INHERITANCE TAXATION IN THE FISCAL SYSTEMS OF ADVANCED DEMOCRACIES: THE ROLE OF THE AGING OF POPULATION

PAOLA PROFETA, SIMONA SCABROSETTI, STANLEY WINER

Inheritance Taxation in the Fiscal Systems of Advanced Democracies: the Role of the Aging of Population*

Paola Profeta
Università Bocconi

Simona Scabrosetti
Università di Pavia

Stanley Winer
Carleton University

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*Paola Profeta, Università Bocconi, Via Roentgen 1. 20136 Milan, Italy, paola.profeta@unibocconi.it; Simona Scabrosetti, Università di Pavia, Strada Nuova 65, 27100 Pavia, simona.scabrosetti@unipv.it; Stanley Winer, Carleton University, Ottawa, Ontario, Canada, stan_winer@carleton.ca.

1 Introduction

Wealth is distributed far more unequally than income in several advanced economies (OECD, 2008; National Equality Panel, 2010). The relative importance of inherited wealth, with respect to wealth collected over a lifetime, has recently started to grow (Roine and Waldestrom, 2009). Receipts of gifts and inheritances are unequally distributed too: the likelihood of inheriting tends to be higher for those which already have more disposable wealth. However, wealth taxes are not appealing. They are characterized by practical difficulties related to their implementation, i.e. many forms of wealth are difficult to value, and, more important, they would wrongly tax the normal return to savings while exempting excess returns. On the contrary, wealth transfer taxes can play a relevant role to pursue equity objectives. Moreover, they have less adverse effects on work, saving and investment decisions by individuals than income taxes. The efficiency arguments in favor of wealth transfer taxes also arise when one takes into account the different motives for transferring wealth. All these facts, combined with the low reliance on capital income due to globalization, lead to an increased importance of wealth taxation in recent optimal tax designs (see Mirlees Review and Henry Review). The fact that these taxes have to refer to the donors and the donees (double-counting) or only to the donees depends on the motives of the transfer (the act of giving, altruism, strategic or accidental) and on whether one agrees with a strict welfarist, restrict welfarist, or an equality of opportunity approach.

Yet, wealth transfer taxes are showing a declining trend in most OECD countries[1], as shown by the historical evidence collected by Bertocchi (2010). Data from Flora (1983) for European countries in the period 1860-1975 show that the peak of bequest taxation is reached for most countries by 1910 (even if with cross-country differences in terms of their values over total tax revenue). From 1930 the decline has started. Gale and Slemrod (2001) show that US implemented bequest taxation later than European countries, but the trend is the same, i.e. there is a sharp decline after World War II. Recent data for OECD countries are collected by Cremer and Pestieau (2006), who show that the tendency to decline continues for the next decades and it is more marked in the US and the UK. Canada, Australia and New Zealand have even abolished bequest taxes.Thus, the positive evidence that inheritance, estate and gift taxes are declining is not consistent with the normative theory that suggests they should increase since they are an important element to promote equality and they seem to work well also from the efficiency point of view.

How can we explain this observed declining pattern in wealth taxation? Bertocchi (2010) argues

[1]We can distinguish between estate taxes on the transfer of wealth at death, and inheritance taxes on the wealth received by the donee.

that the determinants of this declining trend in using bequest taxes are related to: (i) the historical decline of wealth inequality: a common trend among countries even if their degrees of wealth inequality are very different. However, the stability of land inequality slows down the reduction of bequest tax revenue; (ii) growth and structural reallocation: the process of capital accumulation contributes to inequality reduction and further accelerates the decline of bequest tax rates; (iii) tax compliance: tax avoidance (evasion and elusion) is relevant in case of bequest taxation. It seems that where tax compliance is low (continental European countries) bequest taxes are low, but more stable than where tax compliance is high (UK and US); (iv) political institutions: enfranchisement is related to bequest tax revenue. Revenue starts growing with a wave of electoral reforms that significantly expand the voting franchise in presence of high degree of wealth inequality. On the contrary, the post-1910 revenue's reduction can be explained by the decline of wealth income inequality and the simultaneous process of industrialization. Focusing on Latin America, as well as other developing countries, the political power of the elites, in contexts characterized by high inequality and agrarian economic structure, can help to explain the lower significance of bequest taxes.

We argue that there is a positive association between the decline of wealth taxes and the demographic changes, mainly the aging of the population. Wealth taxes turn out to be smaller in aged populations. This may be due to political feasibility reasons, which play a relevant role in addition to equity and efficiency issues. As countries become older, the old, as an interest group, oppose wealth taxes.

In this paper we want to empirically test if there is a positive association between the decline of wealth taxes and the aging of population. We develop an empirical analysis and discuss the results.

Section 2 reviews the related literature, section 3 provides a description of the data and the empirical strategy, while section 4 presents our results. Finally, section 5 concludes.

2 Related literature (to be added)

3 Data and Empirical strategy

We aim at empirically investigating whether there exists a declining pattern in estate, inheritance and gift taxes despite the suggestions stemming from the optimal taxation debate. We decide to refer to the fiscal systems of G7 countries (Canada, France, Germany, Italy, Japan, United Kingdom and United States) in which we just observe a general, even if not uniform, decline in wealth taxes and, at the same time, an increase in the share of old-age individuals over the total population (see

Figures 1-7). Due to data availability problems, the time period covered by the analysis goes from 1955 to 2009.

See the data appendix for details on collected data and relative sources.

[FIGURES 1-7 HERE]

We estimate the following equation:

$$Y_{it} = \alpha_i + \beta_t + \gamma WEALTH_{it-1} + \delta OLD_{it-1} + controls_{it-1} + \epsilon_{it} \quad (1)$$

where Y_{it} can be the top marginal tax rates for a single direct descendent receiving cash inheritance, the share of estate, inheritance and gift taxes over total revenue or the share of estate, inheritance and gift taxes over GDP in country i in year t.[2] $WEALTH_{it-1}$ is the household net wealth in country i in year $t-1$, OLD_{it-1} is the ratio between people age 65 and over and the total population in country i in year $t-1$, while $controls_{it-1}$ are economic control variables. α_i is a country fixed effect, β_t is a year fixed effect, and ϵ_{it} is the error term.

The control variables include: real GDP per capita, the ratio of expenditure at general level over GDP, total revenue as a share of GDP, the sum of exports and imports of goods and services as a share of GDP, and finally the trade union density which corresponds to the ratio of wage and salary earners that are trade union members, divided by the total number of wage and salary earners.

Table 1 presents the summary statistics of all relevant variables for the 1955-2009 period.

[TABLE 1 HERE]

Our variables capture three different effects (see Kenny and Winer, 2006) that have been identified to be important when explaining the tax design: the base effect which refers to the increase (decrease) in reliance on a base whose relative size increases (decreases); the scale effect which says that when the scale of public sector increases and total revenue grows then all bases are used more heavily; and the mix effect which takes into account the size and elasticities of other tax bases. In particular, when we are explaining the share of estate, inheritance and gifts taxes over total revenue and over GDP, household net wealth data capture the base effect, while the data on aging population the political side of the taxing wealth design. The scale effect is represented by total

[2]Notice that to allow for macro fluctuations, we define our dependent variable also in terms of average share of estate, inheritance and gift taxes over total revenue (or GDP) over 5 years.

government expenditure over GDP or total revenue over GDP, while the mix effect by real GDP per capita and the openness of the economy. Finally, trade union density works as a proxy for the demand for wealth taxation. On one hand, countries with more unionization will not need to redistribute wealth as much, since unions act to make the middle class more prosperous and larger in all sorts of other ways. On the other hand, unions may also press for more equality and wealth taxation via the fiscal system, especially where there are coalition governments. The idea here is that the degree of redistribution through public finance can depend not only on income tax policy, but also on labor market policy and unionization.

It seems reasonable to use a one-period lag for the independent variables we include as regressors in our specifications. This is the case, since the effects of those variables on tax rates on wealth and on the share of estate and inheritance taxation are likely not to be immediate.

We also include country and year fixed effects. Our estimates thus exploit the fact that different countries have or have not experienced a change in the level of household net wealth or in the composition of population and correlate it with the dependent variable of interest.

4 (Preliminary) Results

Our results are shown in Tables 2a-b, 3a-b and 4a-b. In a parallel fashion, Tables 2 refer to our first dependent variable (top marginal tax rates on wealth), Tables 3 to the second one (estate, inheritance and gift taxes/total revenue), while Tables 4 to the last one (estate, inheritance and gift taxes/GDP).

[TABLES 2-4 HERE]

The Tables are organized in the following way: in each column we stack the regression output by enlarging step by step the set of control variables. In the first specification we simply control for real GDP per capita, while in the second one we add the ratio of public expenditure at general level over GDP or the total revenue over GDP. In the third column we also control for the trade openness ratio, and finally in the last and most demanding specification we add the trade union density indicator.

Whichever the specification of the econometric model, we find a positive and statistically significant correlation between each of our dependent variables of interest (top marginal tax rates on wealth, the share of estate, inheritance and gift taxes over total tax revenue or over GDP) and the household net wealth and a negative and significant correlation between our dependent variables

and the share of old people over the total population.[3] Thus, our empirical analysis shows that wealth taxation rates and wealth taxation in the tax composition rise with household net wealth, and fall with aging in G7 countries since 1955.

What are these results capturing? Koka (2011) argues that changes in the age structure of the population can have an impact on the tax structure (labour vs capital taxes). Three effects, which go in opposite directions, have to be taken into account. First, the income of young agents is especially generated from labour, so higher taxes on capital would be preferred from younger populations; second, according to a general equilibrium effect, in younger populations the rate of return to capital is higher, thus savings are higher (see Mateos-Planas, 2010). As a consequence, young agents prefer lower taxes on capital; third, given that government transfers increase with age (to restore lost health capital due to sickness), young agents prefer higher taxes on capital (and lower taxes on labour) in order to boost income (which comes from labour) in the first part of their life. Koka (2011) shows that younger populations want to tax capital more, and older ones less. The first and the third effects thus seem to dominate the second one. At the same time, Kopczuk (2010) claims that people only do estate planning later in life, and hence presumably worry about taxation of wealth only later in life. The old are (and/or become) more single minded about leaving bequests.

Moreover, all the three dependent variables show a quite robust negative and significant relationship with the level of real GDP, while a negative and significant relation with the total public outlays over GDP appears only when we are focusing on the share of wealth taxes over tax revenue or GDP. Finally, when we are capturing the scale effect by using total revenue over GDP as a control variable, it seems that the openness of the economy is negatively and significantly related with the top marginal tax rates on wealth, while negatively and significantly related with the level of estate, inheritance and gift taxes over total tax revenue.

5 Conclusions (to be added)

[3] All these results appear to be robust even when we control for the share of foreign direct investment over GDP or the KOF index of globalisation instead of the trade openness index. Moreover, in the case of estate, inheritance and gift taxes over total tax revenue or GDP, we find the same results even when we are using data averaged over five year intervals.

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6 Data Appendix

List of all variables and their sources:

- topitaxrate2: top marginal tax rates for a single direct descendent receiving cash inheritance (Scheve and Stasavage, 2012);
- estgifttot: estate, inheritance and gift taxes over total tax revenue (OECD Statistics, various years);
- estgifttot_gdp: estate, inheritance and gift taxes over GDP (OECD Statistics, various years);
- wealth: household net wealth (Davies, 2006);

- old: population ages 65 and above as a percentage of the total population. Population is based on the de facto definition of population, which counts all residents regardless of legal status or citizenship–except for refugees not permanently settled in the country of asylum, who are generally considered part of the population of the country of origin. (World Bank Development Indicators, various years);
- realgdp: real gdp per capita (OECD Statistics, various years);
- expgdptot: public expenditure over GDP (OECD Statistics, various years);
- revgdptot: total revenue over GDP (OECD Statistics, various years);
- open: the sum of exports and imports divided by GDP. This indicator measures a country's "openness" or "integration" in the world economy. It represents the combined weight of total trade in its economy, a measure of the degree of dependence of domestic producers on foreign markets and their trade orientation (for exports) and the degree of reliance of domestic demand on foreign supply of goods and services (for imports). The trade-to-GDP-ratio is often called the "trade openness ratio". (OECD Statistics, various years);
- uniondensity: trade union density corresponds to the ratio of wage and salary earners that are trade union members, divided by the total number of wage and salary earners (OECD Labour Force Statistics). Density is calculated using survey data, wherever possible, and administrative data adjusted for non-active and self-employed members otherwise. Data are expressed in percentages. (OECD Statistics, various years).

7 Tables

Table 1 Summary statistics of all relevant variables

Variable	Obs	Mean	Std. Dev.	Min	Max
topitaxrate2	70	45.66759	24.83991	0	80
estgifttot	314	.7287709	.578198	0	2.65738
estgifttot_gdp	315	.2242552	.1742538	0	.9575
wealth	245	253155.3	643771.5	110.315	2403360
old	371	12.7708	3.371342	5.317218	22.74724
realgdp	280	22269.9	5634.933	11421.07	38641.99
expgdptot	232	.4513515	.0767717	.3144673	.5896283
revgdptot	259	23.67732	4.626373	13.73253	34.20503
open	340	39.74786	16.83869	9.30502	88.51725
uniondensity	349	28.67991	10.0699	7.617148	50.46371

Table 2a The determinants of top marginal tax rates on wealth

VARIABLES	(1) topitaxrate2	(2) topitaxrate2	(3) topitaxrate2	(4) topitaxrate2
L.wealth	1.44e-05***	8.24e-06**	8.00e-06**	7.66e-06**
	(3.46e-06)	(3.41e-06)	(3.41e-06)	(3.43e-06)
L.old	-2.722***	-2.359**	-2.508***	-2.596***
	(0.907)	(0.906)	(0.939)	(0.957)
L.realgdp	-0.00427***	-0.00376***	-0.00409***	-0.00401***
	(0.000743)	(0.000789)	(0.000872)	(0.000885)
L.expgdptot	-	-13.77	-24.07	-29.64
		(22.15)	(28.18)	(23.14)
L.open	-	-	-0.141	-0.186*
			(0.122)	(0.101)
L.uniondensity	-	-	-	0.171
				(0.333)
Constant	149.9***	137.7***	162.7***	162.7***
	(28.94)	(30.57)	(43.29)	(43.79)
Observations	157	145	145	145
R-squared	0.965	0.968	0.968	0.968
Number of countries	7	7	7	7
Country fixed effects	yes	yes	yes	yes
Year fixed effects	yes	yes	yes	yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 2b The determinants of top marginal tax rates on wealth

VARIABLES	(1) topitaxrate2	(2) topitaxrate2	(3) topitaxrate2	(4) topitaxrate2
L.wealth	1.44e-05***	1.16e-05***	1.15e-05***	1.15e-05***
	(3.46e-06)	(3.10e-06)	(3.07e-06)	(3.10e-06)
L.old	-2.722***	-2.578***	-2.859***	-2.967***
	(0.907)	(0.898)	(0.967)	(0.956)
L.realgdp	-0.00427***	-0.00403***	-0.00432***	-0.00426***
	(0.000743)	(0.000718)	(0.000808)	(0.000833)
L.revgdptot	-	0.349	0.356	0.374
		(0.219)	(0.221)	(0.229)
L.open	-	-	-0.138*	-0.170**
			(0.0824)	(0.0816)
L.uniondensity	-	-	-	0.159
				(0.212)
Constant	149.9***	87.35***	99.66***	94.51***
	(28.94)	(18.49)	(23.45)	(26.34)
Observations	157	148	148	148
R-squared	0.965	0.977	0.977	0.978
Number of countries	7	7	7	7
Country fixed effects	yes	yes	yes	yes
Year fixed effects	yes	yes	yes	yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3a The determinants of estate, inheritance and gift taxes (as a percentage of total revenue)

VARIABLES	(1) estgifttot	(2) estgifttot	(3) estgifttot	(4) estgifttot
L.wealth	7.83e-07***	7.31e-07***	7.50e-07***	7.46e-07***
	(9.12e-08)	(1.44e-07)	(1.46e-07)	(1.49e-07)
L.old	-0.0807***	-0.0779***	-0.0783***	-0.0773***
	(0.0228)	(0.0249)	(0.0251)	(0.0258)
L.realgdp	-4.90e-05***	-4.63e-05**	-4.06e-05*	-3.94e-05*
	(1.86e-05)	(2.09e-05)	(2.15e-05)	(2.24e-05)
L.expgdptot	-	-1.854***	-1.505***	-1.535***
		(0.570)	(0.570)	(0.571)
L.open	-	-	0.00359	0.00347
			(0.00242)	(0.00249)
L.uniondensity	-	-	-	0.00205
				(0.00583)
Constant	2.705***	3.469***	2.856***	2.776***
	(0.771)	(0.918)	(0.996)	(1.065)
Observations	219	207	207	207
R-squared	0.921	0.929	0.929	0.929
Number of countries	7	7	7	7
Country fixed effects	yes	yes	yes	yes
Year fixed effects	yes	yes	yes	yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3b The determinants of estate, inheritance and gift taxes (as a percentage of total revenue)

VARIABLES	(1) estgifttot	(2) estgifttot	(3) estgifttot	(4) estgifttot
L.wealth	7.83e-07***	8.29e-07***	8.60e-07***	8.63e-07***
	(9.12e-08)	(1.08e-07)	(1.12e-07)	(1.13e-07)
L.old	-0.0807***	-0.0844***	-0.0827***	-0.0848***
	(0.0228)	(0.0246)	(0.0247)	(0.0254)
L.realgdp	-4.90e-05***	-4.93e-05**	-3.98e-05*	-4.22e-05*
	(1.86e-05)	(2.00e-05)	(2.12e-05)	(2.15e-05)
L.revgdptot	-	0.0131*	0.0123*	0.0113*
		(0.00670)	(0.00655)	(0.00664)
L.open	-	-	0.00551**	0.00564**
			(0.00240)	(0.00236)
L.uniondensity	-	-	-	-0.00554
				(0.00579)
Constant	2.705***	1.632***	1.213**	1.502**
	(0.771)	(0.488)	(0.557)	(0.658)
Observations	219	210	210	210
R-squared	0.921	0.919	0.922	0.922
Number of countries	7	7	7	7
Country fixed effects	yes	yes	yes	yes
Year fixed effects	yes	yes	yes	yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 4a The determinants of estate, inheritance and gift taxes (as a percentage of GDP)

VARIABLES	(1) estgifttot_gdp	(2) estgifttot_gdp	(3) estgifttot_gdp	(4) estgifttot_gdp
L.wealth	2.70e-07***	2.28e-07***	2.31e-07***	2.36e-07***
	(2.39e-08)	(3.80e-08)	(3.84e-08)	(3.95e-08)
L.old	-0.0342***	-0.0325***	-0.0326***	-0.0337***
	(0.00479)	(0.00504)	(0.00504)	(0.00523)
L.realgdp	-2.32e-05***	-2.08e-05***	-1.99e-05***	-2.13e-05***
	(5.36e-06)	(5.68e-06)	(6.12e-06)	(6.20e-06)
L.expgdptot	-	-0.454***	-0.402**	-0.373**
		(0.171)	(0.167)	(0.165)
L.open	-	-	0.000577	0.000687
			(0.000938)	(0.000916)
L.uniondensity	-	-	-	-0.00231
				(0.00185)
Constant	1.188***	0.988***	0.926***	1.024***
	(0.213)	(0.135)	(0.167)	(0.185)
Observations	220	208	208	208
R-squared	0.911	0.920	0.920	0.921
Number of countries	7	7	7	7
Country fixed effects	yes	yes	yes	yes
Year fixed effects	yes	yes	yes	yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

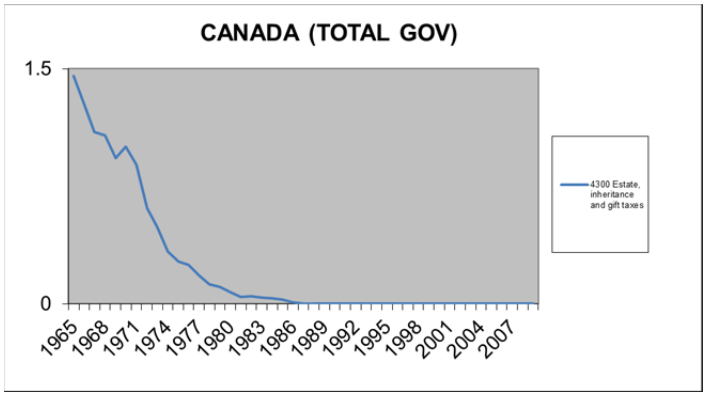
Table 4b The determinants of estate, inheritance and gift taxes (as a percentage of GDP)

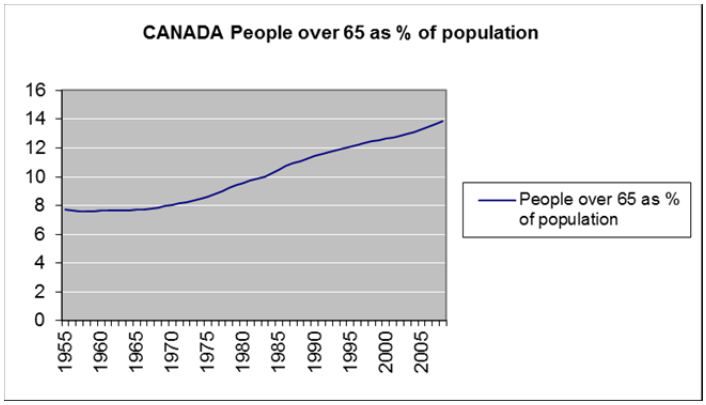
VARIABLES	(1) estgifttot_gdp	(2) estgifttot_gdp	(3) estgifttot_gdp	(4) estgifttot_gdp
L.wealth	2.70e-07***	2.74e-07***	2.80e-07***	2.82e-07***
	(2.39e-08)	(2.78e-08)	(2.85e-08)	(2.87e-08)
L.old	-0.0342***	-0.0347***	-0.0344***	-0.0359***
	(0.00479)	(0.00509)	(0.00515)	(0.00529)
L.realgdp	-2.32e-05***	-2.31e-05***	-2.13e-05***	-2.30e-05***
	(5.36e-06)	(5.66e-06)	(6.22e-06)	(6.13e-06)
L.revgdptot	-	0.00402*	0.00386*	0.00311
		(0.00205)	(0.00202)	(0.00206)
L.open	-	-	0.00105	0.00114
			(0.000911)	(0.000857)
L.uniondensity	-	-	-	-0.00403**
				(0.00200)
Constant	1.188***	1.072***	0.935***	1.131***
	(0.213)	(0.236)	(0.285)	(0.297)
Observations	220	211	211	211
R-squared	0.911	0.911	0.912	0.914
Number of countries	7	7	7	7
Country fixed effects	yes	yes	yes	yes
Year fixed effects	yes	yes	yes	yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

8 Figures Appendix

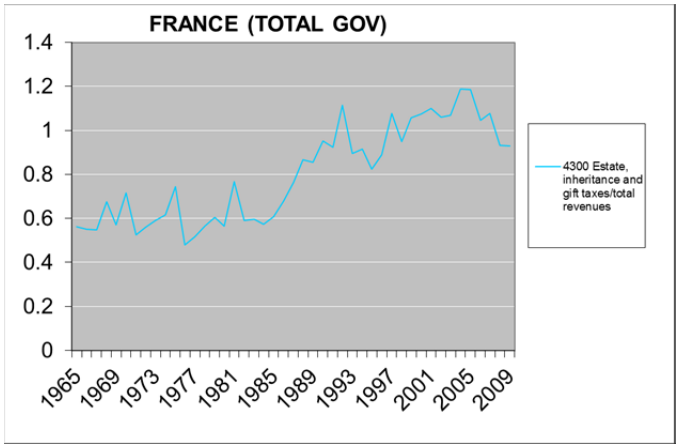
Figure 1 Canada

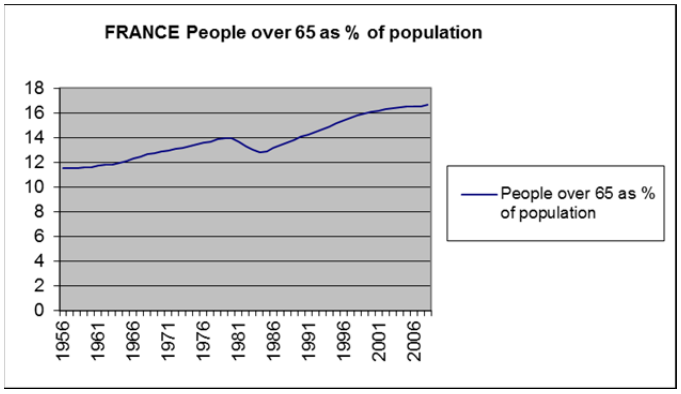




Source: OECD statistics and WDI

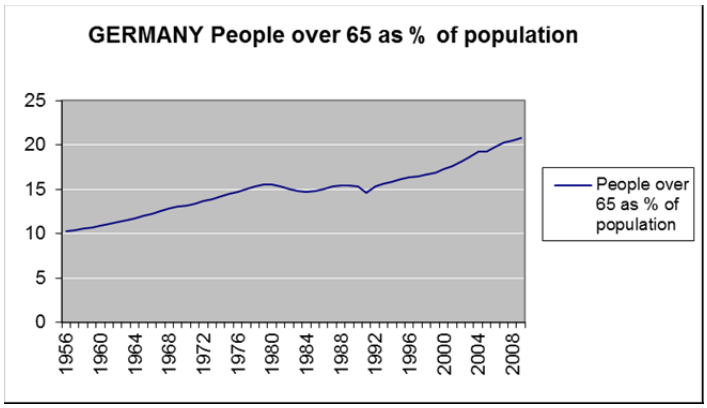
Figure 2 France





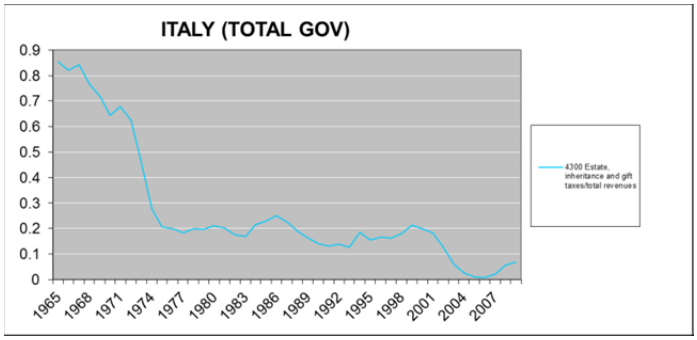
Source: OECD statistics and WDI

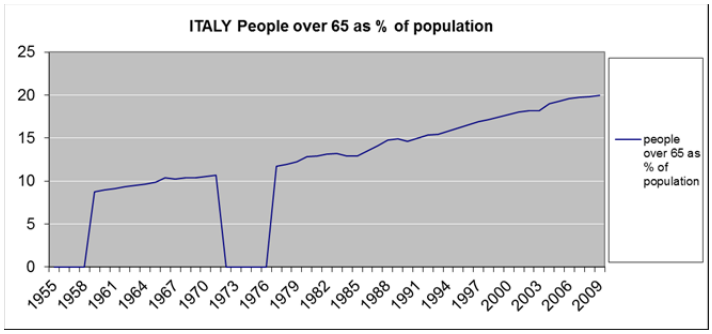
Figure 3 Germany



Source: OECD statistics and WDI

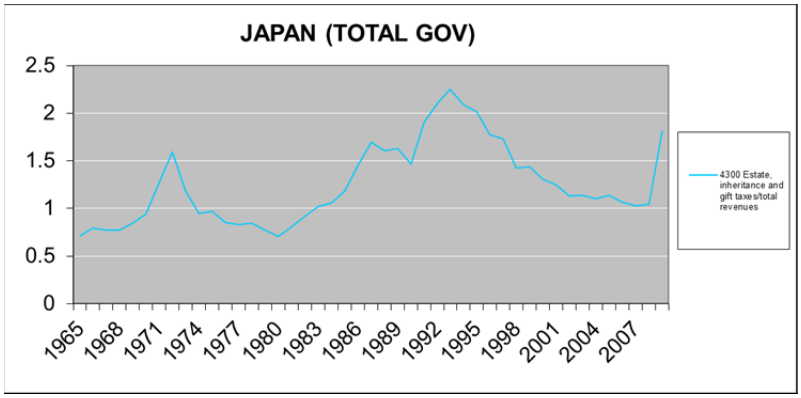
Figure 4 Italy

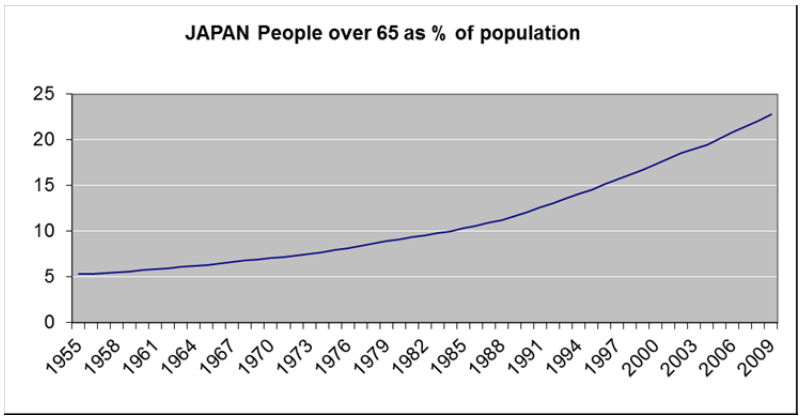




Source: OECD statistics and WDI

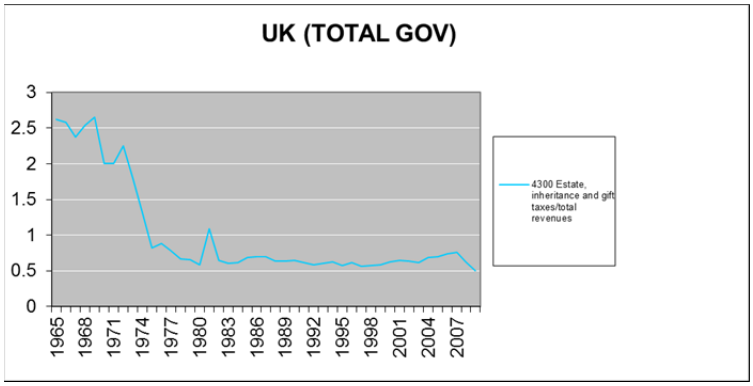
Figure 5 Japan

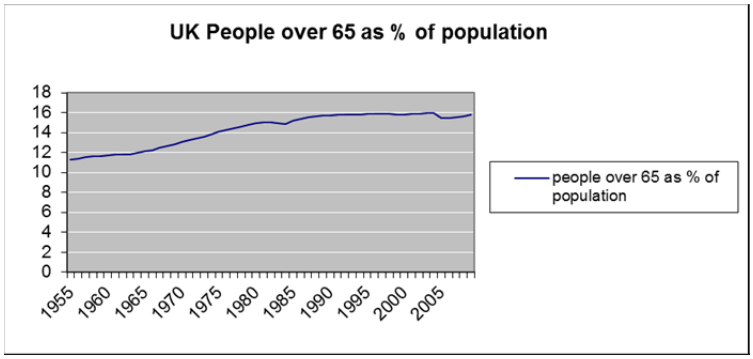




Source: OECD statistics and WDI

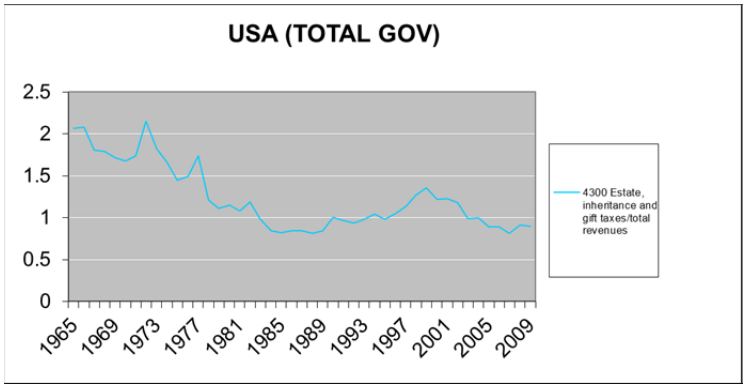
Figure 6 United Kingdom

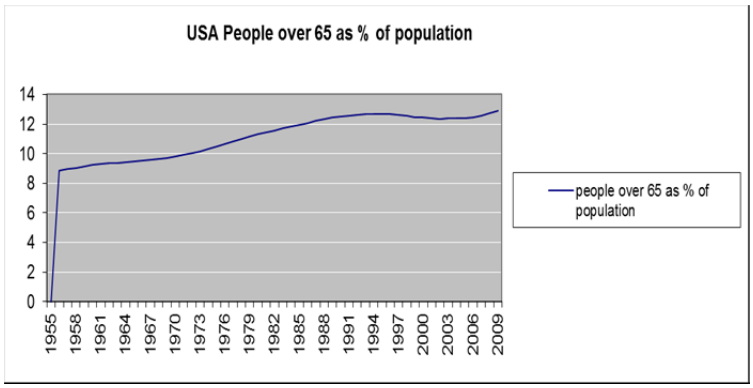




Source: OECD statistics and WDI

Figure 7 United States





Source: OECD statistics and WDI