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**Market's SINS
and the European Welfare State:
theory and empirical evidences**

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Abstract

We analyze the European Welfare State according to a theoretical framework based on four main social goals – stability, inequality, need, safety (SINS) – which the market mechanism fail to achieve: they are the market’s SINS. We propose a theoretical framework which is based on the distinction between “private goods”, which are the domain of the market, and “common goods”, which are the the domain of the Welfare State and the other lower layers of social institutions. The main result is that a high level of social protection benefits, properly allocated to these goals, can be effective for achieving economic goals, because it allows to amend market’s shortcoming for SINS, while allowing the flexibility for complying with the public budget constraint, given the positive relationship between GDP per-capita and the share of social protection benefits. A cross-section analysis shows that the goals of SINS are better achieved when the social protection benefit focuses on the functions of family and children and sickness and health care, because they are the most poverty reduction: they allow to better achieve the goal of reducing inequality and providing families needs. We show that for the families with children the better working arrangement – which is associated with higher GDP per-capita and lower inequality – is one parent working full time and one parent part-time. We explain the cross-section variability for the functions of pensions, housing and social exclusions in relationship with the goals of stability and and safety. We analysis a sample of seven major European countries for the period 1995-2009, focusing on the goal of economic stability and the degree of procyclical or countercyclical relationship between social protection expenditures and GDP per-capita. A number of econometric and numerical results are derived: countries with better economic performances can have both procyclical and countercyclical behavior, but they have in common higher value of social protection benefits on the onset of the cyclical downturn or recession: the flexibility for budget adjustment come from the political leeway of the high starting value of social protection and the higher share of in-kind benefits. The

GDP per-capita in the year 2000 is a good predictor of the average primary balances for the European countries over the decade.

JEL: H34, H53, H62, I38

Key words: Welfare State, household income, poverty reduction, economic recession, government budget

Introduction *

We argue that Welfare State is a necessary condition for economic development because it can amend the market mechanism for its shortcomings: in this paper we focus mainly on the issues of economic Stability, the consequences of extreme Inequality, the missing care for citizens' basic Needs, the lack of a Safety net and, notably, of food Security. These issues, which can be aptly named with the acronym SINS, address social goals that the market mechanism cannot cope with the price system as instrument, because they are not "private goods", but rather "common goods". The European Welfare State has evolved, during the XX century, as a social response to the market's SINS, especially since the Great Depression, and other developed countries, like the United States, are following suit, while big emerged countries, like China, start to struggle with the same problems. The evolution of the European Welfare State in a big chunk of the GDP has created new problems for the decision processes of the policy maker, prompting new layers of decision, while valuing the central role of institutions like the family and self-organized entities with social purposes. Most of the Welfare benefits should be entitlements rather than the outcome of political choice and political centralization should give way to a "grass root" decentralization, especially focusing families and children, and subsidiarity: because people "know better" and can provide the right incentives to the providers. The motivation for this paper is to suggest the framework of a theory which, taking stock of the European experience, can provide empirical evidences to support it. We propose a model where total household consumption is made up of private consumption and social consumption: private consumption is a function of disposable income, which in-

* I thank Francesca Tartamella for her careful comments on the content of the paper, its methodology and coherence: another layer of gratitude I owe her. I want also to thank Marta Spreafico in helping me to carry out the regressions in spite of her mind being happily turned to another side. The usual disclaimer applies and the views expressed are only mine.

cludes public income benefits, while social consumption is a function of GDP per-capita and the political process entailed by the economic growth. The size of the Welfare State derives from the demand of “common goods” to amend market’s SINS, given the stage of economic growth and the constrain of the public budget. The allocation of the available resources depends on the political process and is crucial for its efficiency, measured in term of poverty and inequality reduction. We measure stability, and uncertainty reduction, with the pattern of countercyclical or procyclical behavior for a selection of 7 major European countries, relating it to dynamic of total and private government balances and showing the relevance of in-kind transfers in providing discretionary spending over the business cycle or recession.

1. Welfare State and market’s SINS

The modern Welfare State is an evolving institution, prompted by missing market and market shortcomings and shaped by continuous economic and technical changes, which require the support of market’s SINS amendments. We better define SINS:

- a) Stability is central to the process of economic growth, as we harshly learnt during the Great Depression and we experience since the onset of the Great Recession in 2007. Serious lack of stability produce uncertainty, in the Keynesian (or some would suggest Knightian) sense: as Keynes put it there is no scientific basis to measure the probability of the “prospect of a European war ... or the price of copper and the rate of interest twenty years hence” (Keynes, 1937). We suggest however that also a different kind of uncertainty is relevant, namely the impossibility of thinking to all the states of the world, which make unthinkable states the origin of a structural uncertainty, because everyone cannot even think of it. To be concrete, Greek crisis is the origin of Euro crisis because it made thinkable the unthinkable, starting the betting game on Euro break-up. When faced with the fear of these two kind of uncertainty households

reduce their spending and firms postpone their investments. We can try to detect whether the Welfare State sustains economic Stability looking to the counter-cyclical pattern of social spending: unemployment insurance is a case in point, together with the level of family income and the presence of one or two income earners.

- b) Inequality, if becomes too high or extreme, can be the cause of poverty and hardship for families with low purchasing power and economic crisis for firms with oversupply of production. In the US the underlying force driving extreme inequality was the skyrocketing rewards to the people working in the financial sector, with a sharp increase in risk and uncertainty, but without an adequate safety net (Rajan, 2010). The Great Recession stems from different causes in comparison with the Great Depression, but the two crisis share a peak of extreme inequality as a common onset. A well-crafted Welfare State can therefore speed-up the escape from the crisis by reducing poverty and the imbalances between supply and demand and some European countries seem to achieve just that.
- c) Needs are the basic incentive for labor supply and a well-functioning family is the only institution where – oddly – the marxist dictum “from each according to his ability, to each according to his needs” (Marx, 1875) can seemingly work. The family can solve the trade-off between equity and efficiency or, to put it in a different social perspective, family merits and needs, because in a well-functioning family merits and needs coexist and family income is shared according to the needs (Campiglio, 2011): the fundamental reason was neatly pointed out by Ken Arrow (1951), arguing that households’ decision process could be thought as the elementary social choice, producing rational decisions when based on “common standards of value”, which is also the basis of a well-functioning family. The complementarity of merits and needs within the family is evident in the case of the children, who do not contribute to the family income but receive resources according to their needs. When the family income is low or inadequate, the contribution

of the Welfare State becomes crucial and responsibility becomes the link between Welfare and fairness (Fleurbaey, 2008): children should be recognized as a “commons”, being rivalrous (their parents take care of them) but generating non-excludable benefits to all the society. The issue of children, as future citizens without voice in modern democracies, is behind the question “Who’s minding the Kids?” (Curie, 2006), which John Stuart Mill already answered in 1859.¹ The problem is that in modern democracies children do not have a real political weight, because of the unspoken political rule “no-voice-no-representation”: recent economic literature proves that giving “voice” to the minorities can change the resource allocation, and still more profound transformations have been carried forward in women life since their franchise, as it could happen with the children, future citizens (Campiglio, 2005, 2009).

- d) Safety and Security cover a wide range of economic and social issues, which the market mechanism cannot address. Firstly, the lack of Safety and Security reminds how tight is the relationship between crime and deviance, well functioning social organization and institutions, well-being and economic development². An efficient Welfare State can provide care and prevention, supporting families and the communities, improving welfare and reducing the huge social and economic cost of crime and social deviance. On the economic side, the market mechanism cannot cope, as it would be necessary, with the problems of extreme poverty and the deep social consequences of the lack of economic Safety and Security. Perhaps this is

¹ John Stuart Mill writes that “Rulers and ruling classes are under a necessity of considering the interests and wishes of those who have the suffrage; but of those who are excluded, it is in their option whether they will do so or not; and however honestly disposed, they are in general too fully occupied with things which they *must* attend to, to have much room in their thoughts for anything which they can with impunity disregard”. (italics in the original).

² The Routledge Handbook of Deviant Behavior (2011), edited by Clifton Bryant.

why in the U.S., instead of talking about Welfare State, it is preferred the term Safety net, which captures better the idea that the State should protect people against bad luck or adverse economic shocks. However the Safety net in the U.S. has proved to be a weak protection in face of a sharp and lasting increase of long-term unemployment, the highest recorded since World War II (Rajan, 2010). While health care insurance is easily spotted as the weak link in the U.S. Safety net, there are social programs which should be considered in European Welfare sistem: the Earned Tax Income Credit (EITC) is the program with the largest antipoverty effect³ while the Supplementary Nutrition Assistance Program (SNAP) is also critical because half of all SNAP participants were children and both participation and expenditures are strongly countercyclical (participants receive their benefits on electronic benefit transfer cards that can be used only to purchase food).⁴ It is in fact impressing to record 44,7 millions participants to the SNAP in 2011, while they were 28,2 millions in 2008: in 2010 the average household received monthly benefits worth \$ 287.

Amendments of market shortcomings cover a wide spectrum of programs, in Europe as well as in the U.S., and the Welfare State is an integral part of the fiscal policy, which can help to absorb the adverse consequences of major economic shocks, as the Great Recession. The effectiveness of amending market's SINS depends crucially on the timing and the extent of its countercyclical impact.

2. The States of the European Welfare: patterns and empirical evidences

The Welfare State is widespread in all the European countries and in this section we try to explain the reasons of its growing share of the GDP and ask whether there are limits or constraint to its in-

³ Economic Report of the President (2012) p. 198.

⁴ *Ibi*, p. 206.

crease. We can consider the Welfare State benefits as a social consumption to be added to the private consumption of each household, even if in varying proportions: market provide for private goods while the Welfare State, or the Safety Net, provide for the “common goods”, the market’s SINS which the market mechanism is unable to deliver. While household private consumption is a function of disposable income (net of taxes and including government benefits) and the aggregate private consumption function results as the amalgama of all the households, for the social consumption the opposite holds. The Welfare State starts with an aggregate (social welfare) function relating social consumption with GDP per-capita, on which tax receipts depend: the crucial difference with private consumption is that the social consumption for each household is the result of a political decision, concerning the level of public expenditures, their allocation by functions and the eligibility criteria which household have to comply with for accessing the available resources. We assume that the policy-maker decides⁵, on the basis of citizens’ preferences and their political approval, how and which resources households are entitled to access, while respecting a “tight” or “soft” budget constraint, because the Government can borrow more easily than the households. Consumption per-capita and economic growth are related by a simultaneous and self-reinforcing mechanism which slows down as the variety of private and social needs are saturated. Therefore the first relationship we investigate is between GDP per-capita and social expenditures⁶. If we consider, for a large sample of European countries, the relationship between the level of GDP per-capita and the share of social protection expenditures⁷ (as measured by Euros-

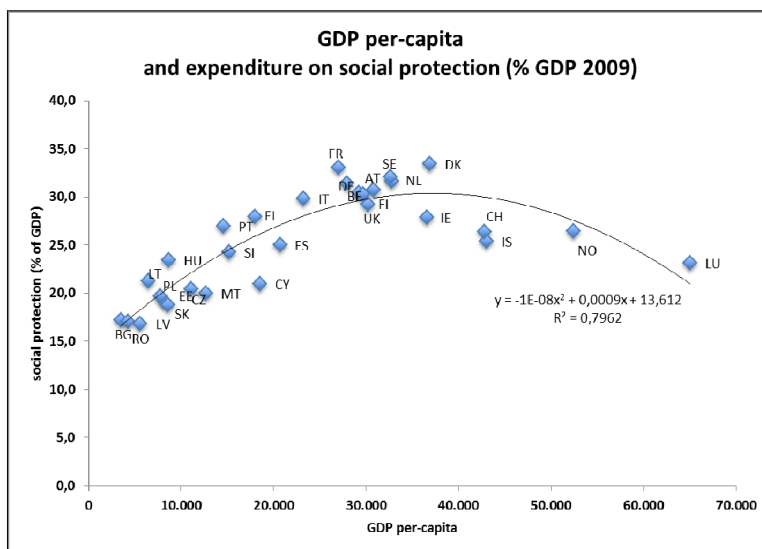
⁵ We could assume a decision process related to a median voter (Meltzer and Richard, 1981).

⁶ There is a vast literature on the determinant of government size, of which Social protection expenditures are part of: Mueller provides an extensive review (see Muller (2003)).

⁷ In the paper we use ther terms “expenditures and benefits” interchangeability: we point that all the empirical evidences is based on social protection benefits, because expenditures include also administrative costs.

tat) in 2009 a well-defined quadratic pattern arises (figure 1): in 2009, year of a heavy drop of the GDP, Denmark and France recorded the highest share of social protection expenditures with respect to the GDP (33%).

Figure 1 - *GDP per-capita and Social Protection Expenditures*

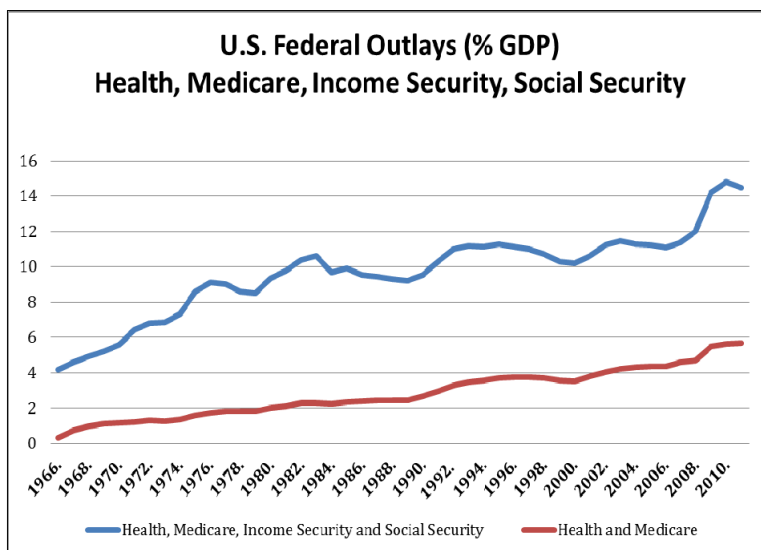


Source: Author's calculation on Eurostat

However good the fitting, the relationship should be considered with caution, because it suggests a clear answer to the question about the existence of a maximum value of expenditures for the Welfare State, which relies however on too few small countries. We do not have a reliable comparison with the U.S., but if we try to add the available data, to figure out a reliable estimate, we record that even if public social spending is lower than in Europe, it is however rapidly increasing. The share of social expenditures

in the U.S. is, in fact, around half the share of the Netherland, a country with almost the same level of real GDP per-capita in 2009: however one has to note that in 2011 the U.S. Federal Outlays for Health, Medicare, Income Security, Social Security represented about the 14,5% of the GDP, up from the 4,2% in 1966 (figure 2).

Figure 2 - U.S. Federal Social Expenditures



Source: Author's calculation from "the Economic Report of the President 2012", table B-1, B-80

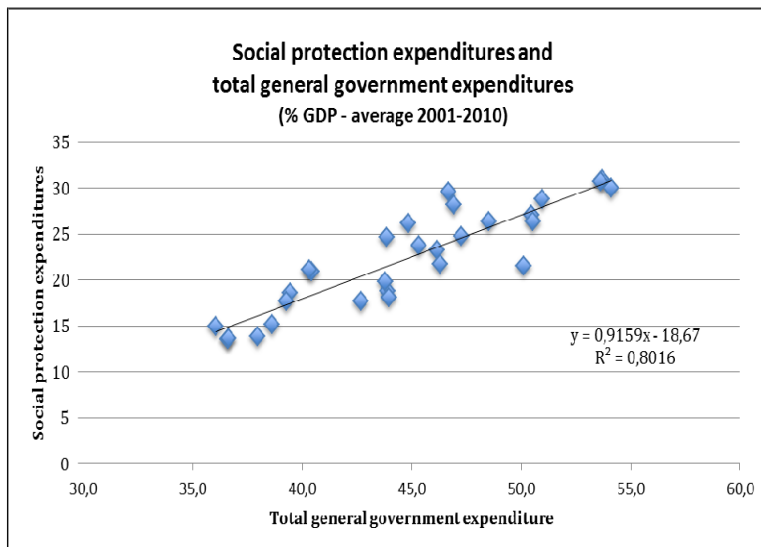
It is a slow but steady increase which could bring the U.S. public spending closer and closer to the European levels in 10 to 20 years. It has been suggested that a better comparison between Europe and the U.S. should take into account also the employer-provided benefits, like health insurance and pension, increasing substantially the share of social expenditures at a level comparable with the Euro-

pean countries (Garfinkel, Rainwater and Smeedings, 2010): perhaps this comparison is a bit stretched, but we can take this indication as suggestive of the underlying forces behind the growing Welfare State.

A prominent theoretical and empirical interpretation suggests that the increase of welfare spending is a form of social insurance against economic shocks and the uncertainty coming from the world market, which is proxied by the degree of openness of the economies and the terms of trade (Rodrik, 1998). This interpretation fits clearly with the market's SINS framework, however the relationship between openness and the social protection expenditures, while holding for the past, becomes weaker for the 2000's decade in Europe. We suggest that the pattern of new relationships between European countries – an halfway economic and political union – has also changed the relationship between openness, as a measure of uncertainty, and the demand for social protection. The tighter external constraint coming from a higher openness has been coupled, if not supplanted, by a “thight” or “soft” constraint on the public budget deficit.

Therefore, we averaged over the decade the total public expenditure, the social protection and the primary balance deficit or surplus, as a share of the (averaged) GDP for all the European countries for which we could find comparable data (Eurostat is our main source). The social protection expenditures shows a close relationship with the total general government expenditures (figure 3): the relationship should not be considered as obvious, because social benefits are funded simultaneously by the social contribution and general government contribution. In 2009 social contributions, more sensitive to economic fluctuations, represented 60,1% of the total receipts for the EA-17, with a significant balancing (or throwing off balance) role by the government contributions (39,9%): the share of government contributions varies significantly across European countries, and therefore the question arises whether the public budget constraint have an influence on the social protection expenditures.

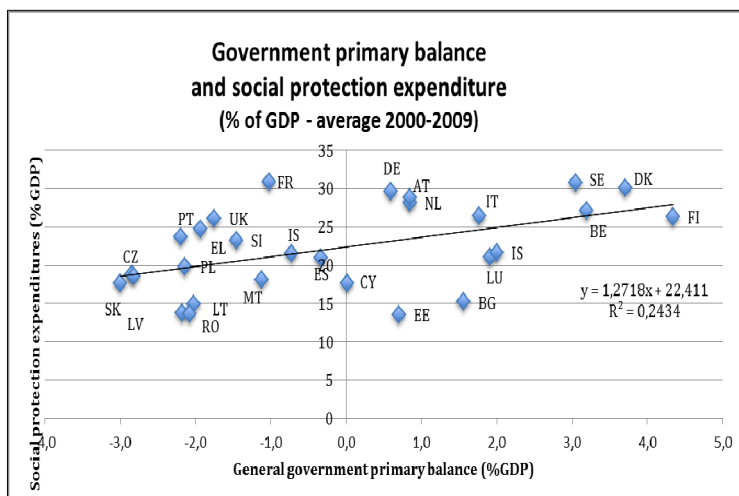
Figure 3 - *Social protection expenditures and total general government expenditures*



Source: Author's calculation from Eurostat database

Indeed, the public budget constraint shows up in a positive relationship between the average primary balance and social protection expenditures: this means that, to some extent, the primary public budget balance constraint (net of of interests) is (softly) binding with respect to social protection expenditures (the sample is made of 28 European countries, excluding Norway, a clear outlier for many variables) (figure 4). As expected, there is a close relationship between primary and total government balance, which shows that primary balance is, indeed, a major goal by the economic policy, and therefore a constraint on the government and social protection expenditures (figure 5): both cross-section relationships are however weak and we postpone to section 4 a more detailed time – series analysis on a sample of major countries.

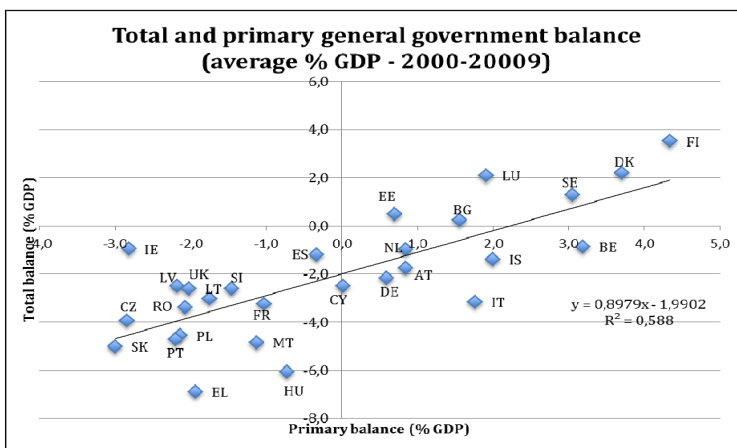
Figure 4 - *Primary Balance and Social protection expenditure*



Source: Author's calculation from Eurostat dataset

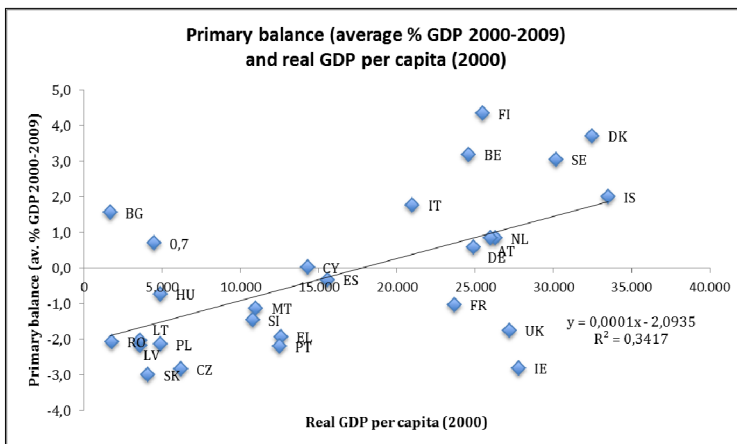
We ask the question whether the primary balance is related to the GDP per-capita, which, as we have shown, is a main economic variable which explains the social protection expenditure: we show that the GDP per-capita in 2000 has a good predicting power on the average primary balance in the following decade, which implicitly also underlines the crucial role of economic growth in relaxing the primary balance constraint on the social protection expenditures (figure 6). This kind of relationship is however thorny because it implies a degree of self-reinforcing dynamic and therefore the need of a structural change in the pattern of social expenditures to modify a negative trajectory, i.e. a public deficit.

Figure 5 - Total and primary general government balance



Source: Author's calculation from Eurostat dataset

Figure 6 - Primary balance (average 2000-2009) and real GDP per capita in 2000



Source: Author's calculation from Eurostat database

3. Coping with market's SINS: a cross-section analysis

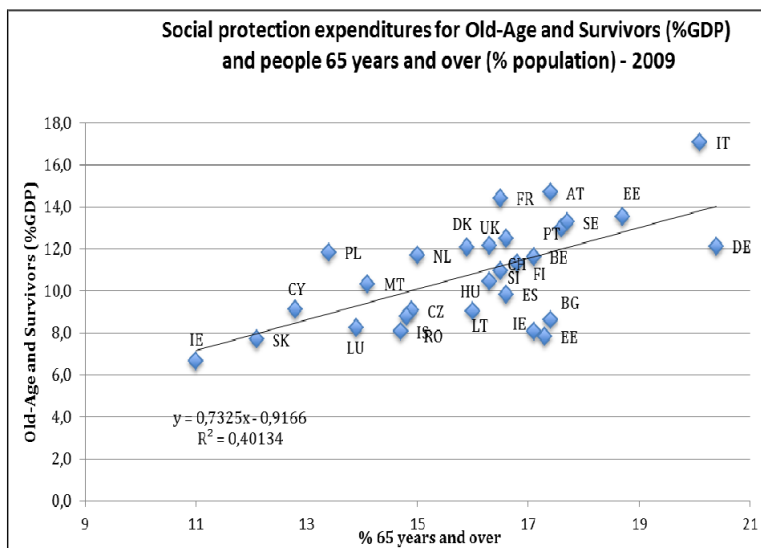
While the primary budget constraint puts a lid on the level of aggregate social consumption, the distribution of the resources available between the specific functions mirrors the efficiency in coping with the main goals of the Welfare State, namely market's SINS, therefore promoting Stability of disposable income, reducing Inequality, taking care of basic Needs, providing Safety and Security. According to the Eurostat statistical classification, the main functions are conventionally grouped in the following areas: old-age and survivors, sickness/health care, disability, family/children, unemployment, housing and social exclusion. To analyze the efficiency of welfare spending, taking SINS as major goals, we can consider each function in relation with each goal, searching for possible relationships.

With regard to pensions, we find, as reasonably expected, that a crude measure of demography - people 65 and over - explains 40% of the variability in Old-Age and Survivors benefits as a share of GDP in 2009 (45% if we consider only Old-Age): Ireland has the lowest share of population aged 65 and over, and correspondingly the lowest social protection expenditure as a share of GDP (figure 7). In Italy the share of population over 65 is almost three times higher than Ireland and the share of GDP for expenditures on Old-Age and Survivors is almost two times higher. We should note that pensions are parts of the resources available to the “generational chain”, defined as the small community of 7-8 persons, made up of grandparents, parents and grandchildren which share a common pool of money and time resources. The relationship between pensions and consumption smoothing and Stability over the life-cycle is confirmed for the individuals, and we suggest also the generational chain.

Sickness and health care – the other major expenditure function - is, for the most part, a transfer in-kind, where the expenditures are mainly related with hospitals and drug costs with a direct relationship with the goals of Need and Safety: as we show below, the

function of “sickness and health care” has a significant impact on poverty reduction.

Figure 7 - *Social expenditure for Old-Age and Survivor and population over 65*

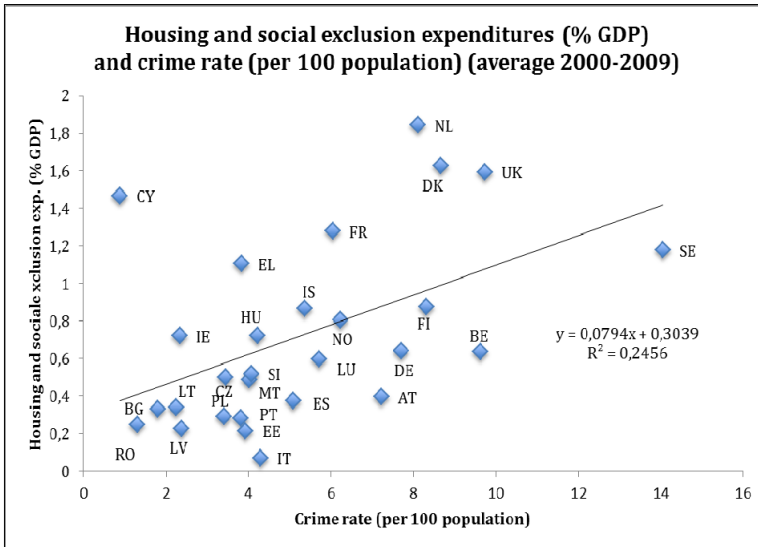


Source: Author's calculations from Eurostat database

The functions of housing and social exclusion can be related to some exogenous measure of social disorder like the crime rate or the rate of people in prison and the goals of Safety and Security. The crime rate is measured as the number of criminal offences reported to the police, per 100 of population: despite the well-known problem of underreporting associated with this measure, we see a positive relationship between the crime rate and the share public spending for housing and social exclusion (figure 8). Higher crime rates call for a higher of expenditures for housing and social exclu-

sion and we could reasonably say that Sweden and UK spend more because the crime rate is higher. Over the last decade we record a sharp increase of violent crimes, (for which underreporting is a minor problem), in Sweden, England (with an impressive absolute number) and Wales, France, Italy, Netherland.

Figure 8 - *Crime rate and social exclusion expenditures*



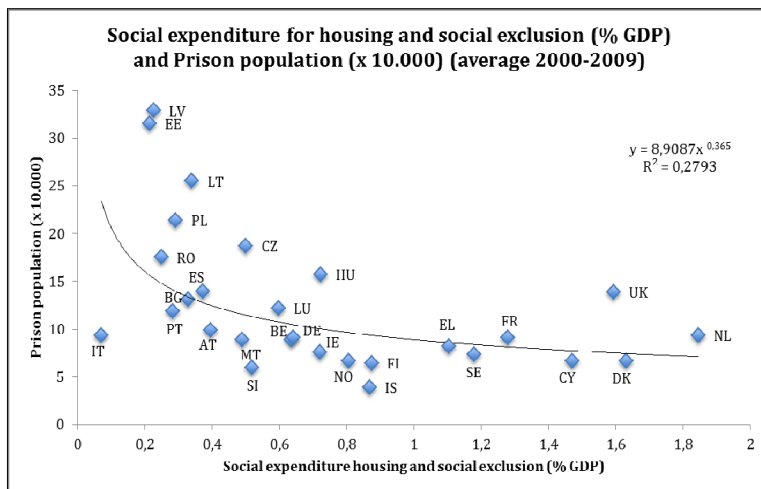
Source: Author's calculation on Eurostat database

Drug trafficking is the other crime, surely underreported, for which the number of offences has increased the most in Netherland, Sweden, England and Wales, while in Italy the number of offences is stable, but still the highest after Germany, where it is however decreasing. Increasing crime has entailed an increase of prisoners (the correlation between crime rates and imprisonment rate is weak, but highly sensitive to the inclusion of some small countries): we show

the existence of a possible non-linear relationship between social expenditure for housing and social exclusion, which – if confirmed – could be exploited to reduce crime (figure 9). The issue of crime increase begins to be carefully analyzed for its wide social and economic implications, exploring the role of demography, unemployment, immigration, incarceration and abortion (Buonanno at al. 2010).

Poverty reduction is a major welfare goal, related to Inequality and Needs, and the efficiency of welfare expenditure can be measured, comparing ex-ante poverty rates, before the social protection expenditures, with ex-post poverty rates, after the social protection expenditures: taking the difference (before – after) as a dependent variable, we ask the question of which social expenditure function is most effective in poverty reduction (the poverty threshold is calculated in each country as 60% of median disposable income).

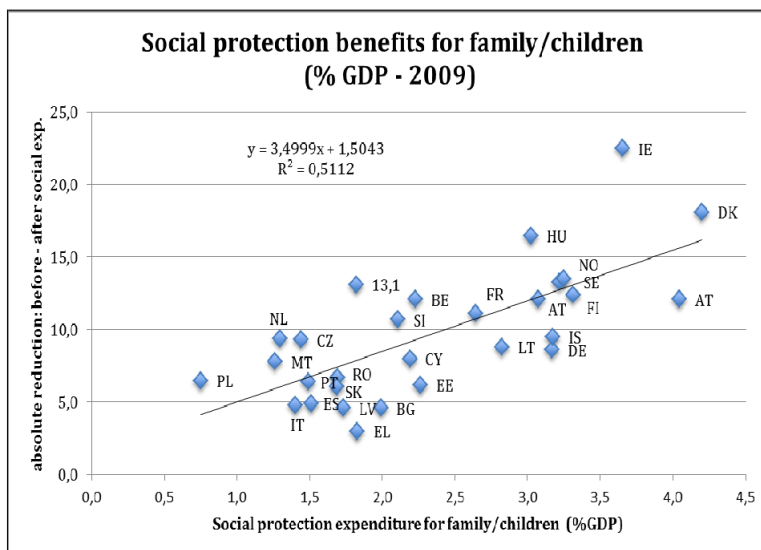
Figure 9 - *Social expenditure for housing and social exclusion and prison population*



Source: Author's calculation from Eurostat dataset

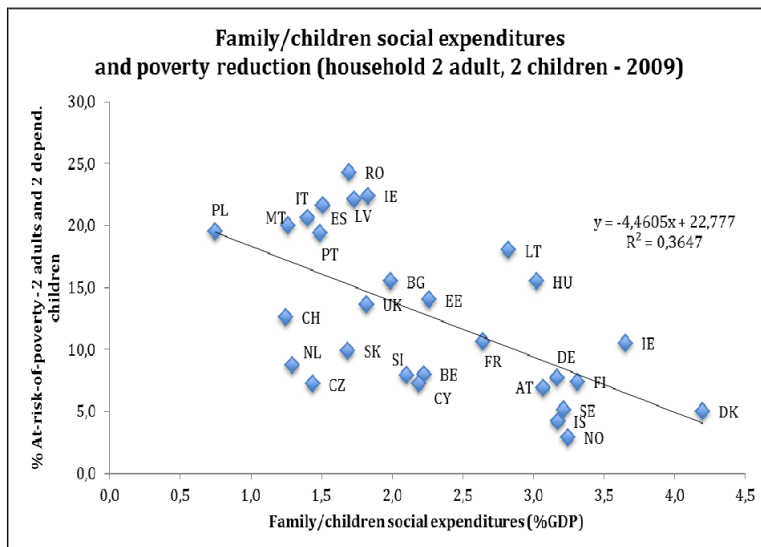
Social expenditures for family/children arises as the function with the biggest impact on poverty reduction (figure 10): in fact if we can show a clear negative relationship between the percentage of families of 2 adults and 2 children at-risk-of-poverty and the social public expenditures for the function family/children as a percentage of the in GDP in 2009 (figure 11 - we exclude Luxembourg as a large outlier). To expand the explanation power of this relationship we run a stepwise regression (table 1) between the poverty reduction (before – after) and the percentage of social expenditures for the function of family and children (with respect to GDP) adding the function of sickness/health care: the result is significant for both variables while the cross-section variability explained corresponds to an R2 (adj) of 0,556 (we note that also the function of disability show a high correlation).

Figure 10 - Family/children benefits and poverty reduction



Source: Author's calculation from Eurostat database

Figure 11 - *Family of 2 adults and 2 children at risk of poverty and family/children benefits*



Source: Author's calculation from Eurostat database

We can therefore conclude that family and health care public expenditures (and also disability, to a lighter extent) appear to be the most efficient social expenditures, in the sense of their being the more effective in poverty reduction.

A wider scope for the Welfare State regards the Inequality arising from the presence of one or two earners in families with children, which calls for horizontal equity in fiscal policy and a higher demand for labor with good wages. We already know that a higher share of social expenditure is associated with higher GDP per-capita (figure 1) and, at same time, we can show a strong positive relationship between the GDP per-capita and the share of families with one parent full-time and one parent part-time (figure 12).

Table 1 - OLS regression

dependent variable: poverty reduction (before – after)

independent variables: family/children and sickness/health care

. sw reg beforeminusafter familychildren health, pr (0.05)

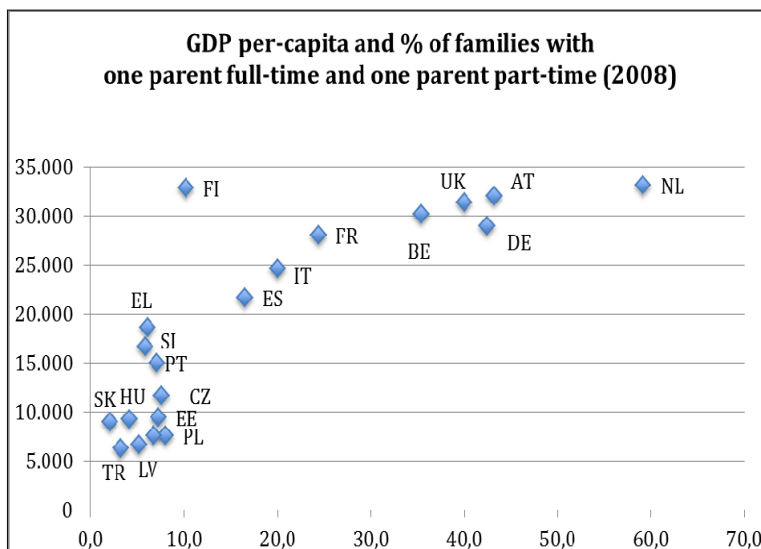
begin with full model
p < 0.0500 for all terms in model

Source	SS	df	MS	Number of obs	=	29
Model	.032	2	.016	F(2, 26)	=	18.54
Residual	.022	26	.000	Prob > F	=	0.000
				R-squared	=	0.587
				Adj R-squared	=	0.556
Total	.055	28	.001	Root MSE	=	.0296

beforeminu~c	Coef.	Std.Err.	t	P> t	[95% Conf.Interval]
familychil~c	3.048	.649	4.69	0.000	1.713 4.383
healthdec	.691	.314	2.20	0.037	.045 1.336
_cons	-.023	.023	-0.99	0.329	-.071 .024

Source: Author's calculation from Eurostat database

Figure 12 - *GDP per-capita and % of families with children
Parents one full time, one part-time*



Source: Author's calculations on Oecd family database and Eurostat database

This relationship can be interpreted as a mutual social agreement, between families with children and firms, for more flexible work arrangements, in countries with higher level of GDP per-capita: implicitly it stresses the importance of the Stability of family income, through monetary and in-kind transfers, as well as the crucial importance of unemployment insurance against economic shocks and recessions.

4. *Coping with market's SINS: the case of 7 major countries, from 1996 to 2009*

In this section we focus on a single policy goal – Stability - from a different perspective, asking whether social protection benefits can

work as an automatic stabilizer, moving countercyclically in economic recessions, and thus promoting economic recovery and indirectly the other goals. We undertake this analysis selecting 7 major European countries for which we analyze the relationship between social protection expenditures and GDP variability over the period 1995-2009: the countries selected, on the basis of their economic relevance or because they represent a different growth model, are Germany, Spain, France, Italy, Netherland, Sweden and UK. A summary of the social expenditures for these countries is presented in table 2 (euro per-capita at constant prices) and table 3 (percentage of GDP), selecting four years – 1995, 2000, 2008, 2009 – to get a first view of time dynamic, including the crisis: we also compute the percentage of in-kind transfer.

If we look to the values per-capita some interesting points arise: the (constant) values of social expenditures increase for all countries between 1995 and 2009, but in 2009 the social expenditures increased in Germany, Spain France, Italy and Netherland, while decreased in Sweden and UK⁸. A common pattern is the increasing share of in-kind benefits with respect to the total benefits, for which the higher percentages has been reached in Sweden (45%) and U.K. (40,5%), while the lowest has been hitted in Italy (26,9%) and Spain (34,4%). At the same time it crucial to note the differences of the total social protection benefits as a percentage of GDP (2009), ranging from a low of 28,2% in U.K. and 28,4% in Italy to a high of 31,6% in France and 31,5% in Sweden: a range which becomes much wider if we consider the percentage of in-kind transfer, from a low of 7,6% in Italy and 8,4% in Spain to a high of 11,7% in Netherland and 14,2% in Sweden. These differences of the percentage of GDP translate in much wider differences in total benefits per-capita, from a low of 4.316 euro in Spain and 5.813 euro in Italy (at constant 2000 prices) to a high of 8.641 in Netherland and 8.548 in Sweden.

⁸ There is a break for the UK data, because of a riclassification by the Department of Work and Pensions as from 2007: this change should not have influenced the change between 2008 an 2009.

Table 2 - Social protection benefits (thousands euro per inhabitant)

GEO/TIME		Euro per inhabitant (at constant 2000 prices)																							
		Total						Cash						In kind						% in kind					
		1995	2000	2008	2009	1995	2000	2008	2009	1995	2000	2008	2009	1995	2000	2008	2009	1995	2000	2008	2009				
Germany	6.689	7.112	7.215	7.771	4.553	4.866	4.755	4.990	2.137	2.247	2.460	2.781	31,9	31,6	34,1	35,8									
Spain	2.779	3.057	3.968	4.316	2.007	2.051	2.538	2.831	772	1.006	1.430	1.485	27,8	32,9	36,0	34,4									
France	6.094	6.568	7.594	7.954	4.039	4.360	4.934	5.186	2.055	2.208	2.660	2.768	33,7	33,6	35,0	34,8									
Italy	4.020	4.976	5.626	5.813	3.125	3.765	4.086	4.250	895	1.211	1.540	1.564	22,3	24,3	27,4	26,9									
Netherlands	6.750	6.488	8.164	8.641	4.846	4.525	4.973	5.241	1.904	1.963	3.191	3.401	28,2	30,3	39,1	39,4									
Sweden	7.649	8.857	9.208	8.548	4.609	5.202	5.007	4.701	3.040	3.655	4.201	3.848	39,7	41,3	45,6	45,0									
U.K.	4.478	6.932	6.186	5.867	2.960	4.618	3.690	3.491	1.518	2.314	2.496	2.376	33,9	33,4	40,3	40,5									

Source: Author's calculation from Eurostat database

Table 3 - Social protection benefits (%GDP)

GEO/TIME	Percentage of GDP												
	Total					Cash					In kind		
	1995	2000	2008	2009	2009	1995	2000	2008	2009	2009	1995	2000	2008
Germany	27,2	28,6	26,9	30,1	18,5	19,5	17,7	19,3	8,7	9,0	9,2	10,8	
Spain	20,9	19,5	21,6	24,5	15,1	13,1	13,8	16,1	5,8	6,4	7,8	8,4	
France	28,7	27,7	29,5	31,6	19,0	18,4	19,2	20,6	9,7	9,3	10,3	11,0	
Italy	23,2	23,8	26,5	28,4	18,1	18,0	19,2	20,8	5,2	5,8	7,3	7,6	
Netherlands	28,9	24,7	26,9	29,7	20,8	17,2	16,4	18,0	8,2	7,5	10,5	11,7	
Sweden	33,1	29,3	28,9	31,5	19,9	17,2	15,7	17,3	13,1	12,1	13,2	14,2	
U.K.	26,4	25,5	25,3	28,2	17,5	17,0	15,1	16,8	9,0	8,5	10,2	11,4	

Source: Author's calculation from Eurostat

The first question which we now address is the dynamic of social protection benefits with respect to GDP growth and fluctuation, to assess whether social protection benefits are procyclical or countercyclical: to obtain a simple, but complete, understanding we computed the simple correlation coefficient of the annual rate of change of social protection benefits per-capita for each function and the annual rate of change of the GDP per-capita, over the period 1996-2009. Quite different patterns emerge, across the countries and the functions (table 4). The unemployment insurance is the only function for which a countercyclical behavior with negative correlation, marked by the Great Recession, arises for all the countries: the value of the coefficient is however low for France and Sweden. France and Germany are the only two countries showing a countercyclical behavior for all the social protection functions, while Sweden and UK are procyclical for almost all the social protection functions (excluding unemployment). The pattern for each function varies markedly across the countries: sickness and health care is countercyclical in Germany (-0,5475) and procyclical in Sweden (0,6545) and UK (0,6941). Family and children benefits are (mildly) countercyclical in France (-0,3872) procyclical in Sweden (0,44486) and UK (0,5817). In Italy, apart from unemployment, disability is the only function which is (mildly) countercyclical (-0,3534). Within the specific functions of each countries comovements tend to prevail, with a wide range of correlations. The correlation of the total social protection expenditures with the GDP per-capita cannot be taken as such, because of the distortion due to the inclusion of social protection expenditures in the GDP: the correlation with the rate of change mitigate but do not correct a possible bias, given the high percentage of social protection expenditures in the GDP.

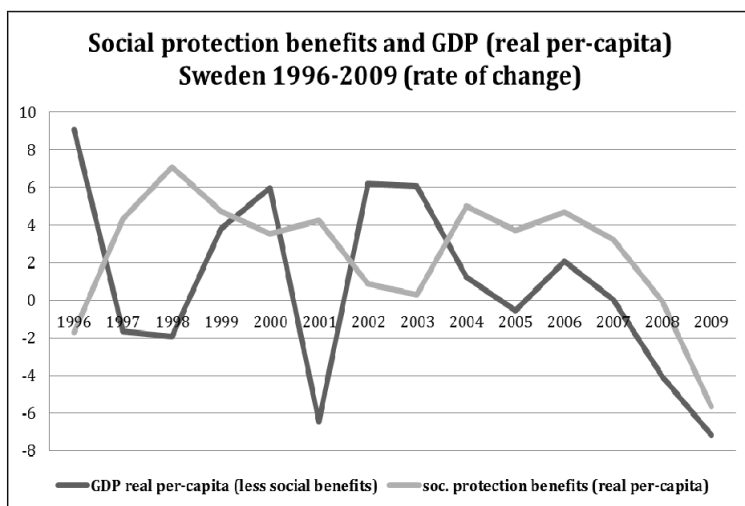
Table 4 - Simple correlation coefficients: rate of annual change of social protection benefits per-capita and GDP per capita (1996-2009)

	Simple correlation coefficient: rate of growth of GDP per-capita and social protection benefits							
	1996-2009							
	Germany	Spain	France	Italy	Netherland	Sweden	UK	
All functions	-0,6595	-0,6903	-0,4610	0,0356	-0,5213	0,5487	0,4532	
Sickness/Health care	-0,5475	-0,0888	-0,2463	0,4096	-0,2527	0,6545	0,6941	
Old-Age	-0,2376	-0,4878	-0,2320	0,1018	-0,1376	0,4158	0,2540	
Survivors	-0,4962	0,2496	-0,1868	-0,0229	-0,1224	0,4618	0,2343	
Family/children	-0,2532	0,2640	-0,3872	0,0525	-0,0786	0,4486	0,5854	
Disability	-0,3301	-0,0129	-0,1837	-0,3534	-0,2267	0,7507	0,5817	
Unemployment	-0,8759	-0,9224	-0,5439	-0,9188	-0,9409	-0,3753	-0,4665	
Housing	-0,1067	-0,1770	-0,2387	0,1926	0,2337	0,4289	0,1230	
Social exclusion	-0,2373	-0,0941	-0,4415	-0,0230	-0,0219	-0,0549	0,3685	

Source: Author's calculation from Eurostat database

A straightforward procedure is to subtract the social protection expenditures from the GDP per-capita⁹, comparing the result with the original data. We make this correction for Sweden (figure 13) and Germany (figure 14), whose patterns are representative: the dynamic is similar to the ones without correction, but with better fitting values.

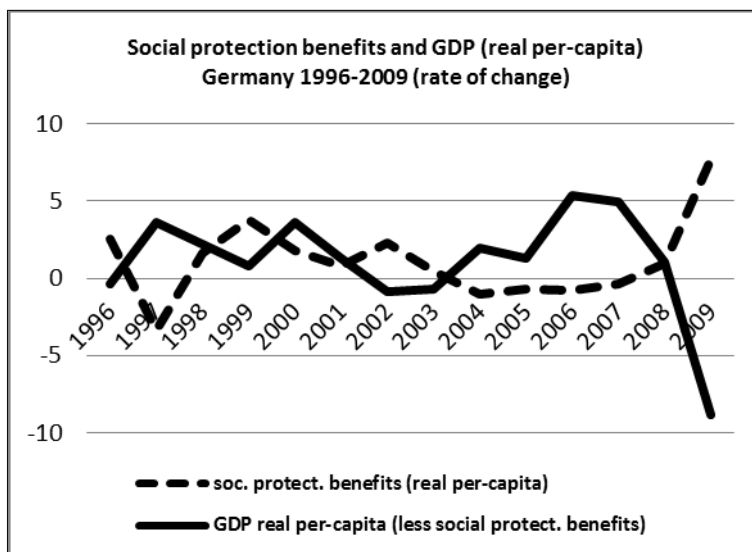
Figure 13 – Sweden – social benefits and GDP (1996-2009)



Source: Author's calculation from Eurostat database

⁹ We subtract the social protection benefits per-capita (constant 2000 prices) from the GDP per capita (constant 2005 prices) and then we analyze the relationship between these two new aggregates. There are two implicit assumptions: first, the two aggregates can be considered separable, while a wider theoretical model should allow for some form of complementarity or substitutability, and second, the two series (source Eurostat), while being both at constant prices, have two different reference years, which methodologically should have only a slight effect on the calculation of the rate of change, over short periods.

Figure 14 - Germany – social benefits and GDP (1996-2009)



Source: Author's calculation from Eurostat database

We also run a regression, pooling the data corrected for Germany plus France (28 annual observations), with and without fixed effect (1996-2009): the estimates are similar and with the expected countercyclical sign in both cases (table 5 – only for fixed effect). The estimates (fixed effect) are still significant if we exclude the years 2008-2009, but enlarge the dataset to Germany, France, Sweden and UK (48 annual observations): however the R² decreases and the coefficient on the GDP increase, still retaining the negative countercyclical sign (table 6).

Table 5 - *Social protection expenditures (SPE) and GDP per capita (less SPE)*
Germany and France (Fixed Effect)
Rates of annual change 1996-2009

FE panel regression

```
Fixed-effects (within) regression   Number of obs   =   28
Group variable: country             Number of groups =    2

R-sq:  within = 0.550                Obs per group:  min =   14
        between = 1.000                avg =   14.0
        overall = 0.545                max =   14

corr(u_i, Xb) = 0.062                F(1,25)         =  30.67
                                         Prob > F         =  0.000
```

```
-----
-
      varspe | Coef.   Std.Err.   t    P>|t|   [95% Conf. Interval]
-----+-----
-
varpilmeno~e | -.513   .092    -5.54  0.000   - .703   - .322
      _cons | 1.987   .291     6.82  0.000   1.387   2.587
-----+-----
-
      sigma_u | .446
      sigma_e | 1.476
      rho    | .083   (fraction of variance due to u_i)
-----
F test that all u_i=0: F(1, 25)= 1.28        Prob > F = 0.2694
```


Table 6 - *Social protection expenditures (SPE) and GDP per-capita (less SPE) Germany, France, Sweden, UK (Fixed Effect) Rates of annual change 1996-2007*

FE panel regression

```
. xtreg varspe varpilmenospe if country==France |
country==Germany|country==Sweden |country==UK, fe
```

```
Fixed-effects (within) regression   Number of obs   =   48
Group variable: country             Number of groups =    4

R-sq:  within = 0.451                Obs per group:  min =   12
        between = 0.206                avg           =  12.0
        overall = 0.339                max           =   12

corr(u_i, Xb) = -0.299                F(1, 43)        =  35.36
                                                Prob > F         =  0.000
```

varspe	Coef.	Std.Err.	t	P> t	[95% Conf. Interval]	
varpilmeno~e	-1.566	.263	-5.95	0.000	-2.097	-1.035
_cons	5.670	.811	6.99	0.000	4.033	7.306
sigma_u	2.089					
sigma_e	3.576					
rho	.254 (fraction of variance due to u_i)					

```
F test that all u_i=0: F(3, 43) = 3.73      Prob > F = 0.0181
```

However, the Fixed Effect procedure neutralize the possibility to identify the specific pattern of each country, selecting subgroups. Indeed, it is instead useful to group the countries as follows:

- a) Germany and Spain show a significant countercyclical relationship: in 2009 the percentage of general government contributions to total receipts for social protection is 37% in Germany and 44,5% in Spain (the share of social contributions being the complement to 100).
- b) France and Netherland show a weaker countercyclical relationship: the percentage of general government contribution to total receipts is 35,4% in France and 34,6% in Netherland.
- c) Italy does not show any detectable pattern, with a percentage of general government contribution to total receipts of 45,4%
- d) Sweden and United Kingdom show a countercyclical pattern from 1996 to 2007, while from 2007 to 2009 the pattern is procyclical: the percentage of general government contributions to totale receipts is 54% in Sweden and 56,1% in UK.

We can ask which is the better economic policy, countercyclical rather procyclical, in terms of the economic growth and government balances following the sharp drop in social spending in 2009, with the advantage of knowing ex-post the economic performances (table 7). The outcomes are mixed because:

- a) Germany improves growth and public balances while Spain worsens both significantly.
- b) France and Netherland show weaker improvements of growth and public balances.
- c) Italy improves its primary balance and deficit, but growth does not recover.
- d) Sweden show a significant recovery and a surplus of primary and total government balance while UK show a much worse performance.

Table 7 - Crisis and after: social protection, growth and government balance

Social protection benefits per-capita (2009), GDP per-capita, primary and government deficit												
Value (000) euro for protection in 2009 - rates of change												
Country	Social protection			GDP			Primary balance			% GDP		
	Value (000)	2009	rate of change 2008	GDP per capita - rate of change			Primary balance			Net lending (+)/Net borrowing (-)		
				2009	2010	2011	2009	2010	2011	2009	2010	2011
Germany	7.771	7,71	7,71	-4,8	3,8	3	-0,5	-1,8	1,6	-3,2	-4,3	-1,0
Spain	4.316	8,78	8,78	-4,4	-0,4	0,6	-9,4	-7,4	-6,1	-11,2	-9,3	-8,5
France	7.954	4,74	4,74	-3,7	1,1	1,1	-5,1	-4,7	-2,6	-7,5	-7,1	-5,2
Italy	5.813	3,33	3,33	-6,1	1,3	0	-0,8	0,0	1,0	-5,4	-4,6	-3,9
Netherlands	8.641	5,84	5,84	-4	1,2	0,7	-3,4	-3,1	-2,6	-5,6	-5,1	-4,7
Sweden	8.548	-7,16	-7,16	-5,8	5,3	3,2	0,2	1,1	1,3	-0,7	0,3	0,3
UK	5.867	-5,15	-5,15	-4,6	1	0	-9,5	-7,3	-5,1	-11,5	-10,2	-8,3

Source: Author's calculation from Eurostat database

Sweden (procyclical) seems to record the best results during the mild recovery of 2010-2011, together with Germany (countercyclical): France and Netherland show improving, but slower performances, while Spain (countercyclical) and even more UK (cyclical) record the worst performances among the selected European countries. No clear pattern arises, except that best performing countries recorded the highest social protection expenditure per-capita in 2009, while the worst – Spain, Italy and UK – recorded the lowest.

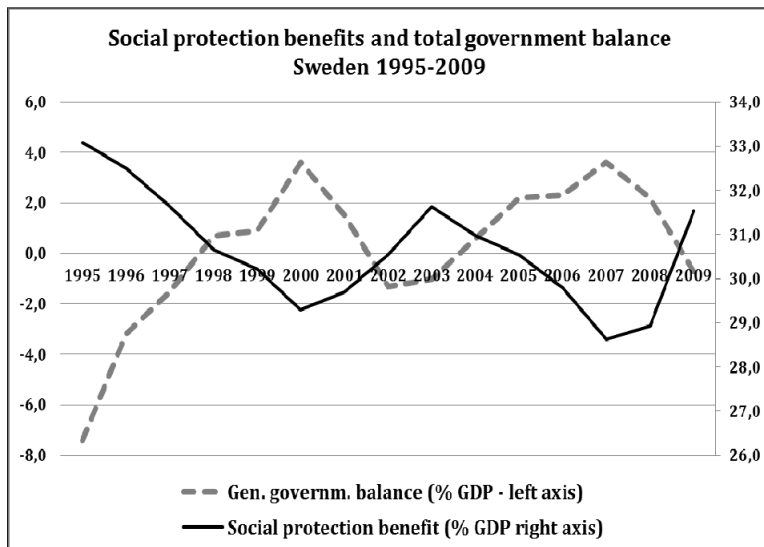
The procyclical behavior for Sweden and UK during the Great Crisis leaves open the question of explaining the pattern of benefits reductions. To understand it we consider the years 2008 and 2009 for the selected countries and the main social protection functions. We can check that in Sweden and UK the procyclical decrease in 2009 regards all the social functions with the exception of the unemployment benefits (table 8): for Sweden we should however note that in 2009 the level of real social protection benefits per-capita was among the highest in Europe, despite the GDP decrease. This suggests that a high level of social protection benefits per-capita can give political leeway during a recession, being itself an policy instrument for budget adjustment. It is in the UK that the procyclical behavior is really at variance, because the social protection benefits are instead relatively low: both countries have in common a higher share of generale government contributions, 52% in Sweden and 49% in UK. In both countries the Great Recession is the cause of a government deficit in 2009: -0,7% in Sweden and a much wider -11,5% in UK – prompting a policy of public expenditure reduction. In the case of Sweden we have a peculiar countercyclical movement of social public expenditure in the opposite direction of the general government budget deficit or surplus (figure 15), which has been officially implemented as a fiscal policy, targeting 1% percent of public budget surplus over the business cycle (OECD, 2008): the general budget balance is therefore a “tight” constraint, with a margin of fluctuation for the social protection expenditures, around the 30% of GDP, to abide by this rule.

Table 8 - Social protection benefits by function: values 2009 and change on 2008

Country	Social protection benefits by function - 2009									
	Euro per inhabitant (at constant 2000 prices) and rate of change over 2008									
	Total	Health	Old Age	Survivors	Family/children	Disability	Unemployment	Housing	Social exclusion	
Germany	2009 change	7,71 13,2	2,493 2,9	557 1,7	819 6,4	626 3,1	490 26,4	167 7,9	47 3,0	
Spain	2009 change	4,316 8,8	1,286 2,6	381 4,4	267 6,6	303 4,2	647 40,7	35 -0,1	47 10,4	
France	2009 change	7,954 4,7	2,359 4,3	505 3,1	665 3,9	470 3,7	484 10,8	213 2,7	140 23,1	
Italy	2009 change	5,813 3,3	1,495 0,8	540 3,3	287 7,4	355 6,5	164 49,9	5 6,2	15 25,7	
Netherlands	2009 change	8,641 5,8	3,041 5,8	361 -1,2	378 5,5	729 1,5	421 34,1	110 -0,6	592 12,1	
Sweden	2009 change	8,548 -7,2	2,171 -9,6	158 -11,2	872 -9,3	1,233 -9,9	353 27,4	129 -11,5	192 -2,3	
United Kingdom	2009 change	5,867 -5,2	1,807 -6,3	33 -4,1	379 -8,0	621 -7,7	175 21,2	307 2,3	45 -6,0	

Source: Author's calculation

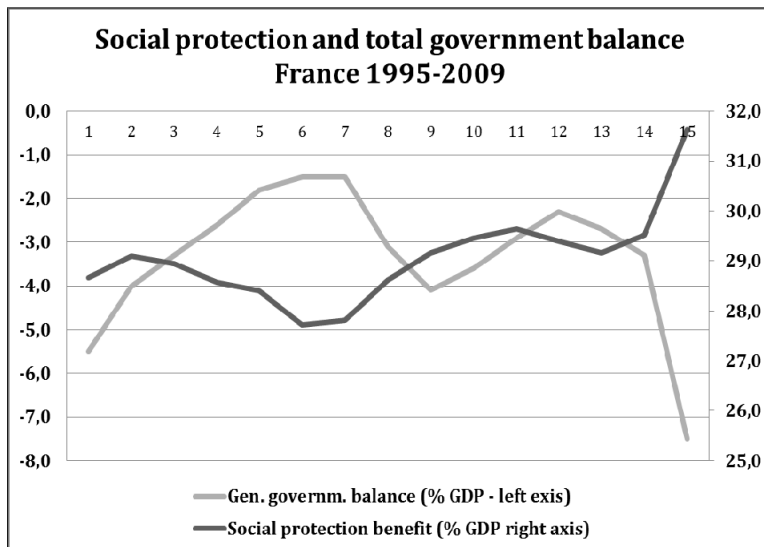
Figure 15 - *Social protection benefits and total government balance - Sweden 1965-2009*



Source: Author's calculation from Eurostat database

In the case of the UK, the budget deficit was simply too high to manage a similar adjustment, given the low starting level of social protection expenditures. The pattern for France is quite similar to that of Sweden, the main difference being that primary budget seems to be the target and the binding constraint, while for Sweden it is the total budget (figure 16). Choosing total rather primary constraint seems to be the crucial question in defining the size of the welfare state, given the GDP per-capita, which in turn depends on the size of debt servicing, the public debt/GDP ratio and the share of payments to non-residents.

Figure 16 - *France social protection benefits and total government balance*

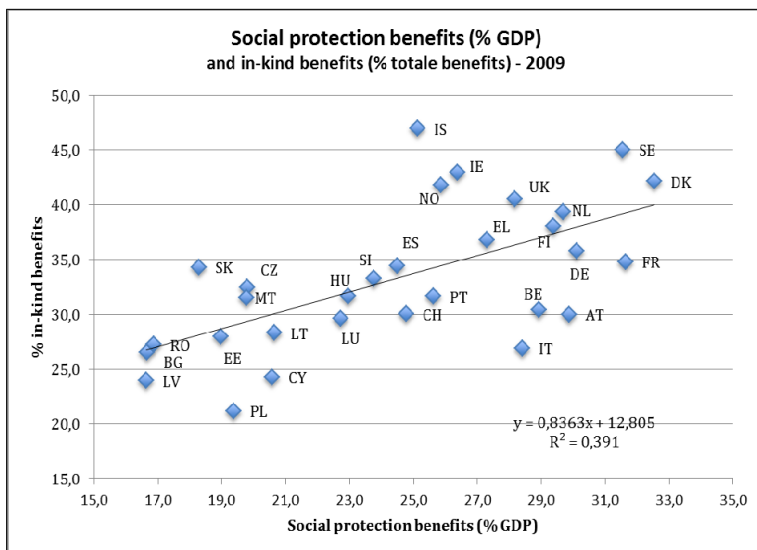


Source: Author's calculation from Eurostat database

Cyclicality of the social protection benefits to GDP ratio means an adequate share of discretionary spending, which is very difficult to achieve with regard to the entitlement to cash transfers, while it seems more plausible that the central (or local) government can temporary “ration” supply and spending of in-kind transfer, like health care supply. This hypothesis is partly confirmed by a positive cross-section relationship between the level of social protection benefits, as share of GDP, and the share of in-kind transfers (figure 17), as well by the steady increase over the time of in-kind transfers for the majority of European countries. The shift toward in-kind transfers allows a better targeting of the needs and the social cost of “paternalism” can be balanced by a better chance of political approval: at the same time in-kind transfers have the advantage of allowing a margin

of temporary discretionary expenditures over the business cycle or during serious economic crises. Another way to limit the access to social protection benefits is to make them conditional on income levels, as a part of fiscal policy with income progressivity, without necessarily making them conditional on a means-testing.

Figure 17 - Social protection benefits and % in-kind



Source: Author's calculation from Eurostat database

Conclusions

We suggest that we can better understand the European Welfare State as the primary institution necessary to cope with the unavoidable shortcomings of the market mechanism, which we relate to issues of stability, inequality, needs and safety, for which we use the acronym market's SINS.

We show the existence of a positive (perhaps quadratic) relationship between the social protection benefits, as a share of GDP, and the GDP per-capita: we argue that to understand the increasing aggregate demand of social protection we need to disaggregate it with respect to the main goals and functions. Pensions and health care are clearly related to the achievement of Stability and Need, while the benefits for housing and social exclusion are related to the goal of Safety and Security. Need and extreme Inequality, measured through poverty reduction, are clearly related to the benefits for the functions of family and children, sickness and health care, disability. We show the close relationship between social benefits and public balance, total and primary, and we discriminate the countercyclical or procyclical behavior for a sample of 7 major European countries. European Welfare State shows different patterns in the process of public budget adjustment: we discuss the case of Sweden, a country with very good economic performances and a procyclical behavior allowed by the highest social protection benefit per-capita: the political leeway of high social protection expenditure seems to be an overlooked instrument of stabilization. Sweden officially targets a total balance surplus of 1%, France seems to target, implicitly, the primary balance. Sweden and Germany rebounded 7-8% compounded growth in 2010 and 2011, given a high level of social spending; France and Netherland rebounded more than 2% also with the same high level of spending; Spain, Italy and UK, with a low level of social spending, rebounded much less, between 0 and 2%, with only a slight improvement in total public balance. This pattern is confirmed in the first semester of 2012: Sweden and Germany record a significant GDP growth, France and Netherland are flat or with a slight increase, while Spain, Italy and UK are technically in recession, with the third straight quarter of GDP decrease. The role of economic growth in fostering an improvement of primary balances is quite clear, especially in Spain, Italy and UK: indeed we show that the GDP per-capita in 2000 is a strong predictor of the average primary balance in the period 2000-2009. We show a positive relationship between the level of social protection benefits and the percentage of in-kind benefits on total benefits: this pattern has many implications. It underlines

a more comprehensive approach of the Welfare State, which includes the greater political flexibility of in-kind benefits, and the chance of smooth and quick “rationing” schemes when the budget balance is in deficit.

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