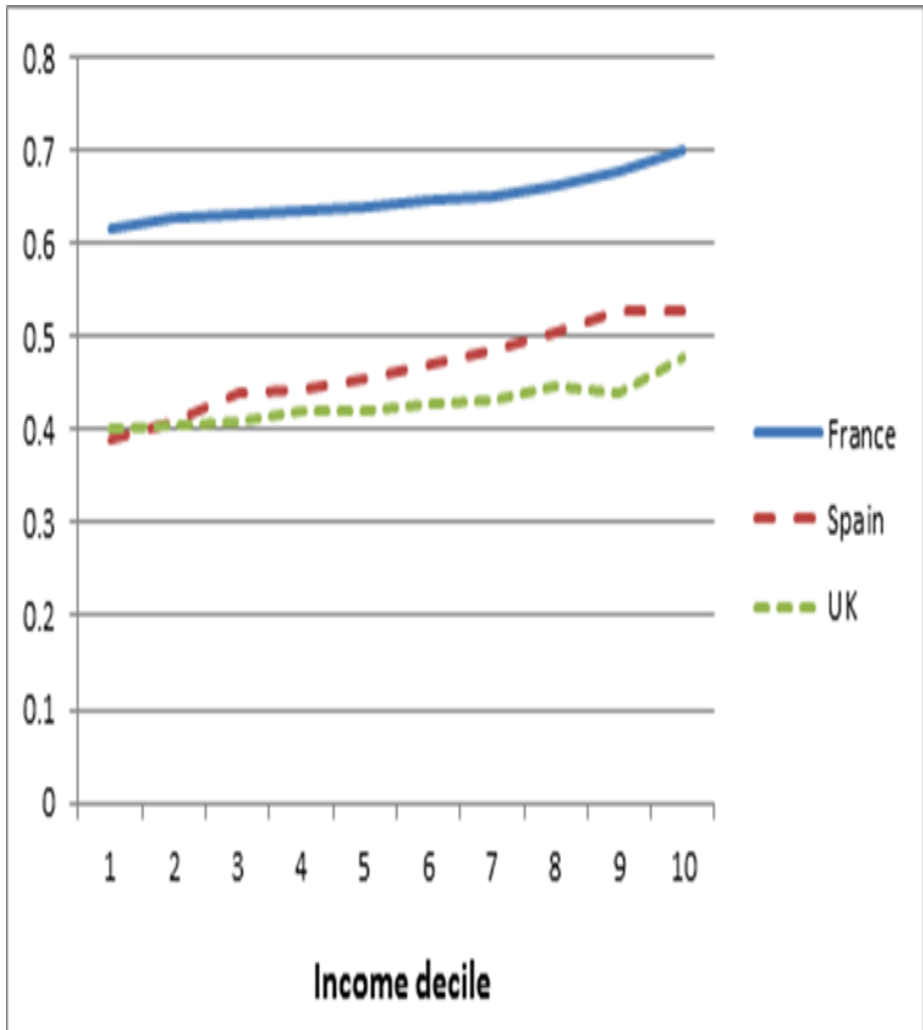
3. Results

Size of tax expenditures: comparing EUROMOD with other sources

Share in relevant tax revenues	total tax expenditure (% total tax)	year of simulation	Alternative		year of altern. estim.
			Estimate for total tax expenditure (% total tax)	Estimate for MWP tax expenditure (% total tax)	
France	9.10%	2010	7.70%	0.78%	2011
Spain	34.90%	2010	34.30%	27.58%	2009
UK	21.60%	2010	21.30%	2.74%	2011/2012

3. Simulation results for France

Decomposition of the impact of a 1% decrease in **Employment Bonus tax credit (PPE)** on tax revenues (€ million)

decile	mechanical	Scenario 1		Scenario 2		Scenario 3	
		total	behavioural_total	total	behavioural_total	total	behavioural_total
1	0.22	0.18	-0.04	0.08	-0.14	0.07	-0.15
2	0.1	0.09	-0.01	0.02	-0.08	0.01	-0.08
3	0.21	0.12	-0.09	0.11	-0.1	0.09	-0.12
4	0.17	0.11	-0.06	0.08	-0.09	0.06	-0.11
5	0.15	0.13	-0.02	0.12	-0.03	0.12	-0.03
6	0.13	0.12	-0.01	0.12	-0.01	0.11	-0.02
7	0.21	0.21	0.01	0.21	0	0.18	-0.02
8	0.12	0.11	-0.01	0.11	-0.01	0.08	-0.04
9	0.07	0.07	0	0.07	0	0.07	0
10	0.01	0.01	0	0.01	0	0.01	0
total	**1.37**	**1.15**	**-0.23**	**0.92**	**-0.45**	**0.81**	**-0.56**

3. Simulation results for Spain

Decomposition of the impact of a 1% decrease in Make Work Pay **tax allowance** on tax revenues (€ million)

decile	mechanical	Scenario 1		Scenario 2		Scenario 3	
		total	behavioural_total	total	behavioural_total	total	behavioural_total
1	3.17	1.43	-1.74	1.20	-1.96	0.91	-2.25
2	6.09	4.40	-1.69	3.83	-2.26	3.10	-2.99
3	4.39	2.95	-1.44	2.81	-1.57	2.10	-2.29
4	4.40	3.06	-1.34	2.91	-1.49	2.09	-2.31
5	4.07	2.71	-1.36	2.73	-1.33	1.76	-2.30
6	5.26	3.74	-1.52	3.77	-1.49	2.65	-2.62
7	5.16	3.89	-1.26	4.10	-1.06	2.94	-2.22
8	5.38	4.00	-1.39	4.24	-1.14	2.85	-2.53
9	5.73	4.02	-1.71	4.72	-1.02	2.28	-3.46
10	7.03	5.55	-1.48	6.23	-0.80	3.85	-3.19
total	50.68	35.74	-14.93	36.55	-14.13	24.52	-26.15

3. Simulation results for the UK

Decomposition of the impact of a 1% decrease in **Working Tax Credit** on tax revenues (€ million)

| decile	mechanical	Scenario 1		Scenario 2		Scenario 3	
		total	behavioural_total	total	behavioural_total	total	behavioural_total
1	5.69	4.74	-0.95	3.93	-1.76	4.74	-0.96
2	2.53	1.86	-0.66	1.51	-1.02	1.86	-0.67
3	1.27	0.85	-0.42	0.72	-0.55	0.85	-0.42
4	0.31	0.13	-0.17	0.10	-0.21	0.13	-0.17
5	0.23	0.02	-0.22	-0.03	-0.26	0.01	-0.22
6	0.03	-0.02	-0.04	-0.03	-0.06	-0.02	-0.04
7	0.09	0.06	-0.04	0.05	-0.05	0.06	-0.04
8	0.01	-0.07	-0.08	-0.08	-0.09	-0.07	-0.08
9	0.00	-0.07	-0.07	-0.05	-0.05	-0.07	-0.07
10	0.00	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02
total	10.16	7.49	-2.67	6.09	-4.07	7.46	-2.70

Mechanical effect
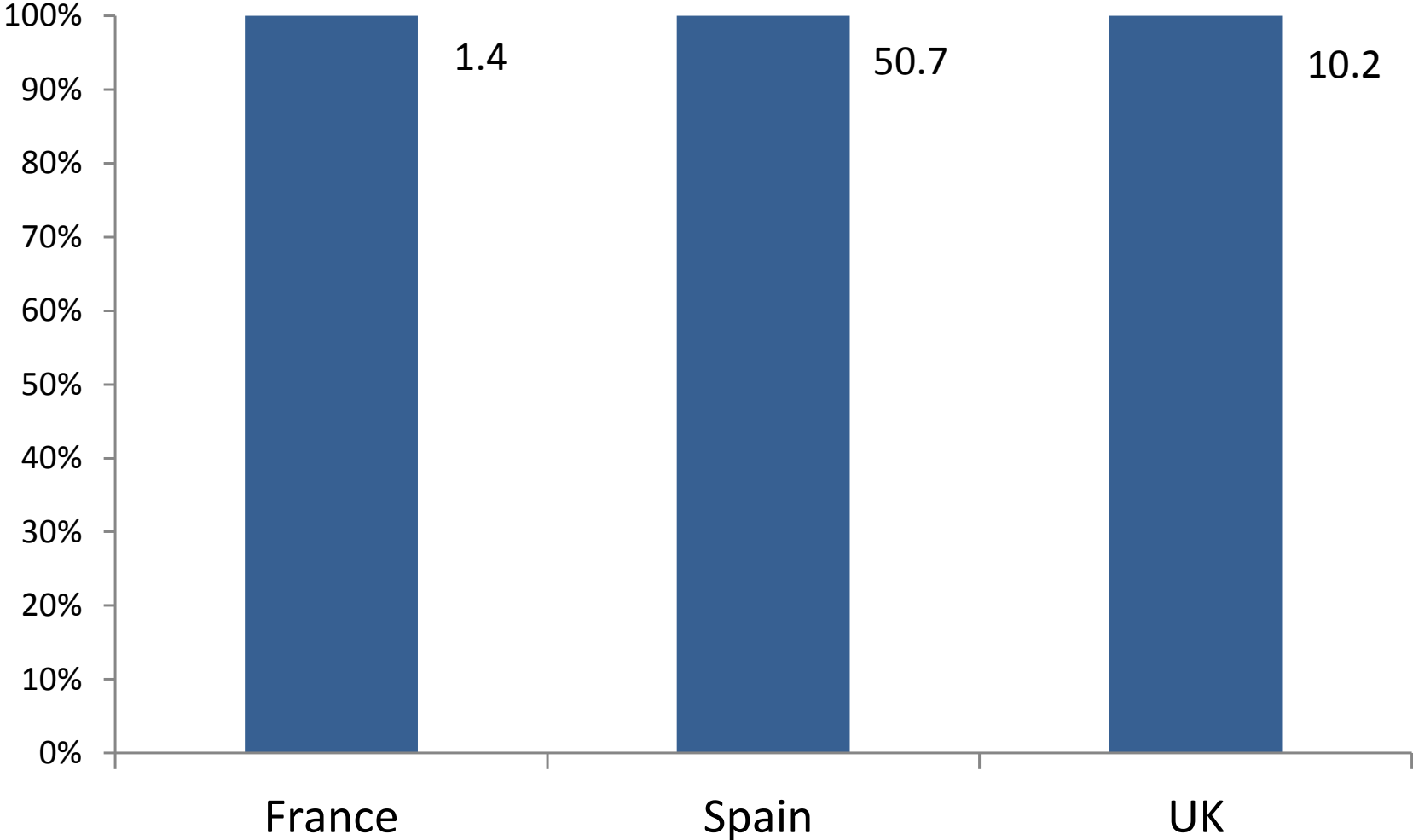
Total effect after (min) behavioural effect
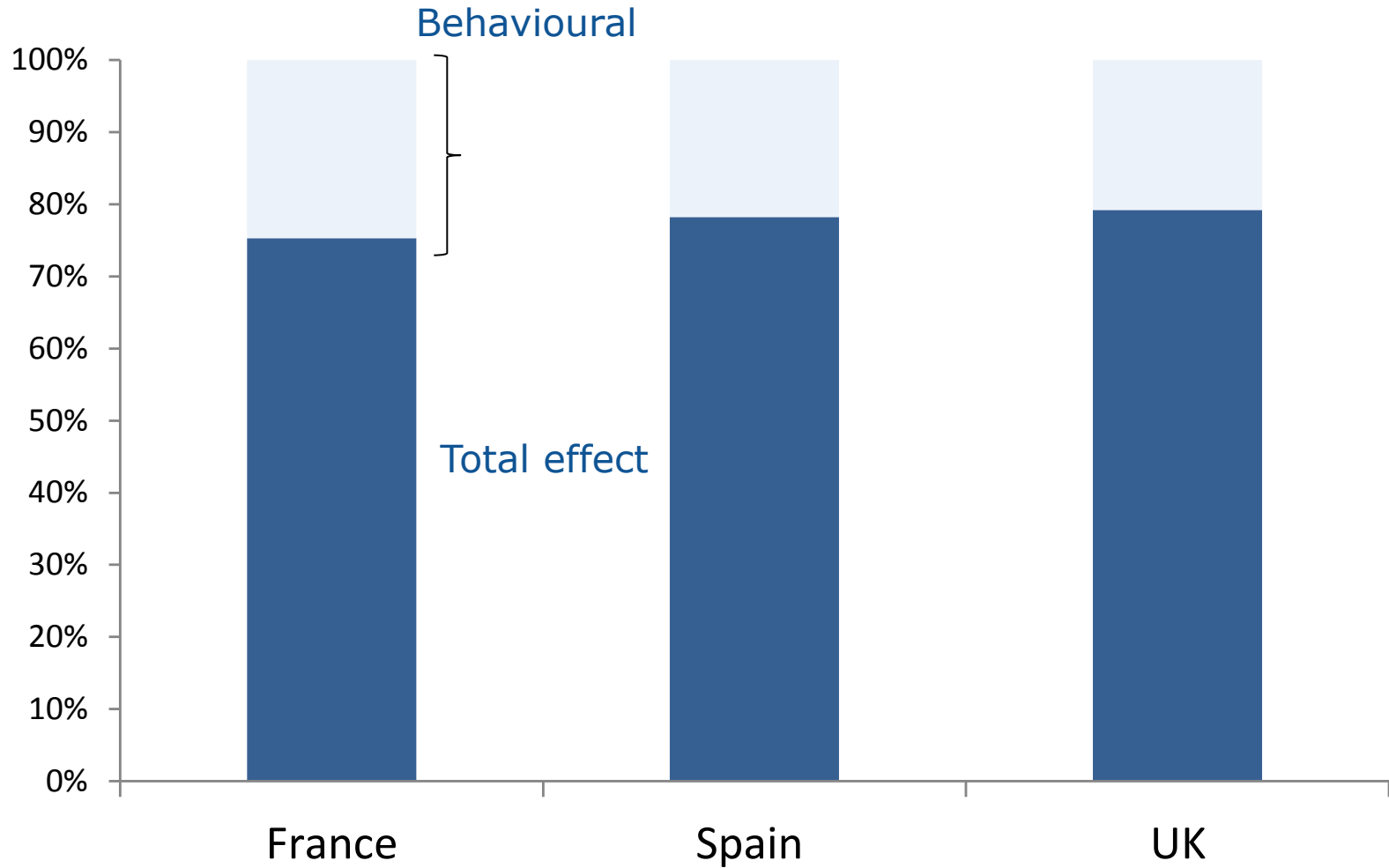
Total effect after (max) behavioural effect
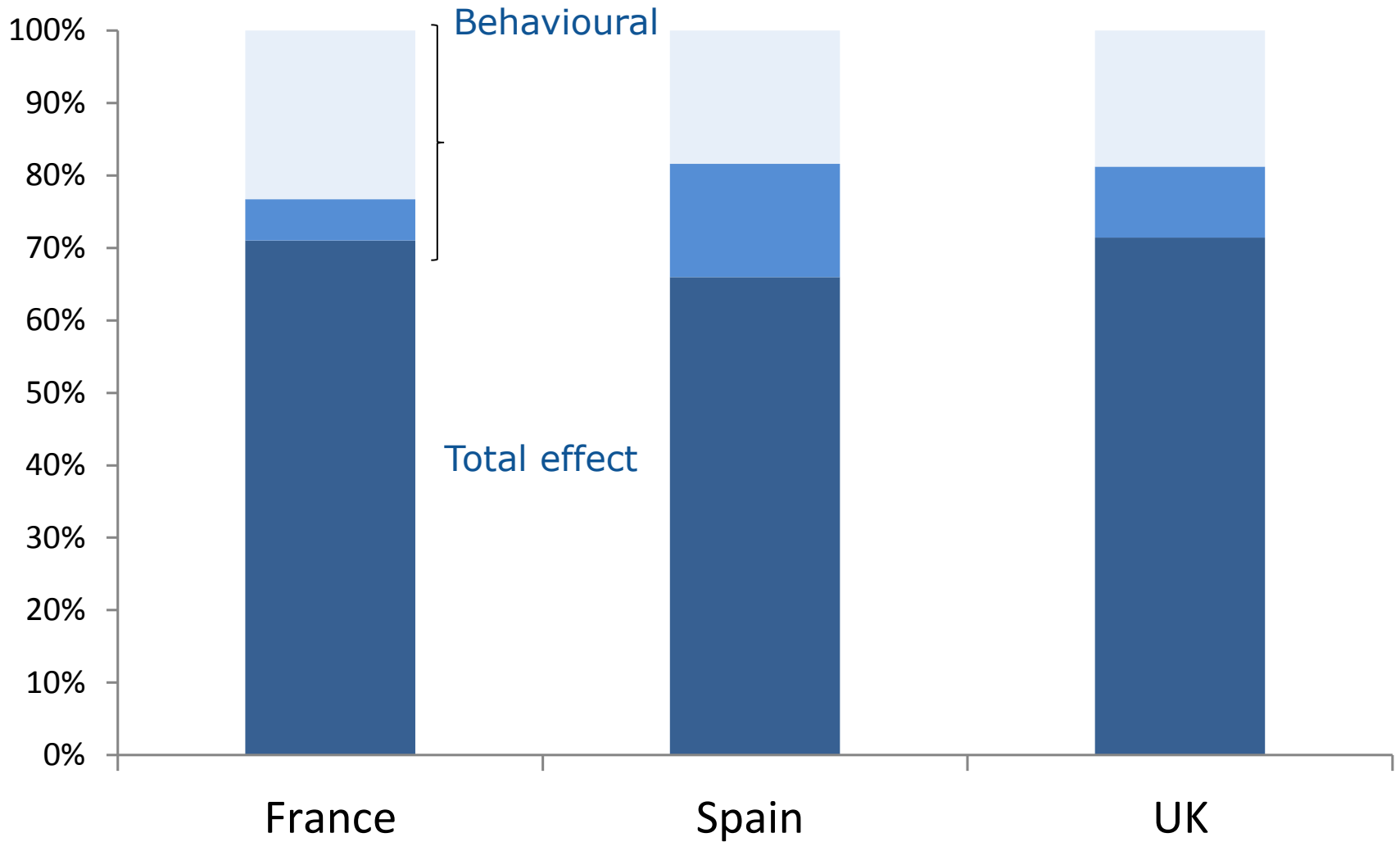
4. Conclusions

- The mechanical impact of marginal shocks depends on the initial size of the tax expenditures, varying across countries.

- The preliminary results of the paper suggest that the behavioural effects washes away around one third of the mechanical impact of the reform in the three countries considered.

- The extensive margin plays a much larger role than the intensive margin, as commonly believed in the economic literature.

- As suggested by the use of three scenarios, the results are affected by the calibration of the labour supply elasticities across agents. This is particularly the case for the distribution of behavioural revenue loss by income decile.

- Extensions are planned, e.g. regarding the geographical coverage