



# Women in the labour market: fertility and employment. The impossible recipe?



Centro Interdisciplinar de História, Culturas e Sociedades da Universidade de Évora



MAX-PLANCK-INSTITUT  
FÜR DEMOGRAFISCHE  
FORSCHUNG

MAX PLANCK INSTITUTE  
FOR DEMOGRAPHIC  
RESEARCH



Fundação para a Ciência e a Tecnologia  
MINISTÉRIO DA EDUCAÇÃO E CIÊNCIA

Lídia Patrícia Tomé – [lidiap\\_tome@hotmail.com](mailto:lidiap_tome@hotmail.com)

Maria Filomena Mendes – [mmendes@uevora.pt](mailto:mmendes@uevora.pt)

# Aim of study

- This work aims to identify the relationship between fertility and female labour participation.
- And also the possible changes in the fertility patterns as result of increase and decline of female employment rates.

# Motivation & previous research (1)

- The association between fertility and women's labour force activity reflects the incompatibility between caring for children and participating in economically productive work that typifies industrialized societies (Weller 1977).

# Motivation & previous research (1)

- The association between fertility and women's labour force activity reflects the incompatibility between caring for children and participating in economically productive work that typifies industrialized societies (Weller 1977).
- *Women's labour force behaviour lies at the heart of most explanations of fertility and fertility change, and many nations, (...), have formulated policies based on the inverse association between these two central aspects of women's lives. (Brewster & Rindfluss 2000).*

## Motivation & previous research (2)

- As industrialization proceeded, childcare and economically productive work became increasingly in-compatible.

# Motivation & previous research (2)

- As industrialization proceeded, childcare and economically productive work became increasingly in-compatible.
- Thus, women who wish to participate in the labour force must either limit their fertility or make alternative arrangements for the care of their children. Increasingly, women in advanced industrialized societies are choosing both strategies.

# Motivation & previous research (2)

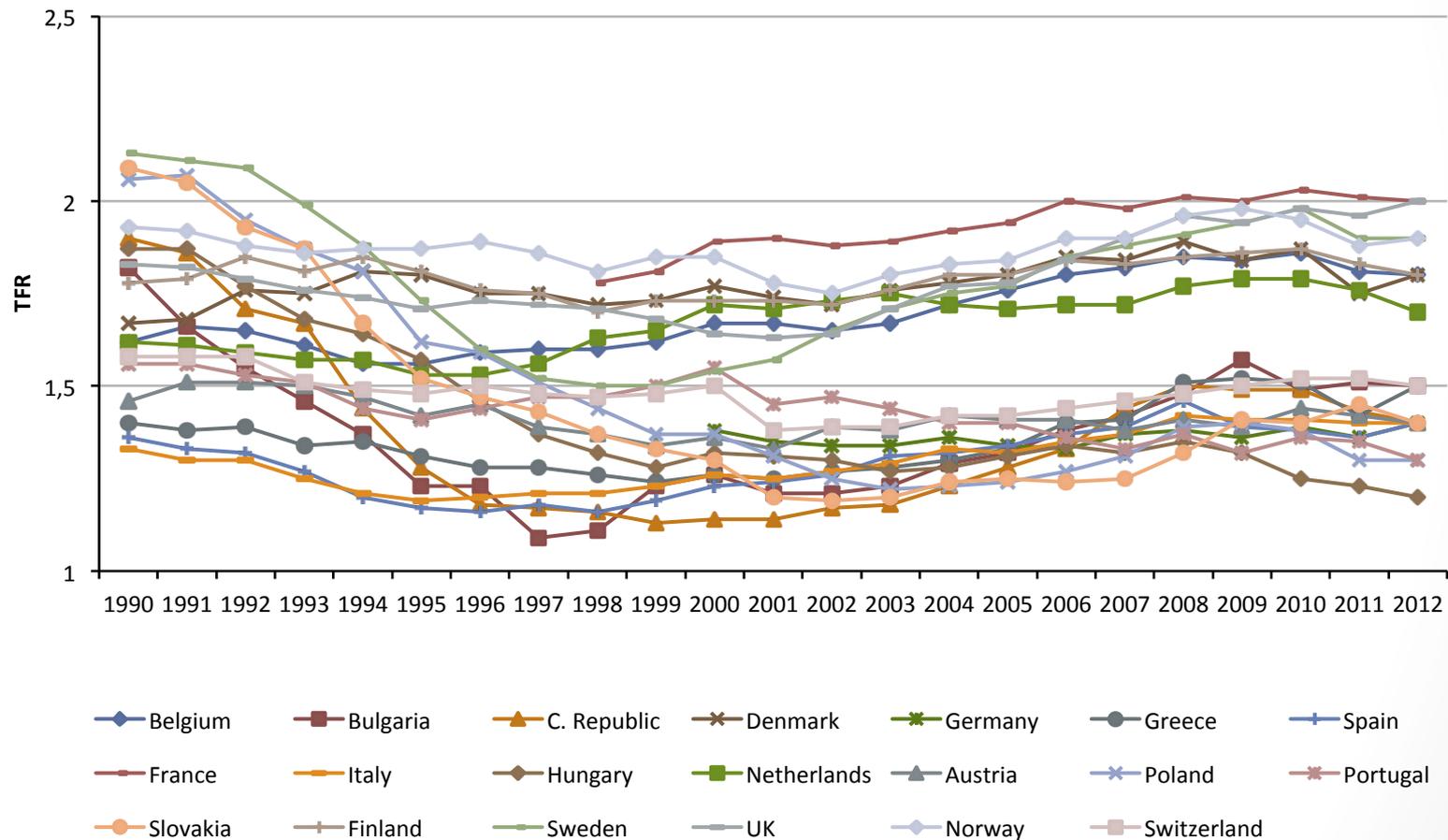
- As industrialization proceeded, childcare and economically productive work became increasingly in-compatible.
- Thus, women who wish to participate in the labour force must either limit their fertility or make alternative arrangements for the care of their children. Increasingly, women in advanced industrialized societies are choosing both strategies.
- As a result, fertility rates in most countries are below the level needed for population replacement, and a rising proportion of children are in non-maternal care while their mothers work.

# Data & Methods

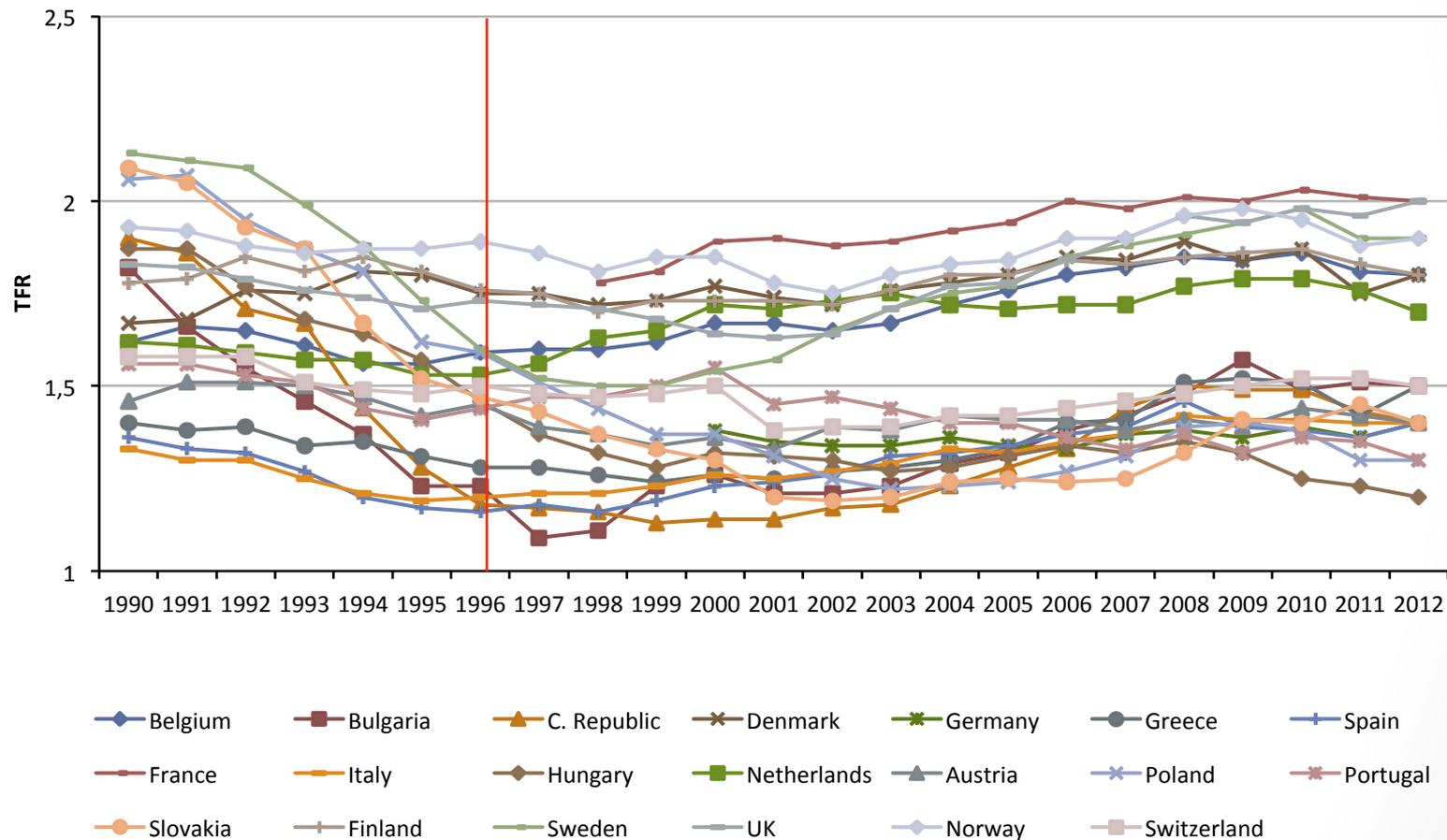
- Descriptive analysis:
  - Total Fertility Rate (TFR);
  - Mean age at childbearing (MAC);
  - Female employment rates age 25-54
- Linear regression:
  - Total Fertility Rate (TFR) – Depend variable
  - Female employment rates age 25-54 – Independent variable
- Used sources:
  - Eurostat;
  - Human Fertility Database.

# Evolution of fertility indicators and employment rates

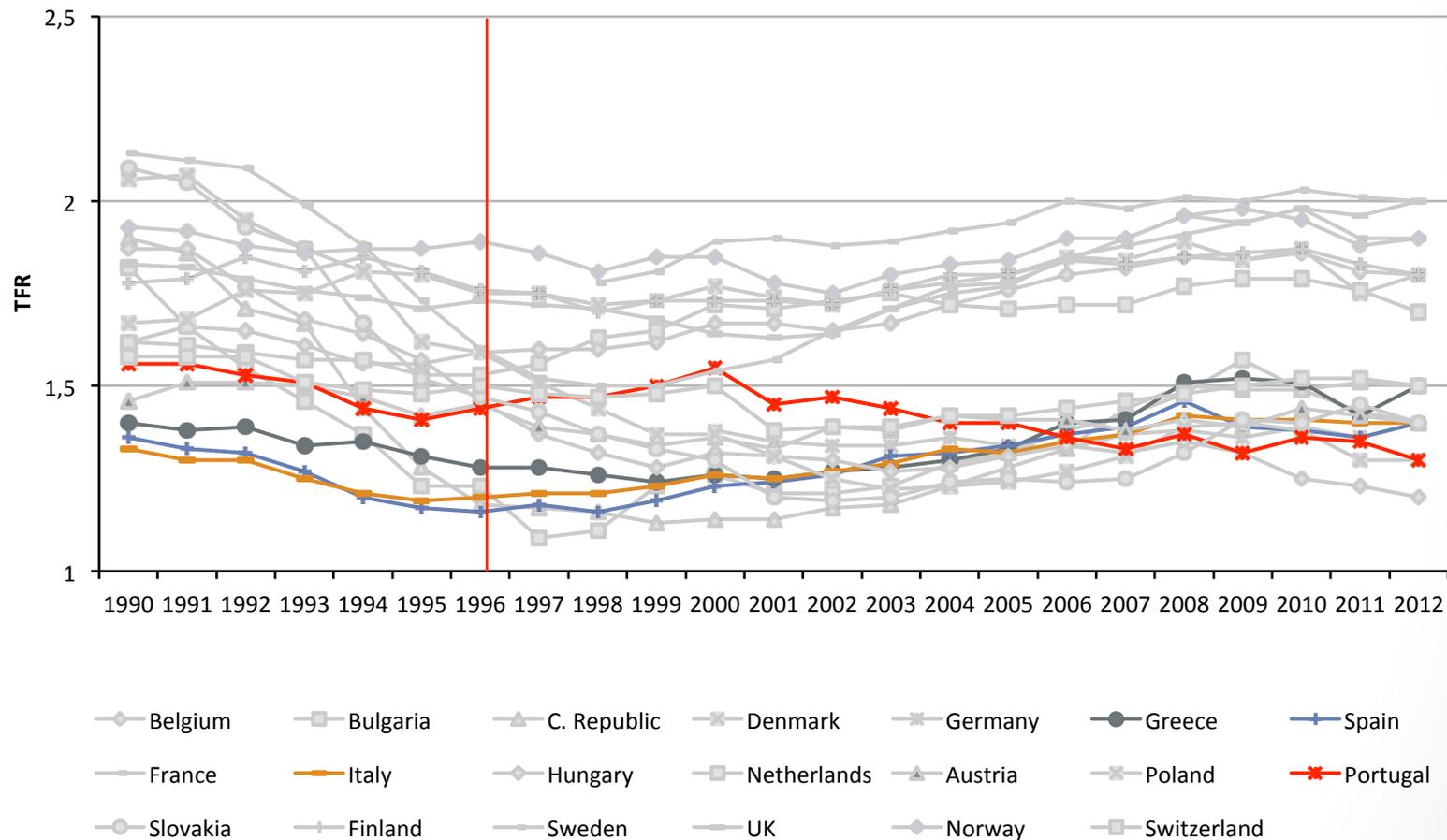
# Evolution of TFR for selected countries, 1990 - 2012



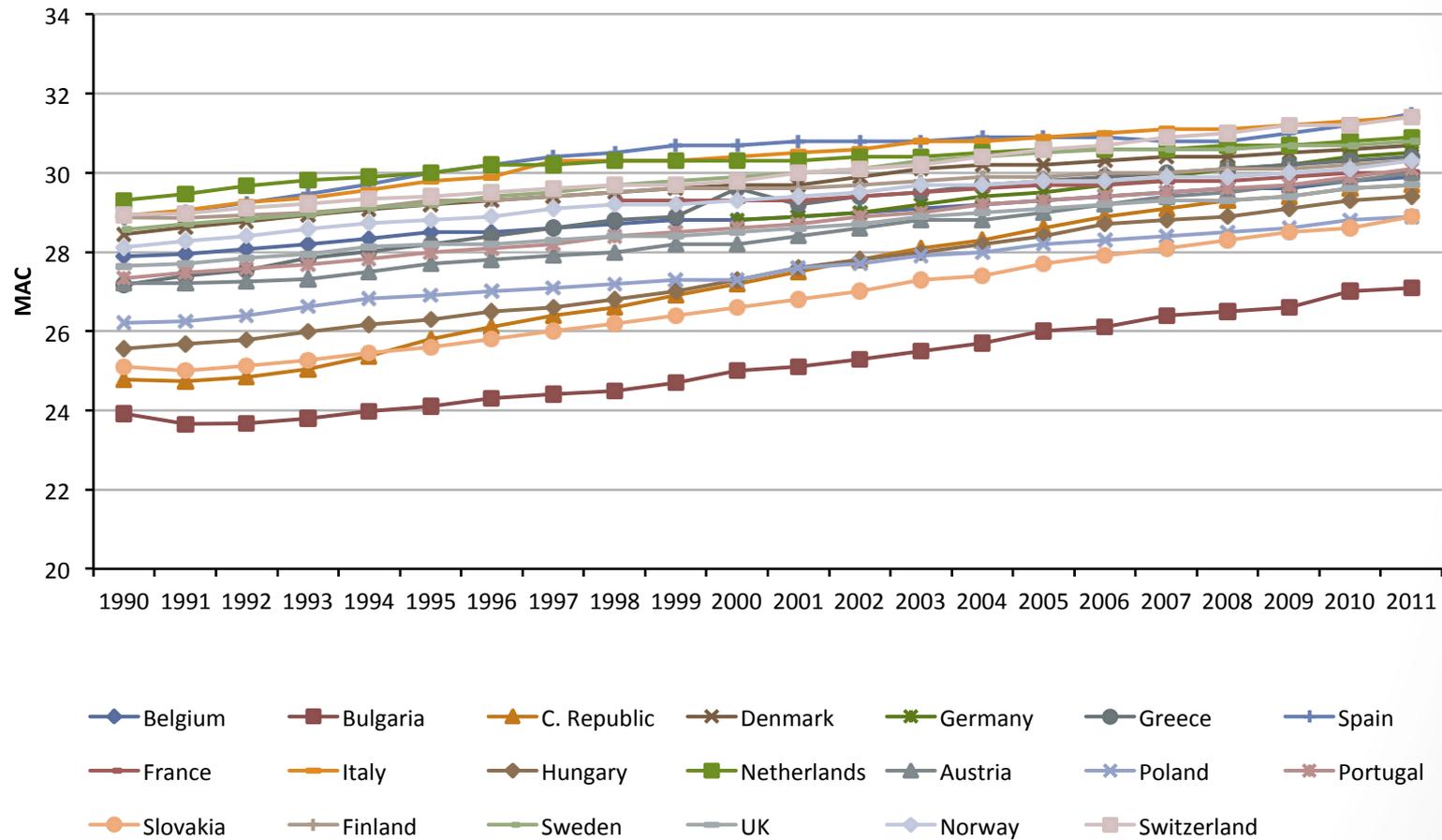
# Evolution of TFR for selected countries, 1990 - 2012



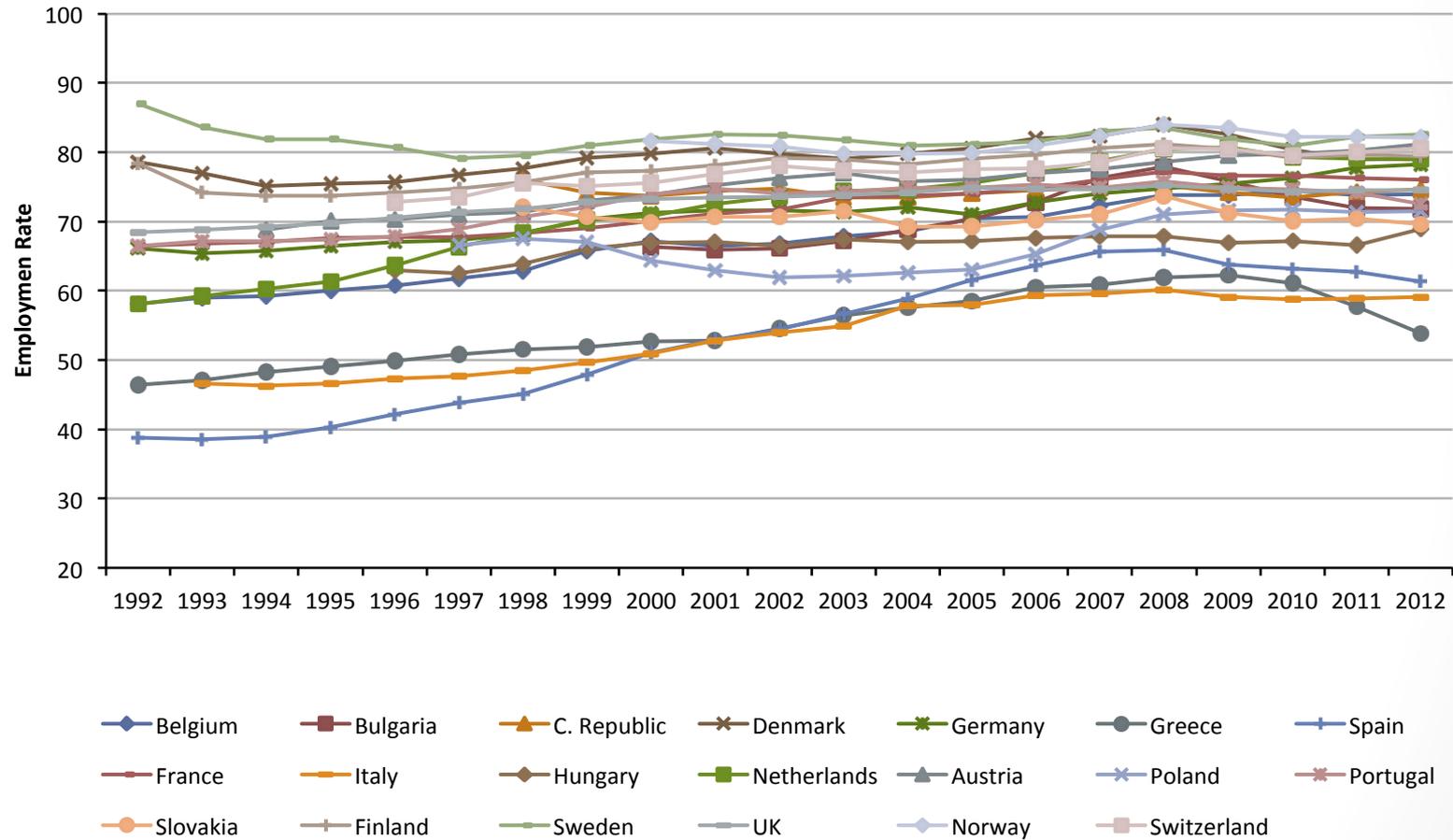
# Evolution of TFR for selected countries, 1990 - 2012



# Evolution of MAC for selected countries, 1990 - 2011



# Evolution of female employment rate (age 25-54) for selected countries, 1992-2012

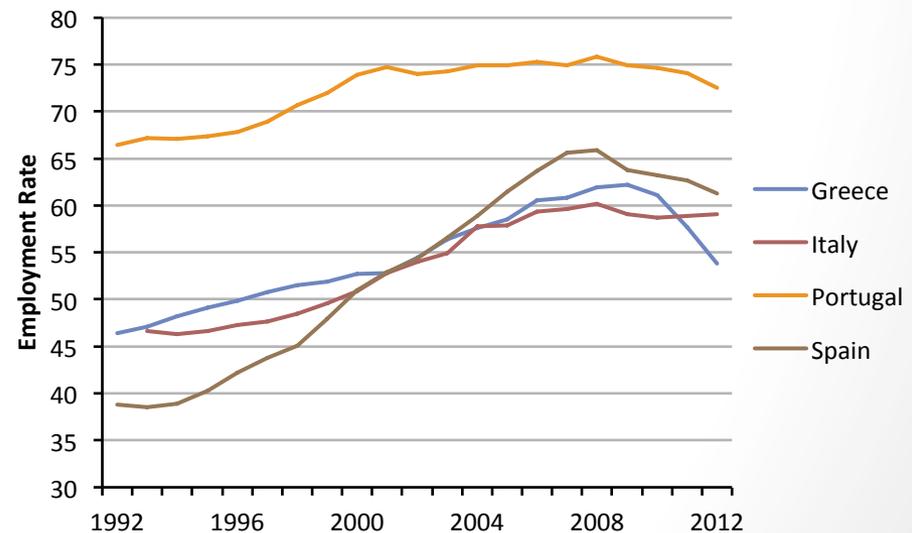


# Evolution of female employment rate (age 25-54) for the southern europe countries, 1992-2012

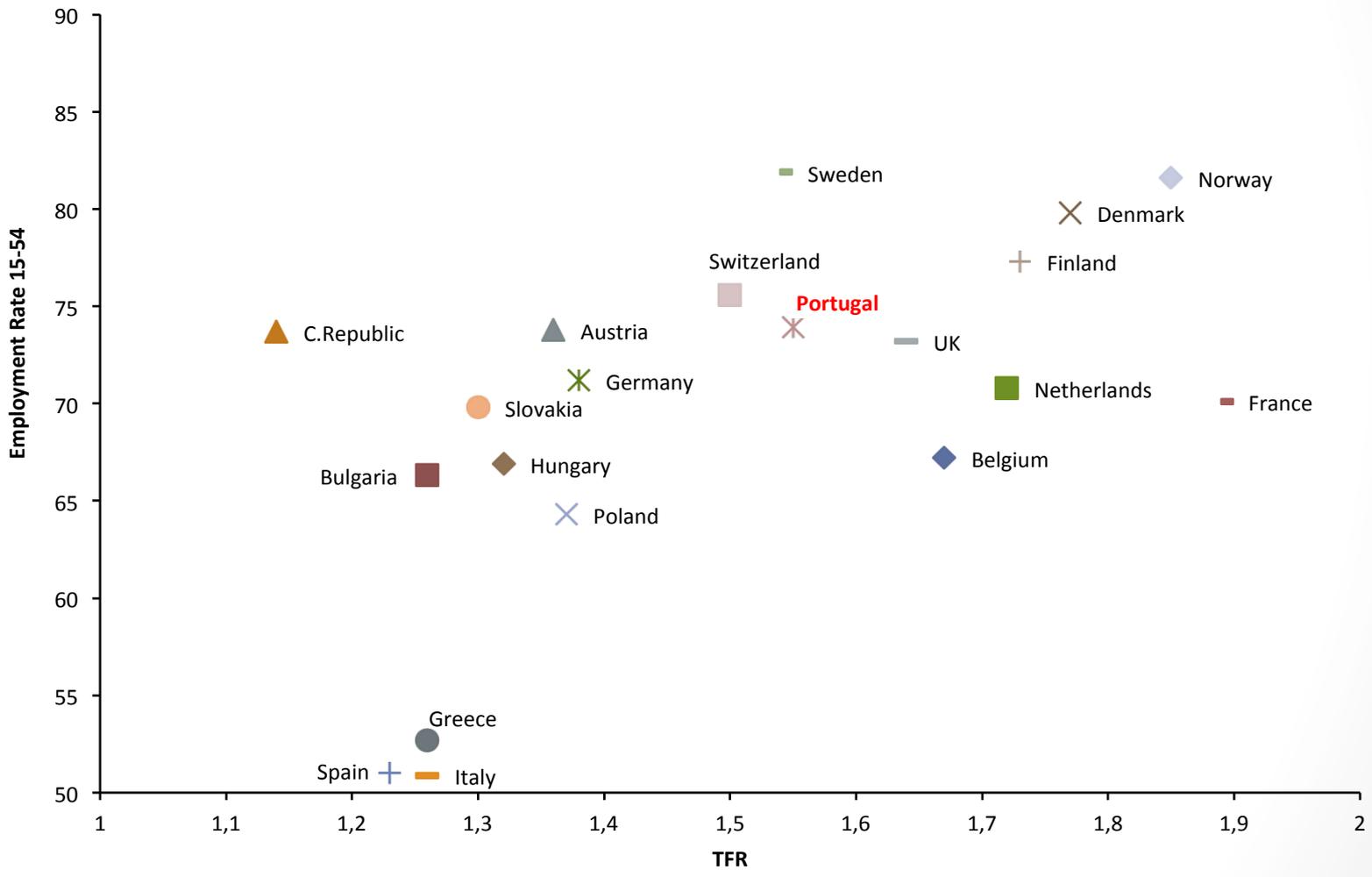
Year	92	93	94	95	96	97	98	99	00	01	02	03	04	05	06	07	08	09	10	11	12
<b>Greece</b>	46	47	48	49	50	51	52	52	53	53	55	56	58	59	61	61	62	62	61	58	54
<b>Italy</b>		47	46	47	47	48	49	50	51	53	54	55	58	58	59	60	60	59	59	59	59
<b>Portugal</b>	66	67	67	67	68	69	71	72	74	75	74	74	75	75	75	75	76	75	75	74	73
<b>Spain</b>	39	39	39	40	42	44	45	48	51	53	54	57	59	62	64	66	66	64	63	63	61

# Evolution of female employment rate (age 25-54) for the southern europe countries, 1992-2012

Year	92	93	94	95	96	97	98	99	00	01	02	03	04	05	06	07	08	09	10	11	12
Greece	46	47	48	49	50	51	52	52	53	53	55	56	58	59	61	61	62	62	61	58	54
Italy		47	46	47	47	48	49	50	51	53	54	55	58	58	59	60	60	59	59	59	59
Portugal	66	67	67	67	68	69	71	72	74	75	74	74	75	75	75	75	76	75	75	74	73
Spain	39	39	39	40	42	44	45	48	51	53	54	57	59	62	64	66	66	64	63	63	61

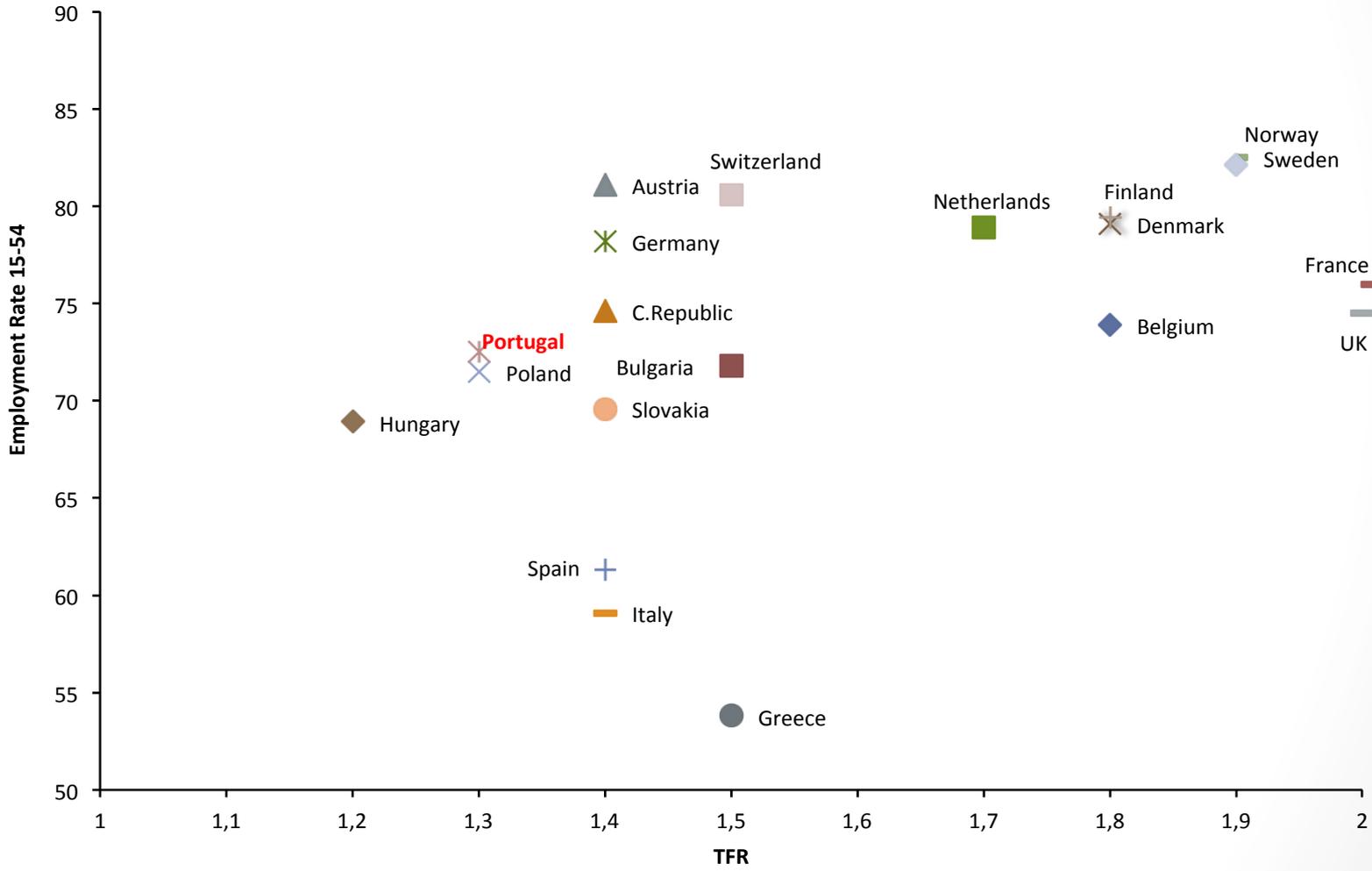


# Evolution of TFR and female employment rate (25-54) in 2000 for selected countries



Source: Own elaboration; Human Fertility Database & Eurostat

# Evolution of TFR and female employment rate (25-54) in 2012 for selected countries



Source: Own elaboration; Human Fertility Database & Eurostat

# The linear regression models

# Linear Regression results, by groups of significance

	<b>R<sup>2</sup></b>	<b>p-value</b>
<b>Belgium</b>	0.87	1.07E-09 ***
<b>Bulgaria</b>	0.74	1.78E-04 ***
<b>Spain</b>	0.68	4.51E-06 ***
<b>France</b>	0.91	4.11E-08 ***
<b>Italy</b>	0.88	7.39E-10 ***
<b>Netherlands</b>	0.83	8.79E-09 ***

Note: 0 '\*\*\*' 0,001 '\*\*' 0,01 '\*' 0,05 '.' 0,1 '' 1

# Linear Regression results, by groups of significance

	R <sup>2</sup>	p-value
<b>Belgium</b>		
<b>Bulgaria</b>		
<b>Spain</b>		
<b>France</b>		
<b>Italy</b>		
<b>Netherlands</b>		

	R <sup>2</sup>	p-value
<b>Greece</b>	0.32	8.12E-03**
<b>Hungary</b>	0.40	6.04E-03**
<b>Sweden</b>	0.44	1.04E-03**
<b>Norway</b>	0.61	1.68E-03**

Note: 0 '\*\*\*' 0,001 '\*\*' 0,01 '\*' 0,05 '.' 0,1 '' 1



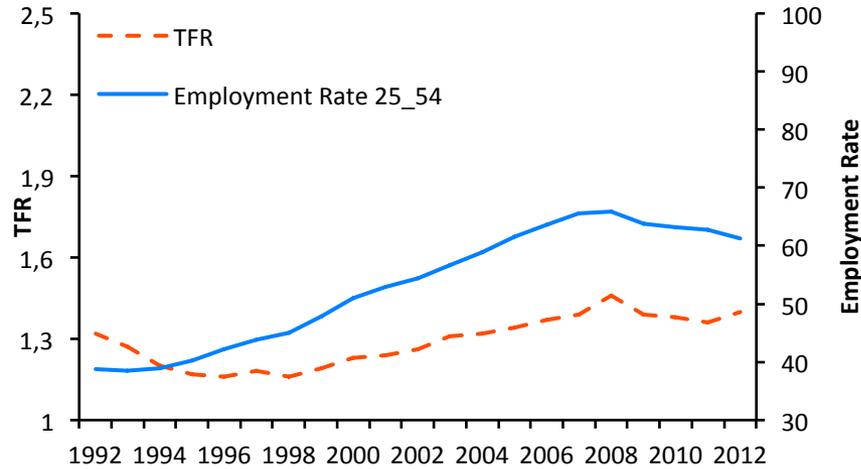
# Linear Regression results, by groups of significance

	R <sup>2</sup>	p-value			
Belgium			R <sup>2</sup>	p-value	
Bulgaria				R <sup>2</sup>	p-value
Spain	Greece				
France	Hungary	Denmark		R <sup>2</sup>	p-value
Italy	Sweden	Germany	<b>C. Republic</b>	0.00	8.78E-01
Netherlands	Norway	Portugal	<b>Austria</b>	0.01	7.01E-01
		UK	<b>Slovakia</b>	0.01	7.98E-01
			<b>Finland</b>	0.10	1.74E-01
			<b>Switzerland</b>	0.01	6.50E-01

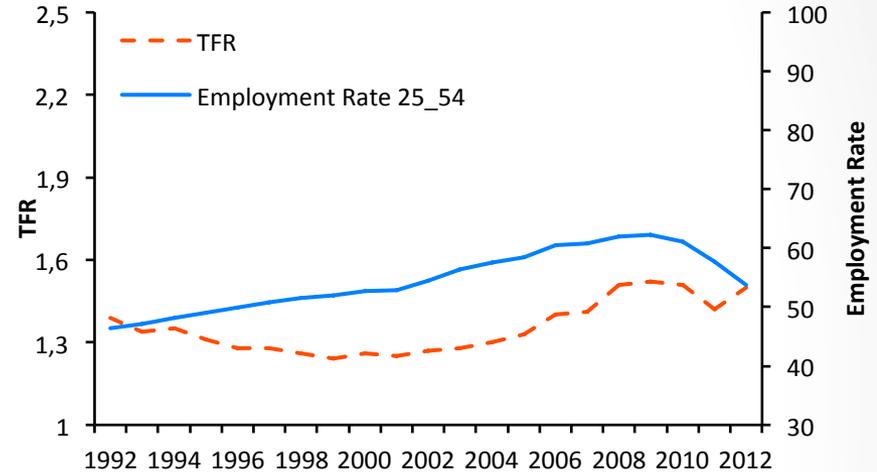
Note: 0 '\*\*\*' 0,001 '\*\*' 0,01 '\*' 0,05 ' ' 0,1 ' ' 1

# Example of the evolution of TFR & Emp. Rates, by country and significant levels

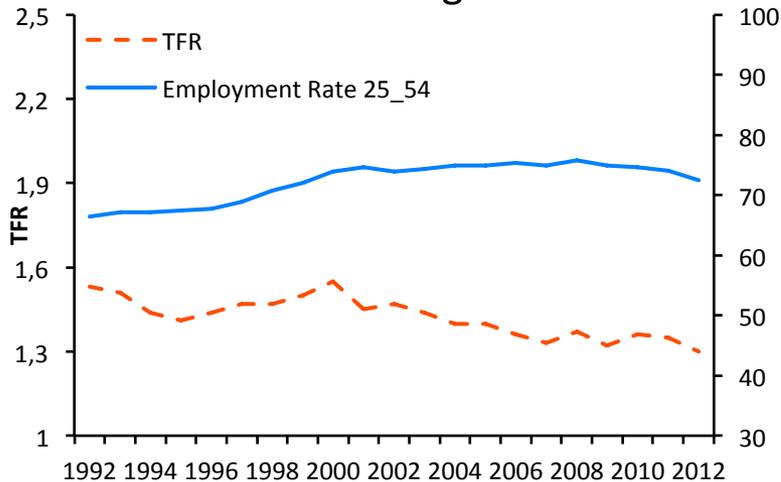
## Spain



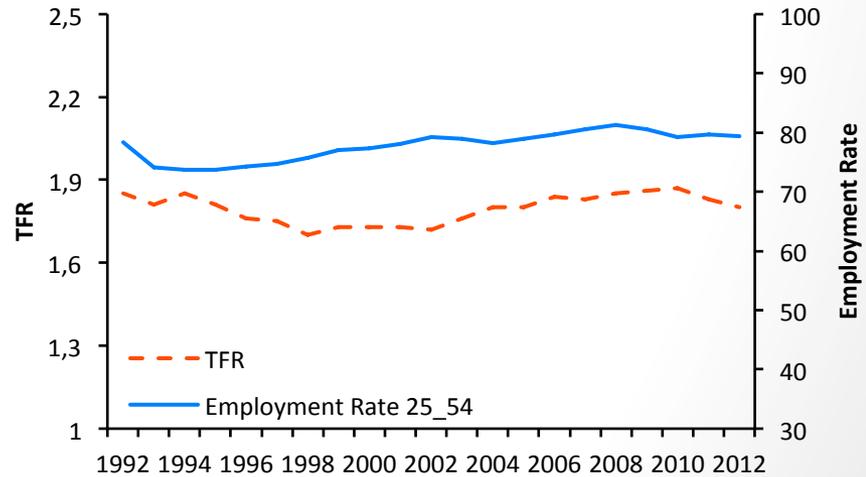
## Greece



## Portugal



## Finland



# Positive and negative relationship

	R <sup>2</sup>	p-value			
<b>Belgium</b>					
			<b>R<sup>2</sup></b>	<b>p-value</b>	
<b>Bulgaria</b>					
	<b>Greece</b>		<b>R<sup>2</sup></b>	<b>p-value</b>	
<b>Spain</b>					
	<b>Hungary</b>	<b>Denmark</b>		<b>R<sup>2</sup></b>	<b>p-value</b>
<b>France</b>					
	<b>Sweden</b>	<b>Germany</b>	<b>C. Republic</b>	0.00	8.78E-01
<b>Italy</b>					
	<b>Norway</b>	<b>Portugal</b>	<b>Austria</b>	0.01	7.01E-01
<b>Netherlands</b>					
		<b>UK</b>	<b>Slovakia</b>	0.01	7.98E-01
			<b>Finland</b>	0.10	1.74E-01
			<b>Switzerland</b>	0.01	6.50E-01

Note: 0 '\*\*\*' 0,001 '\*\*' 0,01 '\*' 0,05 ' ' 0,1 ' ' 1

# Final remarks

- The significant relation between fertility and female employment rates is not always negative.
- Between 2000 and 2012 was possible to observe that for **Spain, Italy** and **Greece** the relation between that two variables was positive and it was observed a growth.
- Regarding **Portugal**, and in contrast to the high positive relationship between employment and fertility from the 60's and 70's, at the actual moment the relation is negative.

# But if...

- education is the impossible recipe?
- The impossible combination could be between education and fertility.
- The increase of educational levels and the postponement of the starting point in the labour market can be the main factor for the fertility postponement.
- That, but also:
  - Childcare availability
  - Family policies
  - Part-time jobs
  - (...)

# References

- Almeida, A.N. De, André, I.M. & Lalanda, P.,** (2002), Novos padrões e outros cenários para a fecundidade em Portugal. *Análise Social*, XXXVII, pp.371–409.
- Almeida, A.N. De & Vieira, M.M.,** (2012), From University to Diversity: The Making of Portuguese Higher Education. In G. Neave & A. Amaral, eds. *Higher Education in Portugal 1974–2009: A Nation, a Generation*. Dordrecht: Springer Netherlands. Available at:
- Amaral, L.,** (2003), How a Country Catches-Up: Economic Growth in Portugal in the Postwar Period (1950-1973).
- Bettio, F. & Villa, P.,** (1998), A Mediterranean perspective on the breakdown of the relationship between participation and fertility. *Cambridge Journal of Economics*, (October 1993), pp.137–171.
- Caldwell, J.,** (1980), Mass education as a determinant of the timing of fertility decline. *Population and development review*, 6(2), pp.225–255.
- Cunha, V.,** (2004). A fecundidade das famílias portuguesas. In *Famílias no Portugal Contemporâneo*. pp. 1–73.
- Esping-Andersen, G.,**(1999), *Social foundations of postindustrial economies*. Oxford: Oxford University Press.
- Frejka, T.,** (2010). Cohort overlays of evolving childbearing patterns: How postponement and recuperation are reflected in period fertility trends., in MPIDR Working paper 2010-026.
- Goldstein, J. R., Sobotka T., Jasilioniene A.**(2009). The end of lowest-low fertility?“, in *Population and Development Review* 35(4): 663-700.
- Kohler, H., Billari F., Ortega J.** (2005), Low and Lowest-Low Fertility in Europe: Causes, Implications and Policy options, in F. R. Harris (Ed.), *The Baby Bust: Who will do the Work? Who Will Pay the Taxes?* Lanham, MD: Rowman & Littlefield Publishers, 48-109.
- Kohler, H.P. & Ortega, J.A.,** (2002). Tempo-Adjusted Period Parity Progression Measures, Fertility Postponement and Completed Cohort Fertility. *Demographic Research*, 6, pp.91–144.
- Lee, R., Mason, A.,** (2010). Fertility, Human capital, and economic growth over the demographic transition, in *European Journal of population*, 26.
- Mendes, M. & Rego, C.,** (2006). Baixa fecundidade nos países do Sul da Europa: a importância das desigualdades na educação e na participação no mercado de trabalho, ao nível regional.
- Neave, G. & Amaral, A.,** (2012), Introduction. On Exceptionalism: The Nation, a Generation and Higher Education, Portugal 1974–2009. In G. Neave & A. Amaral, eds. *Higher Education in Portugal 1974-2009*. Dordrecht: Springer Netherlands, pp. 1–46.
- Oliveira, I.T. De,** (2009), Fertility Differentials and Educational Attainment in Portugal: A Non-Linear Relationship. *Canadian Studies in Population*, 36(3-4), pp.347–362.
- Pereira, Á.S. & Lains, P.,** (2012), From an Agrarian Society to a Knowledge Economy? The Rising Importance of Education to the Portuguese Economy, 1950–2009. In G. Neave & A. Amaral, eds. *Higher Education in Portugal 1974–2009: A Nation, a Generation*
- Potancoková, M., Vano, B., Pilinska V., Jurcová, D.** (2008), Slovakia : Fertility between tradition and modernity, in *Demographic Research*, 19: 973-1018.
- Rydell, I.,** (2002), Demographic patterns from the 1960s in France, Italy, Spain and Portugal, at seminar of Institute for Futures Studies.
- Sobotka T.,** (2004), Is lowest-low fertility in Europe explained by the postponement of childbearing?, in *Population and Development Review*, 30: 195-220.
- Tavora, I.,** (2012), The southern European social model: familialism and the high rates of female employment in Portugal. *Journal of European Social Policy*, 22(1), pp.63–76
- Tesching, K.,** (2012), Education and fertility: dynamic interrelations between women’s educational level, educational field and fertility in Sweden. Stockholm: Stockholm University (Stockholm University Demographic Unit).