

# Twin deficits and Market Liberalization

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CRETE 2022

July,2022

# Fiscal adjustment and the current account

**Motivation:** The debate over the dynamic effect of fiscal intervention on the current account balance is still ongoing.

**Twin Deficits Hypothesis:**

$$CA = (S - I) + (T - G)$$

**Intuition:** The government and the private sector together form the domestic sector, and consequently a shift in the government balance causes a shift in the domestic balance if not immediately compensated by an opposite shift in the private balance sheet (assuming non-Ricardian households).

# Fiscal adjustment and the current account

## **Research in favor of twin deficits:**

Bluedorn and Leigh (2011), Breuer (2020), Afonso et.al (2022), Afonso and Opoku (2022)

→ Suggesting that 1% deterioration of the fiscal balance increases Current Account to GDP ration by 0.1% to 1%.

## **Research in favor of the Recardian equivalence:**

Alesina et al. (1991), Abbas et.al (2010), Kim and Roubini (2008), Gagnon (2011)

# The impact of labor and product market reforms on the current account

## Recent research:

- **Duval, Furceri and Jalles (2022)**: Product market liberalization is associated with a weakening of the current account
- **Duval, Furceri and Jalles (2022)**: Labor market deregulation leads to an improvement of the current account
- **Cacciatore and Fiori (2016), Cacciatore et al. (2016)**: Labor market deregulation leads to a decrease in wages and improves price competitiveness. Product market liberalization increases investment.

# Motivation of our work in progress

We try to combine the aforementioned parts of the literature:

- What is the impact of fiscal adjustment programs on the current account?
- Does the degree of liberalization of labor and product market at the time of programs' introduction plays a role?
- Does the effect depend on whether the program is spending based or tax based?

# Dataset

- We work with 16 advanced countries, 9 of which are in the Euro area
- Years: 1980 - 2014
- Countries: Australia, Austria, Belgium, Canada, Germany, Denmark, Spain, Finland, France, Ireland, Italy, Japan, Portugal, Sweden, United Kingdom, United States

**Fiscal Programs:** Alesina et. al (2015,2019)

**Product and Labor Markets Liberalization Indexes:** Alesina et. al (2020)

# Methodology: Local Projection

- We implement the Local Projection setup as described by Jorda(2005)

## Baseline:

$$y_{it+h} - y_{it-1} = \alpha_i + \gamma_t + Ft_{it}\delta + X_{it}\beta + u_{it}$$

## Results: Fiscal Plans and the CA/GDP

Dependent Variable:  $CAGDP_{it+h} - CAGDP_{it-1}$

	t	t+1	t+2	t+3	t+4
Ft	0.19**	0.50***	0.58**	0.45*	0.35**
Ft Eb	0.22***	0.53***	0.62***	0.48**	0.31**
Ft Tb	0.13	0.52**	0.62**	0.55	0.62*
Observations	496	480	464	448	432
Number of id	16	16	16	16	16

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$



## Results: Marginal Effects and Market Structure

Model:

$$\begin{aligned}y_{it+h} - y_{it-1} &= (Ft_{it} * Market_{it-1})\beta_1 + (Ft_{it} * (Market_{it-1})^2)\beta_2 \\ &+ Ft_{it}\delta + Market_{it-1}\theta_1 + (Market_{it-1}^2)\theta_2 \\ &+ \alpha_j + \gamma_t + u_{it}\end{aligned}$$

Marginal Effects:

$$\frac{d(y_{it+h} - y_{it-1})}{d(Ft_{it})} = \delta + Market_{it-1}\beta_1 + (Market_{it-1})^2\beta_2$$

\* Standard errors are computed using delta method

## Results: Marginal Effects and The Labor Market

Dependent Variable:  $CAGDP_{it+h} - CAGDP_{it-1}$

	t	t+1	t+2	t+3	t+4
Labor at 40	0.37***	0.85***	1.27***	1.63***	1.66**
Labor at 50	0.37***	0.86***	1.35***	1.81***	1.96***
Labor at 60	0.33***	0.79***	1.28***	1.77***	2.03***
Labor at 70	0.25**	0.62***	1.04***	1.50***	1.85***
Labor at 80	0.13**	0.38***	0.63***	1.03***	1.42***
Labor at 90	-0.02	-0.05	0.06	0.33	0.74*
Labor at 100	-0.22	-0.37	-0.68*	-0.58	-0.28
Observations	496	480	464	448	432
Number of id	16	16	16	16	16

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

## Results: Marginal Effects and Expenditure Based Plans

Dependent Variable:  $CAGDP_{it+h} - CAGDP_{it-1}$

	t	t+1	t+2	t+3	t+4
Labor at 40	0.37***	0.94***	1.34***	1.62***	1.63**
Labor at 50	0.38***	0.95***	1.46***	1.85***	2.03***
Labor at 60	0.35***	0.87***	1.40***	1.86***	2.17***
Labor at 70	0.28***	0.71**	1.16***	1.63***	2.04**
Labor at 80	0.17**	0.46	0.76***	1.19***	1.64***
Labor at 90	0.02	0.11	0.18	0.51*	0.99**
Labor at 100	-0.17	0.31	-0.57*	-0.39	0.08
Observations	496	480	464	448	432
Number of id	16	16	16	16	16

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

## Results: Marginal Effects and Tax Based Plans

Dependent Variable:  $CAGDP_{it+h} - CAGDP_{it-1}$

	t	t+1	t+2	t+3	t+4
Labor at 40	0.62***	1.88**	1.89***	2.34***	1.66*
Labor at 50	0.46**	0.75***	1.41***	1.74**	1.17
Labor at 60	0.30	0.61**	1.00*	1.23	0.81
Labor at 70	0.14	0.44	0.66	0.82	0.57
Labor at 80	-0.02	0.26	0.40	0.52	0.44
Labor at 90	-0.17	0.05	0.22	0.30	0.42
Labor at 100	-0.33	-0.18	0.10	0.18	0.51
Observations	496	480	464	448	432
Number of id	16	16	16	16	16

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## Results: Fiscal Plans and Investment

Dependent Variable:  $INVESTGDP_{it+h} - INVESTGDP_{it-1}$

	t	t+1	t+2	t+3	t+4
Labor at 40	-0.20***	-0.45***	-0.56**	-0.67*	-0.44
Labor at 50	-0.21***	-0.50***	-0.65***	-0.80**	-0.64
Labor at 60	-0.20***	-0.49***	-0.64**	-0.80**	-0.70
Labor at 70	-0.17**	-0.42**	-0.52**	-0.63	-0.60
Labor at 80	-0.12	-0.29	-0.28	-0.32	-0.35
Labor at 90	-0.05	-0.10	-0.05	0.13	0.05
Labor at 100	0.04	0.15	0.50	0.74*	0.60
Observations	496	480	464	448	432
Number of id	16	16	16	16	16

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

## Results: Expenditure Based Plans and Investment

Dependent Variable:  $INVESTGDP_{it+h} - INVESTGDP_{it-1}$

	t	t+1	t+2	t+3	t+4
Labor at 40	-0.07	-0.22**	-0.24	-0.11	0.13
Labor at 50	-0.08	-0.29**	-0.40*	-0.40	-0.22
Labor at 60	-0.08	-0.29**	-0.41*	-0.47	-0.36
Labor at 70	-0.04	-0.20*	-0.25	0.32	-0.30
Labor at 80	0.01	-0.05	0.05	0.03	-0.03
Labor at 90	0.08	0.19	0.51**	0.61**	0.45
Labor at 100	0.17	0.50*	1.13***	1.40***	1.15***
Observations	496	480	464	448	432
Number of id	16	16	16	16	16

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

**\*\*Note:** We find that Tax - Based consolidations have a negative effect around 2.5% on the Investment to GDP ratio.

## Results: Fiscal Plans and Saving

Dependent Variable:  $SAVINGGDP_{it+h} - SAVINGGDP_{it-1}$

	t	t+1	t+2	t+3	t+4
Labor at 40	0.20***	0.42***	0.62***	0.84***	0.92**
Labor at 50	0.20**	0.39**	0.61***	0.82**	0.95**
Labor at 60	0.16*	0.33**	0.55**	0.76**	0.94**
Labor at 70	0.11	0.24*	0.46**	0.67**	0.89**
Labor at 80	0.02	0.13	0.32*	0.55**	0.78**
Labor at 90	-0.09	0.00	0.14	0.40	0.62
Labor at 100	-0.22	-0.15	-0.08	0.22	0.42
Observations	496	480	464	448	432
Number of id	16	16	16	16	16

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

**\*\*Note:** We find that Expenditure - Based consolidations have a positive effect around 1.3% on the Saving to GDP ratio.

## Results: Taxed Based Plans and Saving

Dependent Variable:  $SAVINGGDP_{it+h} - SAVINGGDP_{it-1}$

	t	t+1	t+2	t+3	t+4
Labor at 40	-0.18	-0.40	-0.33	-0.82*	-1.42**
Labor at 50	-0.14	-0.42	-0.61*	-1.19**	-1.56**
Labor at 60	-0.18	-0.53*	-0.92**	-1.53***	-1.77***
Labor at 70	-0.30*	-0.72**	-1.25***	-1.85***	-2.05***
Labor at 80	-0.50***	-0.99***	-1.63***	-2.13***	-2.40***
Labor at 90	-0.78***	-1.35***	-2.03***	-2.39***	-2.83***
Labor at 100	-1.15***	-1.80***	-2.47***	-2.62***	-3.33**
Observations	496	480	464	448	432
Number of id	16	16	16	16	16

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$



## Results: Marginal Effects and The Product Market

Dependent Variable:  $CAGDP_{it+h} - CAGDP_{it-1}$

	t	t+1	t+2	t+3	t+4
Product at 40	0.17	0.61**	0.79**	1.01**	1.24**
Product at 50	0.20	0.67**	0.82**	0.99*	1.22**
Product at 60	0.23*	0.73**	0.87**	1.04**	1.29**
Product at 70	0.28**	0.78***	0.96**	1.16**	1.44**
Product at 80	0.34***	0.83***	1.08***	1.36**	1.67***
Product at 90	0.41***	0.88***	1.23***	1.62**	1.99***
Product at 100	0.48***	0.93***	1.41***	1.95***	2.39***
Observations	496	480	464	448	432
Number of id	16	16	16	16	16

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

## Results: Expenditure Based Plans and The Product Market

Dependent Variable:  $CAGDP_{it+h} - CAGDP_{it-1}$

	t	t+1	t+2	t+3	t+4
Product at 40	0.22*	0.64**	0.89**	1.08**	1.35**
Product at 50	0.24	0.68**	0.89**	1.03**	1.26**
Product at 60	0.27	0.73**	0.93**	1.05**	1.25**
Product at 70	0.31*	0.78**	1.00**	1.16**	1.33**
Product at 80	0.36**	0.85***	1.12**	1.32**	1.49***
Product at 90	0.42***	0.92***	1.28***	1.58***	1.74***
Product at 100	0.49***	1.00***	1.47***	1.91***	2.06***
Observations	496	480	464	448	432
Number of id	16	16	16	16	16

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

## Results: Tax Based Plans and The Product Market

Dependent Variable:  $CAGDP_{it+h} - CAGDP_{it-1}$

	t	t+1	t+2	t+3	t+4
Product at 40	-0.19	0.53	0.71	0.72	0.19
Product at 50	-0.09	0.67	0.84	0.79	0.32
Product at 60	-0.02	0.77	0.95	0.92	0.56
Product at 70	0.14	0.84*	1.06	1.10	0.92
Product at 80	0.27	0.87**	1.16**	1.34*	1.39*
Product at 90	0.40***	0.87***	1.26***	1.63**	1.97**
Product at 100	0.55***	0.83***	1.34***	1.98***	2.67***
Observations	496	480	464	448	432
Number of id	16	16	16	16	16

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

## Results: Tax Based Plans and Investment (Product Market)

Dependent Variable:  $INVESTGDP_{it+h} - INVESTGDP_{it-1}$

	t	t+1	t+2	t+3	t+4
Product at 40	-0.50***	-1.48***	-2.15***	-2.53***	-2.31***
Product at 50	-0.53***	-1.54***	-2.21***	-2.54***	-2.26***
Product at 60	-0.55***	-1.56***	-2.23***	-2.57***	-2.28***
Product at 70	-0.55***	-1.52***	-2.21***	-2.63***	-2.38***
Product at 80	-0.55***	-1.45***	-2.14***	-2.72***	-2.55***
Product at 90	-0.54***	-1.32***	-2.03***	-2.84***	-2.79***
Product at 100	-0.51***	-1.15***	-1.87***	-2.98***	-3.11***
Observations	496	480	464	448	432
Number of id	16	16	16	16	16

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

## Results: Tax Based Plans and Saving (Product Market)

Dependent Variable:  $SAVINGGDP_{it+h} - SAVINGGDP_{it-1}$

	t	t+1	t+2	t+3	t+4
Product at 40	-0.75***	-1.03**	-1.55***	-2.11***	-2.73***
Product at 50	-0.76***	-1.05**	-1.55***	-2.10***	-2.59***
Product at 60	-0.72***	-1.03**	-1.51***	-2.04***	-2.36***
Product at 70	-0.63***	-0.96**	-1.42***	-1.94***	-2.05***
Product at 80	-0.50***	-0.85**	-1.28***	-1.80***	-1.66***
Product at 90	-0.31**	-0.70**	-1.09***	-1.61***	-1.17*
Product at 100	-0.08	-0.51	-0.85**	-1.38**	-0.60
Observations	496	480	464	448	432
Number of id	16	16	16	16	16

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

## Results: Expenditure Based Plans and The Real Exchange Rate

Dependent Variable:  $\ln RER_{it+h} - \ln RER_{it-1}$

	t	t+1	t+2	..t+6
Labor at 50	0.20	0.37	-0.10	-2.08**
Labor at 60	0.07	0.16	-0.38	-2.78**
Labor at 70	-0.19	-0.33	-0.87	-2.84**
Labor at 80	-0.56**	-1.08*	-1.56	-2.25
Labor at 90	-1.05***	-2.13**	-2.47**	-1.02
Observations	512	496	480	416
Number of id	16	16	16	16

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

## What we takeaway!

- In general we find evidence in favor of the twin deficits hypothesis.
- The differentiation between expenditure based and tax based plan is important.
- A tax based plan decreases a lot SAVINGS/GDP the more liberalized the labor market is and the more regulated the product market is.
- An expenditure based plan decreases INVESTMENTS/GDP in the short run when the labor market is regulated, but we observe a crowding-in effect in the medium term when the labor market is liberalized.

# Future Work

- Effects on Output and Labor Market Outcomes (Employment, Unemployment, Sectoral Employment etc) depending on how reformed the country is.
- It will probably describe the mechanisms clearly.
- There is a forthcoming dataset of reforms on minimum wages from Afonso et.al (2022).
- Maybe: A non-linear model where the program affects (future) reforms and via the interaction output. A bit subtle to work on...