How "Big" Should Government Be?

António Afonso
ISEG/UL – Lisbon School of Economics and Management, University of Lisbon
REM – Research in Economics and Mathematics
UECE – Research Unit on Complexity and Economics

aafonso@iseg.ulisboa.pt

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aafonso@iseg.ulisboa.pt

"The question we ask today is not whether our government is too big or too small, but whether it works (…). Where the answer is yes, we intend to move forward. Where the answer is no, programs will end. And those of us who manage the public's dollars will be held to account – to ***spend wisely, reform bad habits, and do our business in the light of day*** *– because only then can we restore the vital trust between a people and their government."*

(Barack Obama inaugural speech, 20 January 2009)

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- We assess how “big” government should reasonably be in a number of advanced countries.
- First, we will link the recent findings of DEA studies on efficient public expenditure with the question of the size of the government.
- Second, we report descriptive analysis of various government performance indicators in relation to public expenditure to provide indications of overall “optimal” across spending categories.
- The highest savings potential is in the biggest expenditure categories, public consumption and social expenditure

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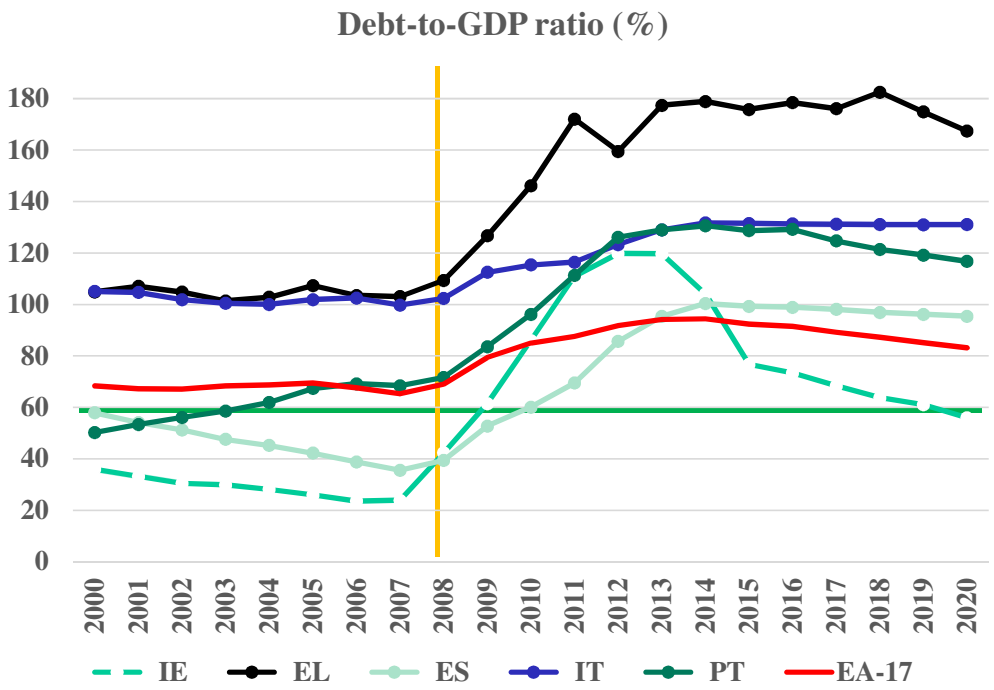
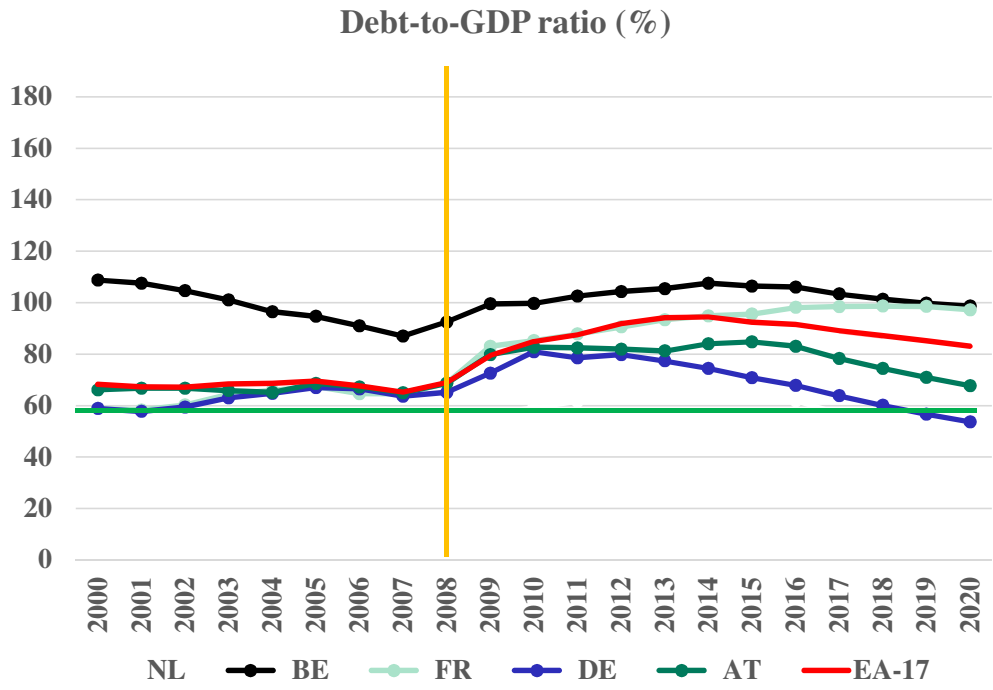
Sizing the government, General Government Debt (% of GDP)





15th Sept, 2008 - Lehman Brothers' bankruptcy.

Source: European Commission economic forecast, 31-10-2018.

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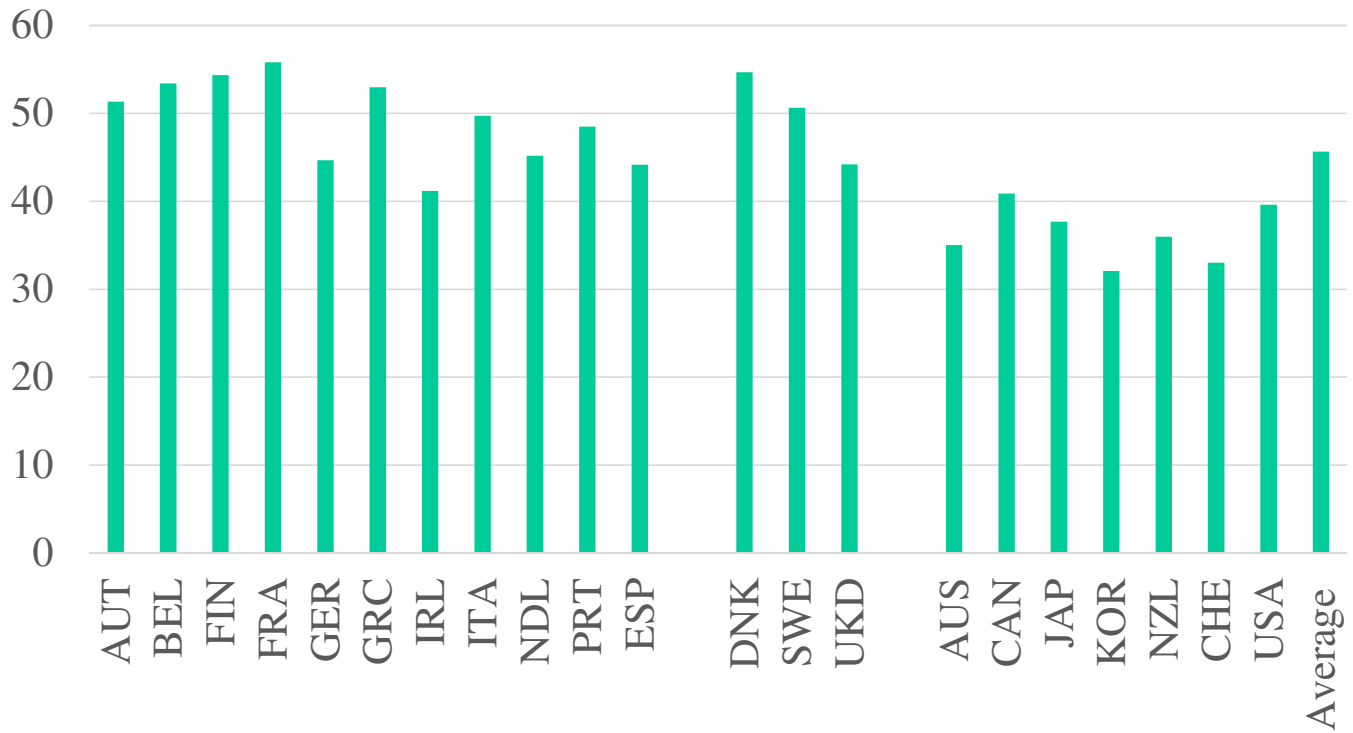
Total Government Spending, Average 2008-2017 (% of GDP)



Source: OECD.

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Literature

Overall public sector efficiency

Authors	Sample	Methods	Results
Afonso, Schuknecht, Tanzi (2005)	23 OECD countries	FDH	The average input efficiency score of the 15 EU countries is 0.73 (around 27% could be reduced).
Adam, Delis, Kammas (2011)	19 OECD countries,1980-2000	Stochastic DEA	Countries with right-wing and strong governments, high voter participation rates and decentralized fiscal systems, are expected to have higher PSE.
Afonso, Romero, Monsalve (2013)	Latin American and Caribbean countries, 2001-2010	DEA	Output efficiency scores higher than input efficiency scores. PSE is inversely correlated with the size of the government, while the efficiency frontier is defined by Chile, Guatemala, and Peru.
Dutu, Sicari (2016)	35 OECD countries, 2012	DEA	Wide dispersion in efficiency measures across OECD, health care, education, general administration.
Chan et al. (2017)	115 countries	Panel GMM	VAT system enhances the effect of efficient government spending on the economic growth.
Afonso, Kazemi (2017)	20 OECD countries, 2009-2013	DEA	Countries on average spent 27% more than necessary to attain their performance (score of 0.73).
Montes, Bastos, Oliveira (2018)	68 developing and 14 developed countries, 2006–2014	Panel, GMM	Fiscal transparency affects government spending efficiency.
Herrera, Ouedrago (2018)	175 countries for 2006-2016 on education, health, infrastructure	FDH, DEA	The efficiency of capital spending is correlated with regulatory quality and perception of corruption.
Mohanty, Bhanumurthy (2018)	27 Indian States, 2000-2015	DEA	Higher efficiency on education than on health and overall social spending. Governance and growth affects the efficiency.
Antonelli, de Bonis (2019)	22 EU countries, 2013	Median voter model	More efficient have higher education and GDP levels, smaller population size, lower degree of selectivity of their welfare systems and a lower corruption level.

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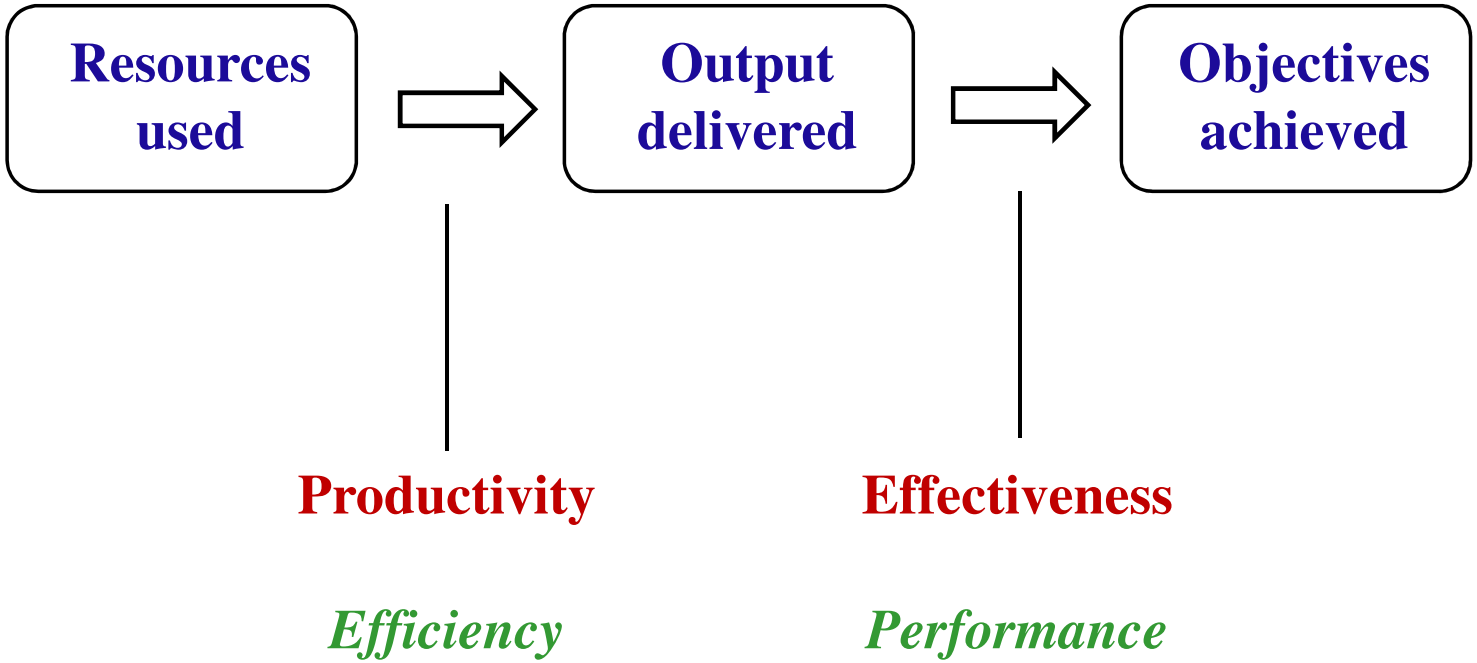
Resources used input and output of public services



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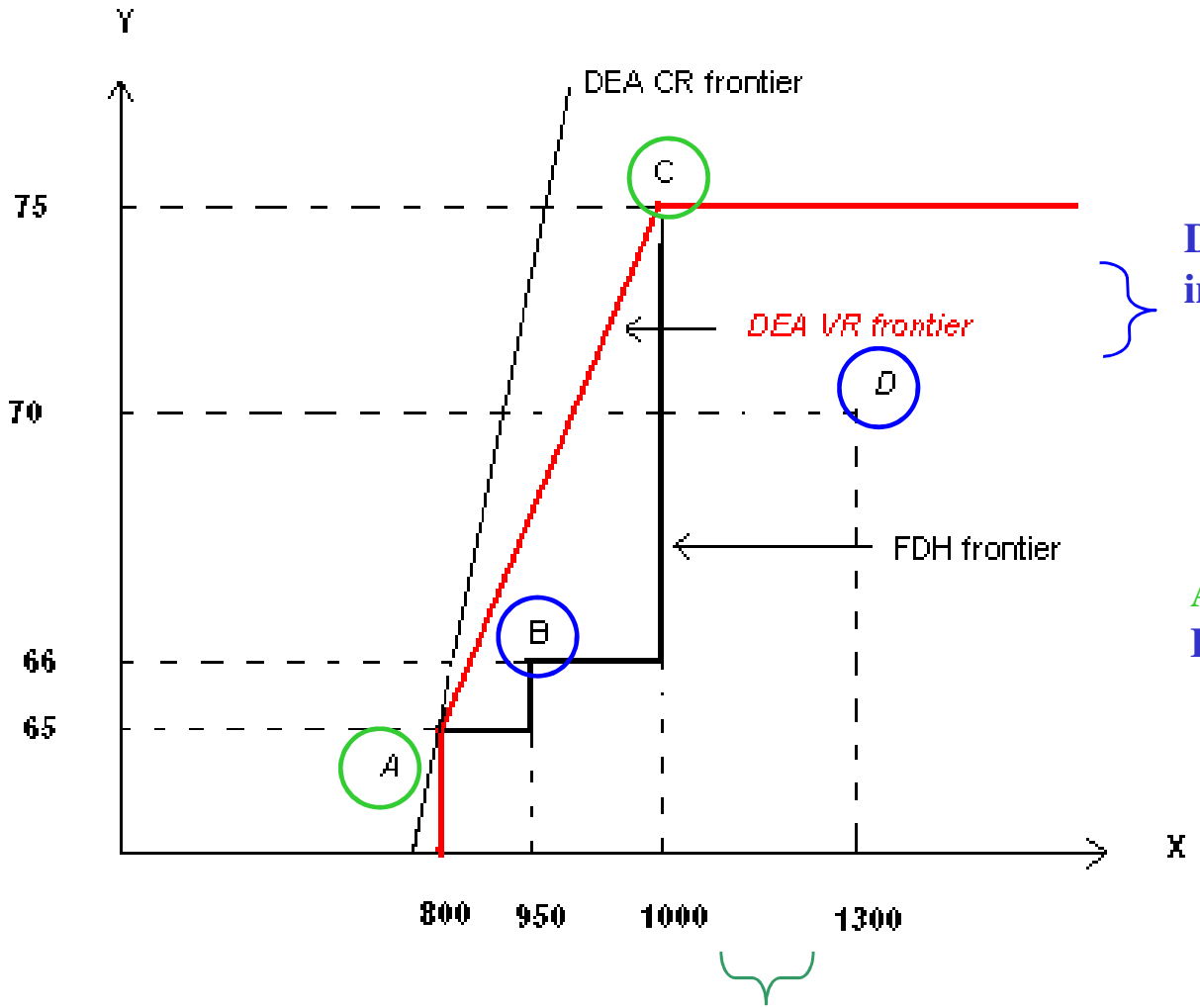
DEA and FDH illustration



D's output inefficiency

A, C – efficient;
B, D – less efficient.

D's input inefficiency

aafonso@iseg.ulisboa.pt

Input and output oriented analysis

• **Input-oriented** scores: evaluate by how much input quantity can be proportionally reduced without changing the output quantities.

• **Output-oriented** scores: how much output quantities can be proportionally increased without changing the input quantities used.

• The two measures provide the same results under constant returns to scale but give different values under variable returns to scale.

• Nevertheless, both output and input-oriented models will identify the same set of efficient/inefficient decision-making units.

aafonso@iseg.ulisboa.pt

DEA, VRS, input oriented

$$Y_i = f(X_i),\ i = 1, \dots, n \qquad (1)$$

Y - output measure; X - input measure.

$$\min_{\theta,\lambda} \theta$$

$$s.t.\ -y_i + Y\lambda \geq 0$$

$$\theta x_i - X\lambda \geq 0 \qquad \textbf{(2)}$$

$$I1'\lambda = 1$$

$$\lambda \geq 0$$

y_i - column vector of outputs,
x_i - column vector of inputs,
θ - efficiency scores,
λ - vector of constants,
$I1'$ - vector of ones,
X - input matrix,
Y - output matrix.

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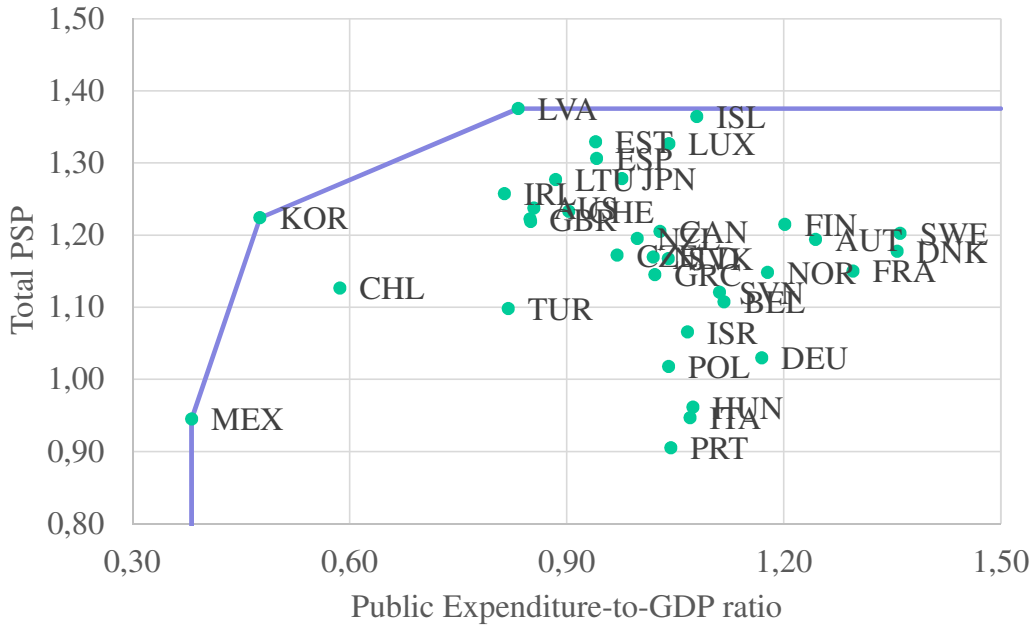
Some results, DEA (1/2)

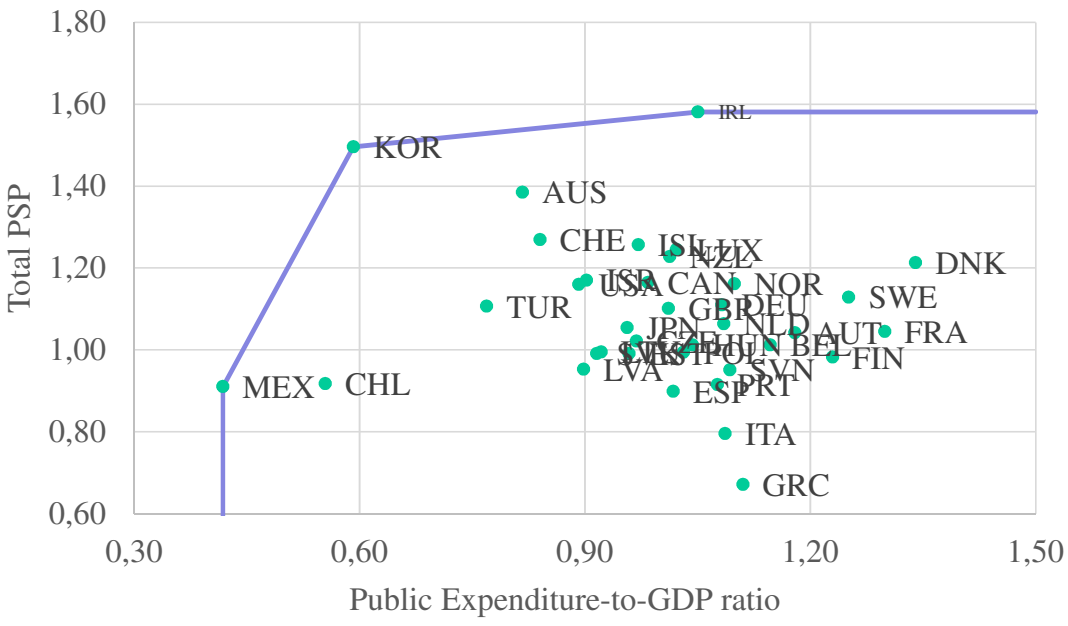
Production Possibility Frontier: 1 input, 1 output

2003-2007



Frontier: South Korea, Latvia, Mexico

2013-2017



Frontier: Ireland, South Korea, Mexico

Source: Afonso, Jalles, Venâncio (2019).

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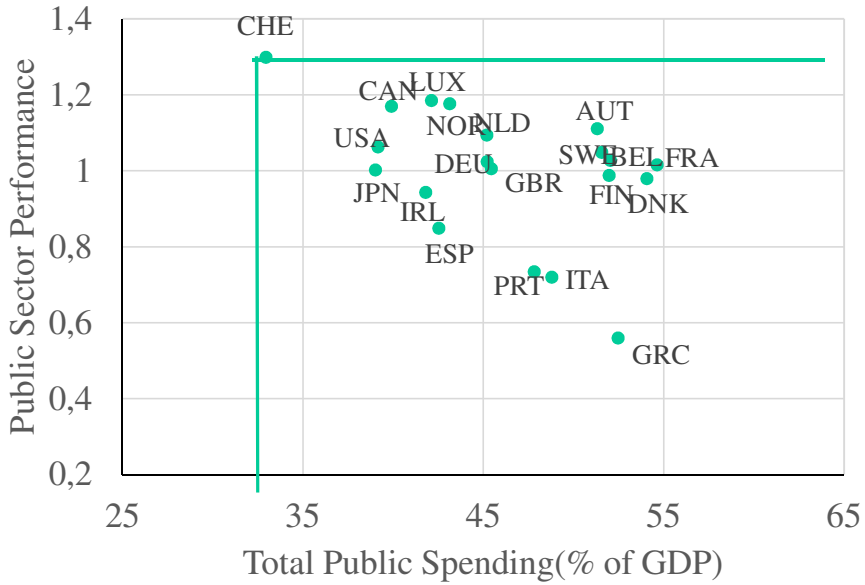
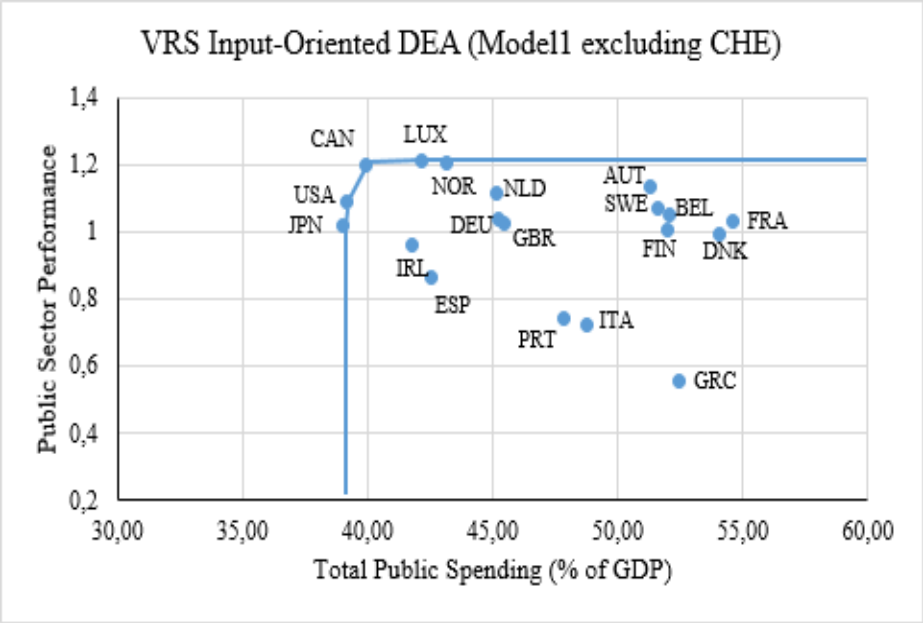
Some results, DEA (2/2)

Production Possibility Frontier: 1 input, 1 output





Source: Afonso and Kazemi, 2017. Public sector performance reflects aggregate performance across indicators as in Afonso, Schuknecht and Tanzi (2005) and Afonso and Kazemi (2017), with the average performance set as 1.

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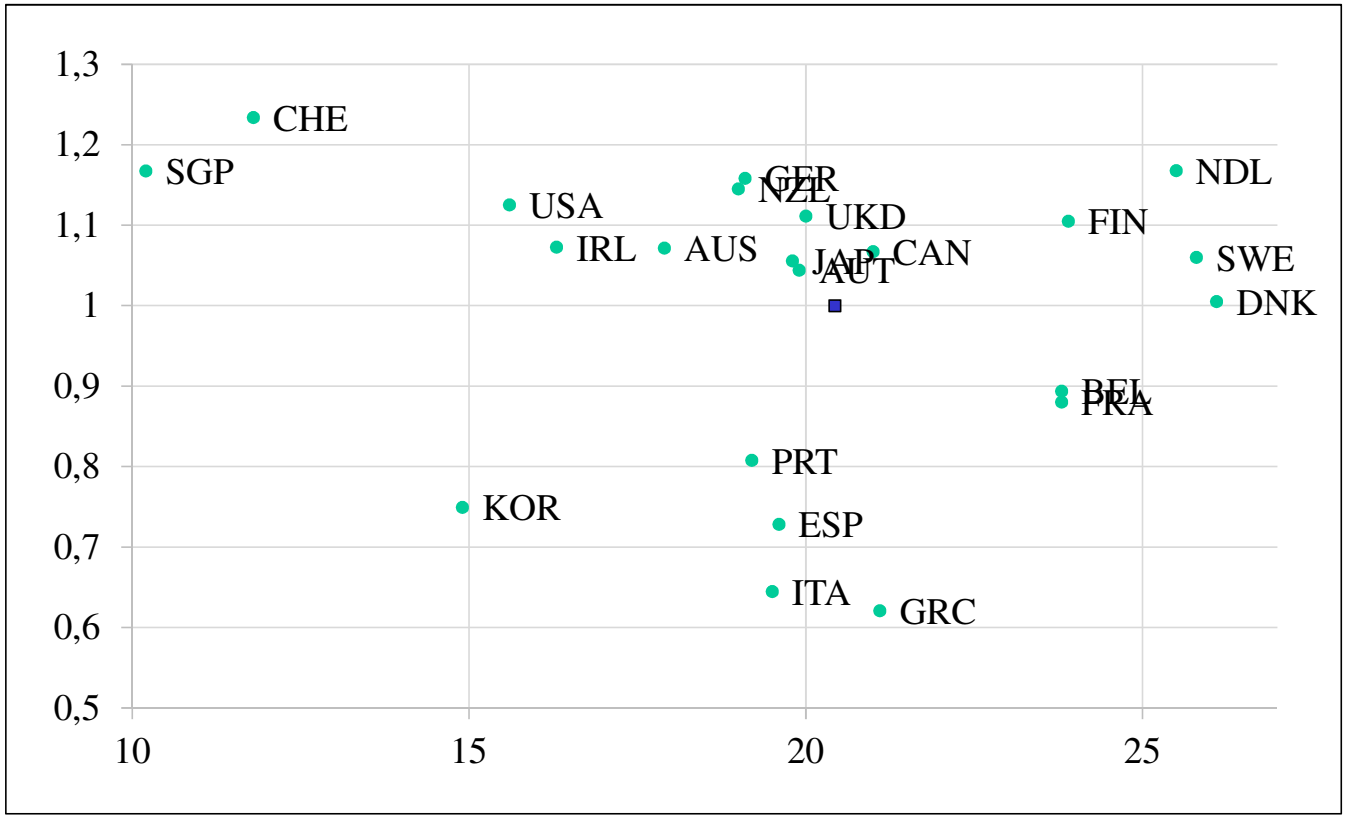
Administration performance and real expenditure, 2017



Source: Own calculations. The horizontal axis shows public consumption expenditure in % of GDP, the vertical axis shows country performance across a set of indicators including corruption, red tape, independent judiciary, size of the shadow economy and rule of law with average performance set as 1.

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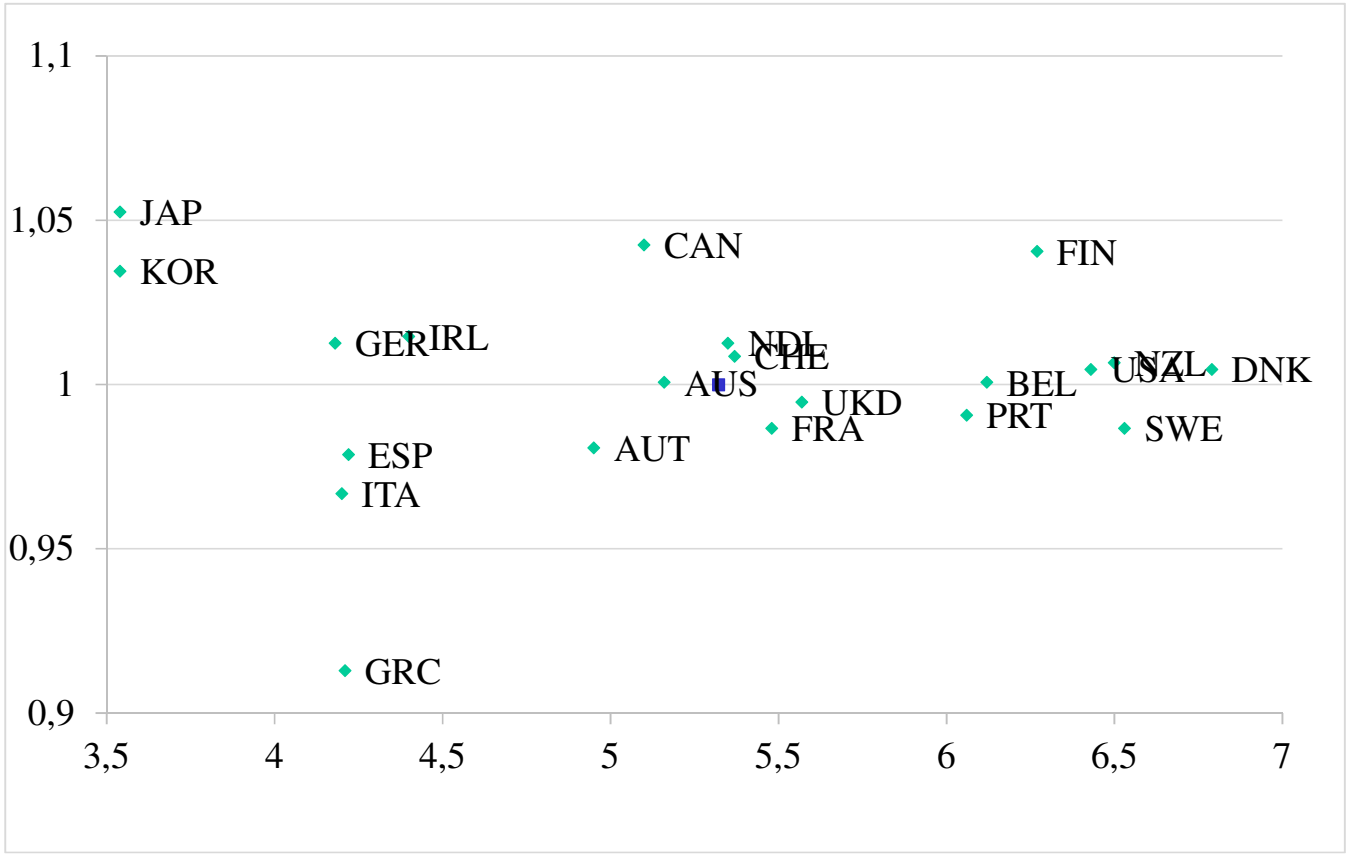
Education performance and education expenditure, 2017



Source: Own calculations. The horizontal axis shows public education expenditure as % of GDP, the vertical axis is based on 2015 Pisa scores with average performance set as 1.

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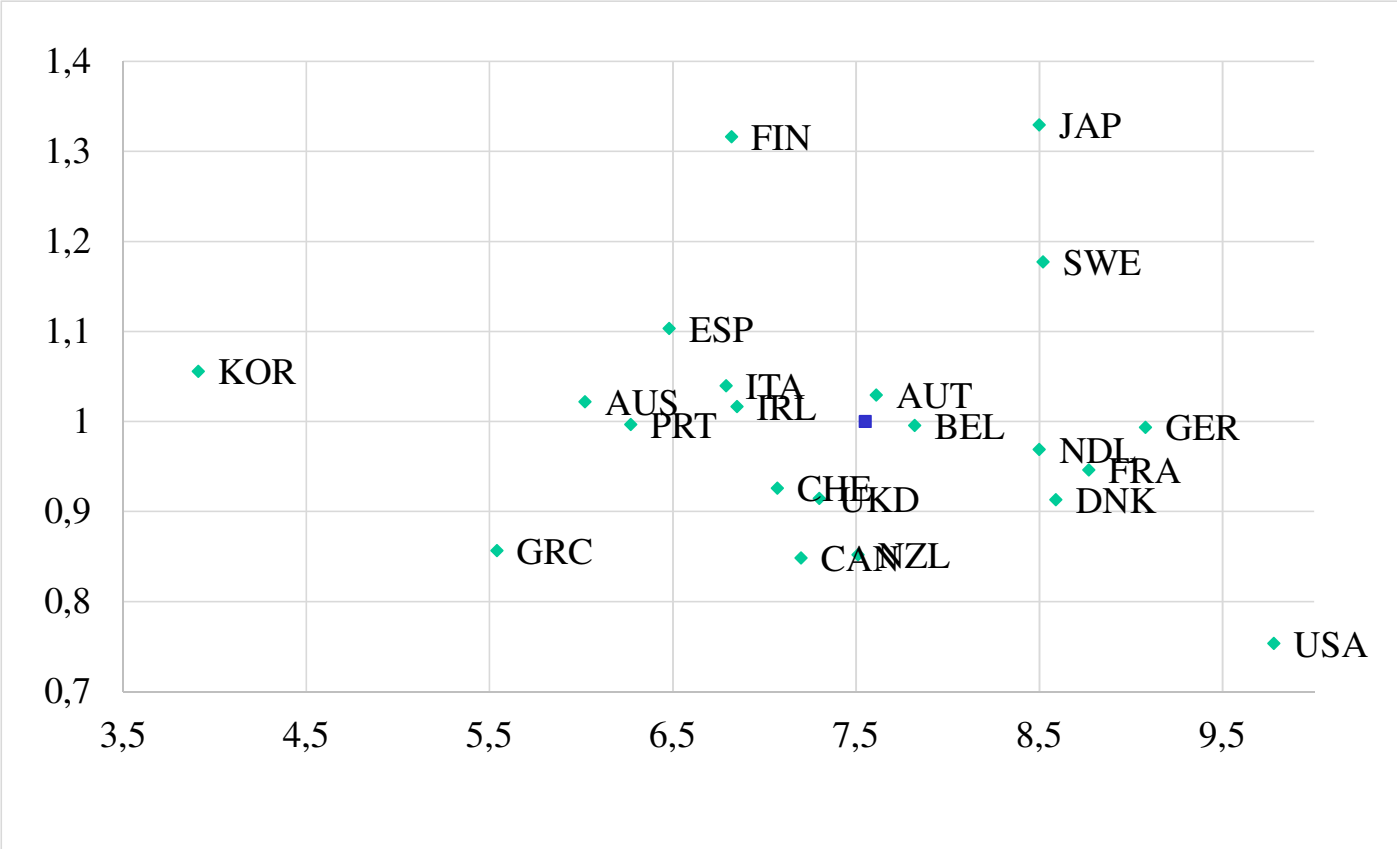
Health performance and health expenditure, 2017



Source: Own calculations. The horizontal axis shows public health expenditure in % of GDP and the vertical axis reflects health performance as measured by life expectancy and infant mortality. The average performance is set as 1.

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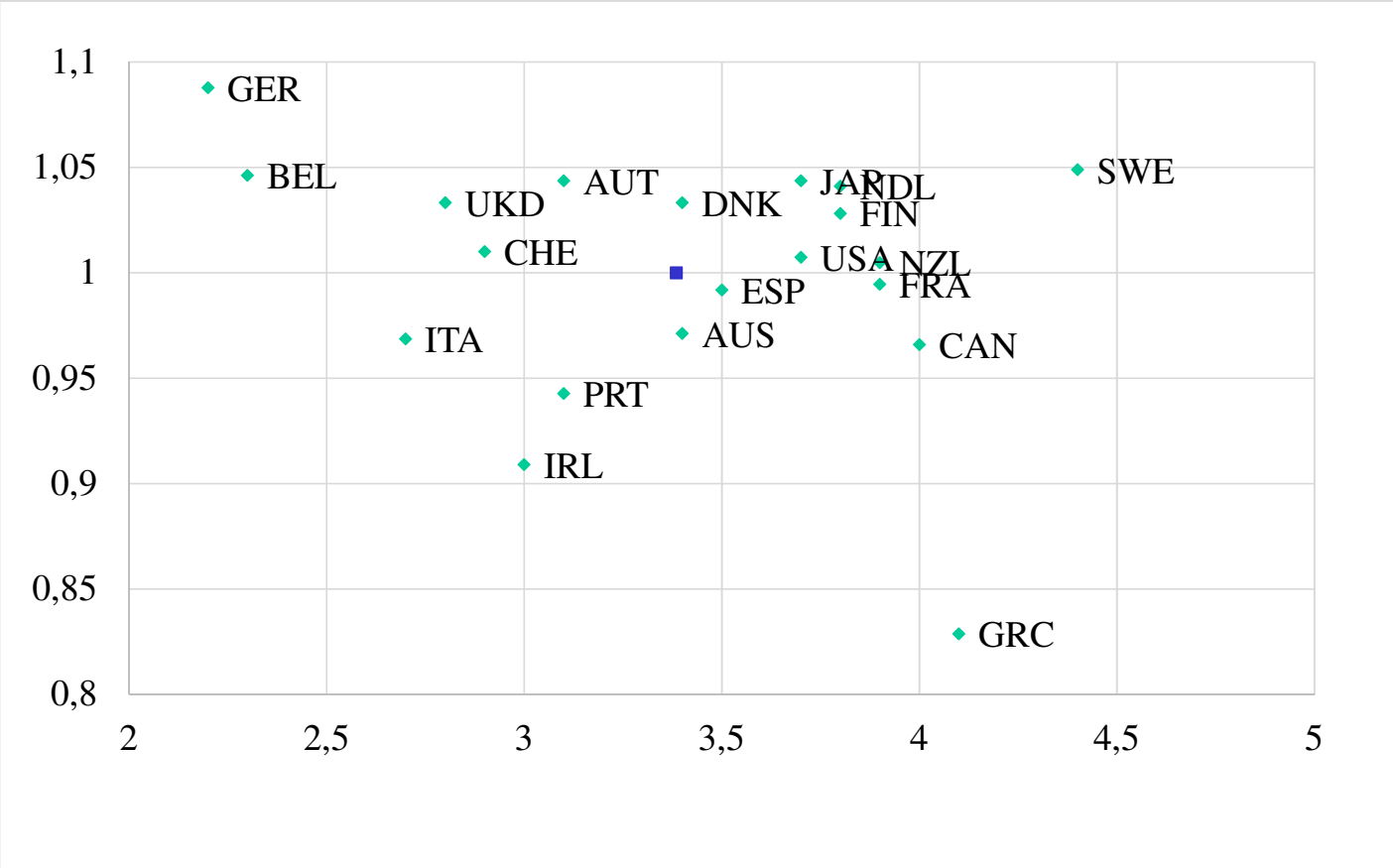
Infrastructure performance and public investment, 2017



Source: Own calculations. The horizontal axis shows public investment in % of GDP, the vertical axis reflects performance according to the World Bank Infrastructure quality indicator with the average set as 1.

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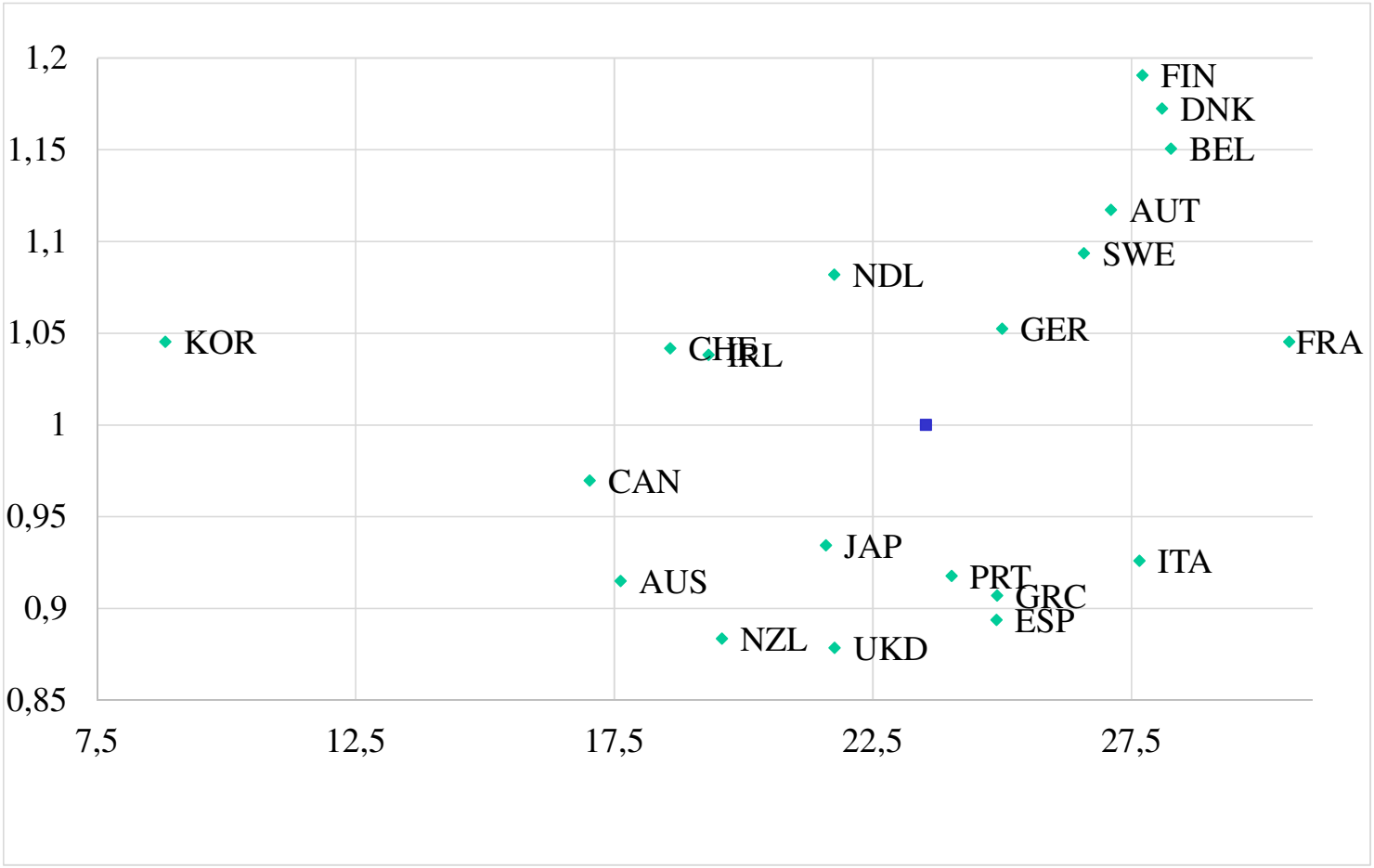
Income Distribution and social expenditure, 2017



Source: Own calculations. The horizontal axis shows social expenditure in % of GDP, the vertical axis reflects the Gini index for disposable income. The average performance is set as 1.

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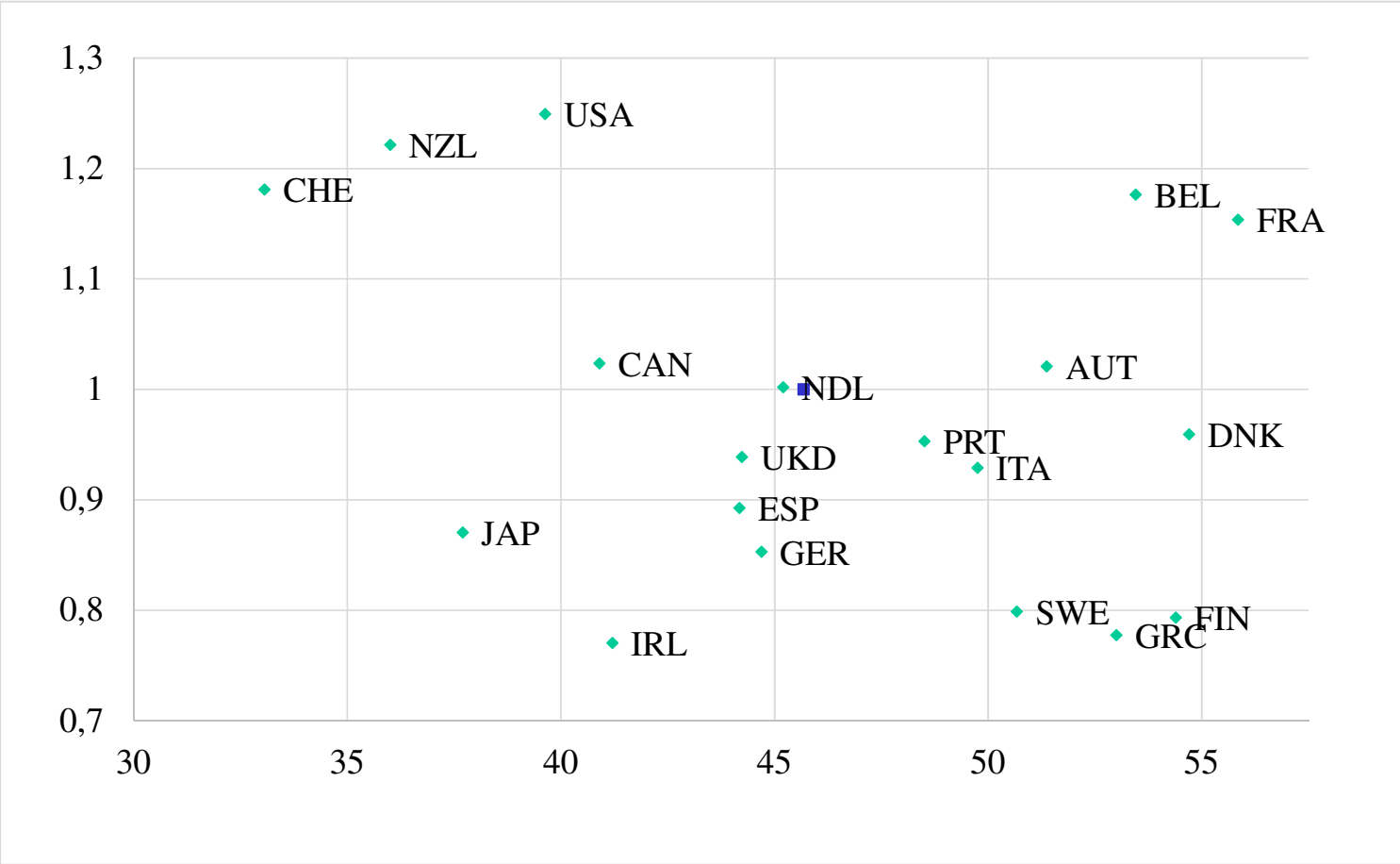
Economic stability and government spending, 2017



Source: Own calculations. The horizontal axis shows total expenditure in % of GDP, the vertical axis reflects economic stability as measured by the volatility of output growth and inflation in line with price stability. Average performance is set as 1.

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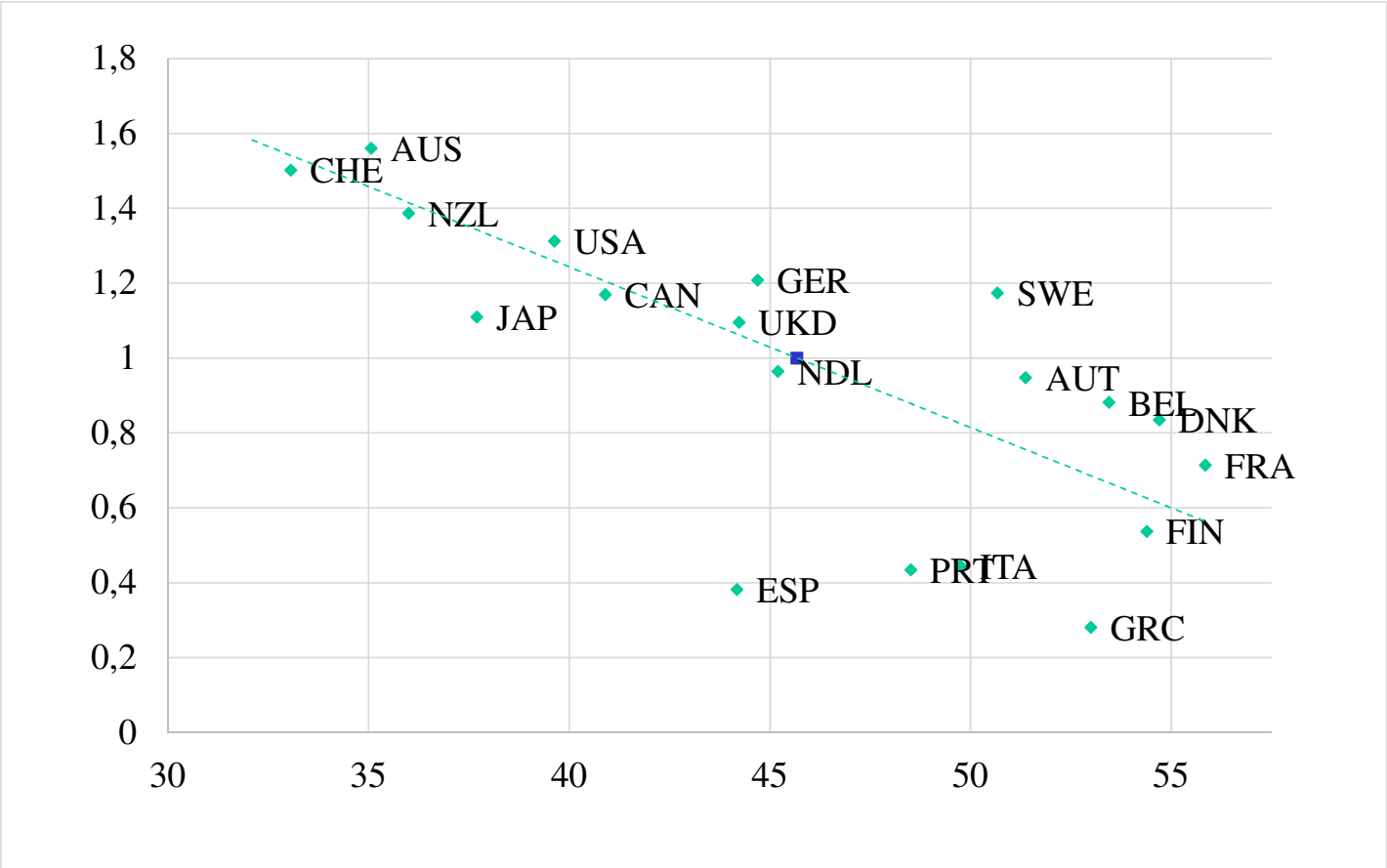
Economic performance and government spending, 2017



Source: Own calculations. The horizontal axis shows total expenditure in % of GDP, the vertical axis reflects economic performance as measured by real output growth, per capital GDP (PPP) and the unemployment rate. The average performance is set as 1.

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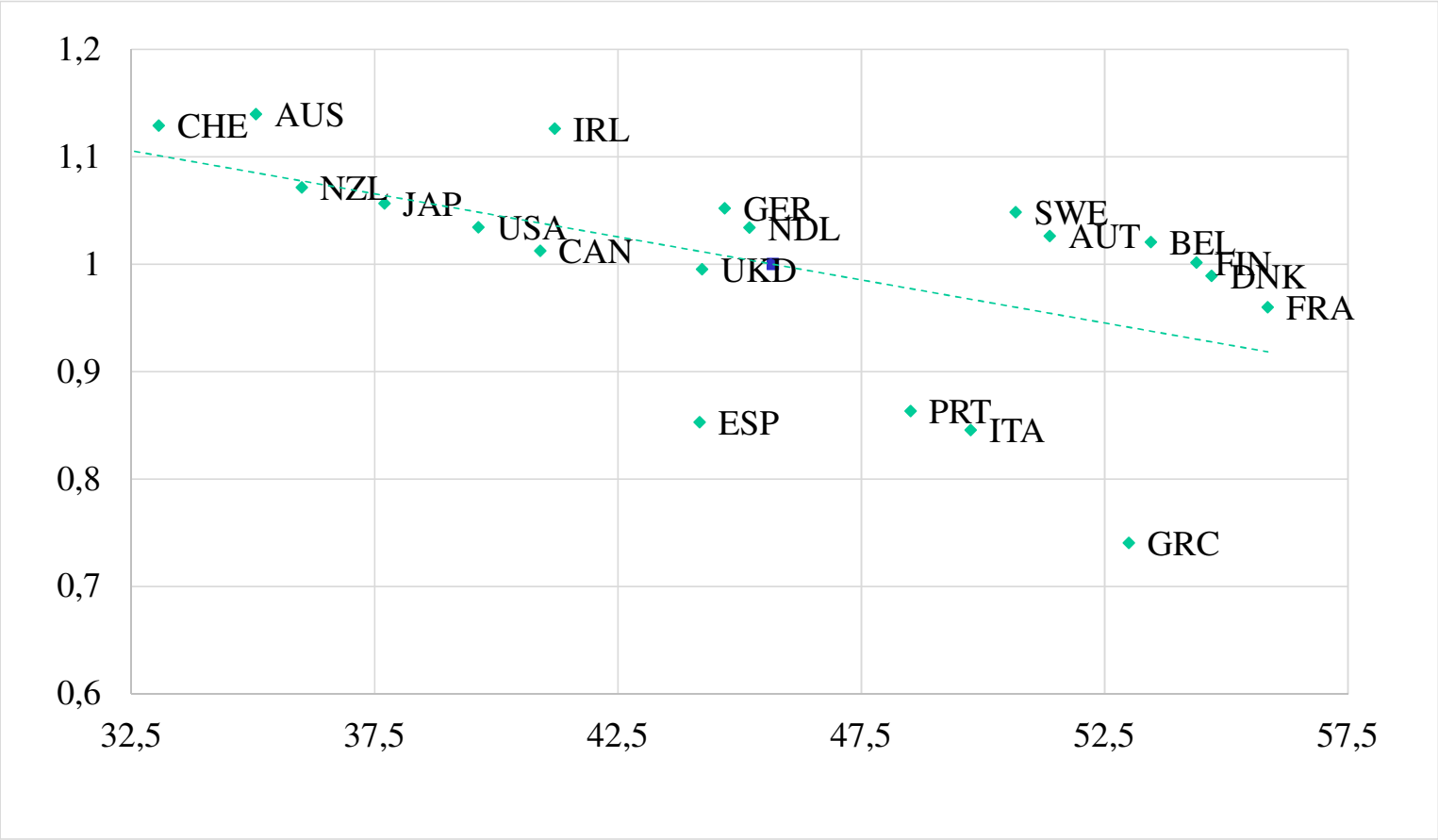
Government performance and total spending



Source: Own calculations. The horizontal axis shows total public expenditure in % of GDP, the vertical axis reflects performance across all indicators, equally weighted. The average performance is set as 1.

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Savings potential (9/9)

COUNTRY	Input oriented score	Rank	Output oriented score	Rank
Austria	0,65	14	0,854	5
Belgium	0,64	16	0,79	9
Canada	0,83	4	0,90	4
Denmark	0,62	19	0,75	15
Finland	0,64	16	0,76	14
France	0,61	20	0,79	10
Germany	0,74	9	0,79	10
Greece	0,63	18	0,43	20
Ireland	0,79	5	0,72	16
Italy	0,68	13	0,55	19
Japan	0,85	2	0,77	13
Luxembourg	0,79	5	0,92	2
Netherlands	0,74	9	0,84	6
Norway	0,77	8	0,91	3
Portugal	0,69	12	0,56	18
Spain	0,78	7	0,65	17
Sweden	0,64	15	0,81	8
Switzerland	1,00	1	1,00	1
United Kingdom	0,73	11	0,78	12
United States	0,85	2	0,82	7
MEAN	0,73		0,77	
MINIMUM	0,61		0,43	

OUTPUT (PSP) - 1 INPUT (TOTAL PUBLIC EXPENDITURE)

Source: Afonso and Kazemi (2017).

aafonso@iseg.ulisboa.pt

A synthesis

Public Spending and Savings Potential

% of GDP	Average spending, 2010s	Efficient spending levels	Savings potential compared to average	"Model" country
Public consumption	20.4	12-16	4-8	Switzerland, US, Ireland
Education	5.3	3.5-5	0-1.8	Japan, Canada
Health	7.6	6-7	0.5-1.5	Finland
Infrastructure	3.4	2-3	0.5-1	Austria, Germany
Social spending	23.3	Up to 20	3-5	Switzerland, Ireland, the Netherlands
Total savings 1/			8-15	
Total spending	45.7	30-35 or at most 40		Switzerland, Australia, Ireland, New Zealand

1/ There is some overlap across categories.

aafonso@iseg.ulisboa.pt

Conclusion

There is significant scope for expenditure savings for many governments in advanced economies.

Governments could spend 30-35 or at most 40% of GDP to do well and keep more money in the hands of their citizens.

There is a huge variation in performance and efficiency across countries. In some countries with big but well-functioning governments and strong policy programs, such as the Nordics, more spending may be less costly in terms of taxes, growth and employment.

Whether the more equal income distribution is worth much higher spending – 10% of GDP or more – and more unemployment is a matter of judgement.

aafonso@iseg.ulisboa.pt