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**Assessing the Impact of the Welfare
State on Economic Growth:
A Survey of Recent Developments**

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Assessing the Impact of the Welfare State on Economic Growth: a Survey of Recent Developments

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Abstract

From the mid-1980s to the late-1990s a considerable number of empirical studies investigated the impact of the Welfare State (WS) on economic growth with no definite conclusions on the sign, transmission mechanisms and direction of causality of the relationship. More recently, globalization, population ageing and the public fiscal sustainability crisis experienced by many European countries brought the WS to the forefront of the debate on Government retrenchment. Some authors argue that the WS makes economies less productive and competitive, and thus hampers economic growth since its funding consumes scarce resources and introduces distortions in economic activity through disincentives embedded in the structure of the WS. Yet other authors call our attention to the fact that WS interventions have the potential to generate economic externalities that can outweigh their (potential) distortions. The opposing arguments on the impact of the WS on economic growth thus seem to claim for more empirical research on the subject. This paper provides a survey of the recent progress in the applied literature on the relationship between the WS and economic growth. The survey highlights that most empirical studies focus on testing the impact of social expenditures on the level or the growth rate of output ignoring the institutional features of Welfare State interventions. In turn, this leads to econometric specifications that make it difficult to interpret the observed aggregate relationships and derive meaningful and useful policy implications. The unresolved key issues that remain concerning conceptual, measurement and methodological issues call for more work on comparative analysis of WS size and composition and the respective impact on economic growth before a consensus can be reached.

Keywords: Welfare State, economic growth, social spending, institutional features

JEL Classification: H51; H52; H53; I38; O40; P1

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1. Introduction

From the mid-1980s to the late-1990s a considerable number of empirical studies investigated the impact of the Welfare State (WS) on economic growth with no definite conclusions on the sign, transmission mechanisms and direction of causality of the relationship (see Atkinson (1996); Damerau (2011)). More recently, globalization, population ageing and the public fiscal sustainability crisis experienced by many European countries brought the Welfare State to the forefront of the debate on Government retrenchment (see Clemente et al. (2012); Huber et al. (2013); Bontout and Lokajickova (2013); European Union (2013)).

There is a long-standing debate in the economic literature on the influence of the Welfare State on economic performance and controversies still remain on the sign of this relationship. Some authors argue that the Welfare State makes economies less productive and competitive, and thus hampers economic growth since its funding consumes scarce resources and introduces distortions in economic activity through disincentives embedded in the structure of the WS (see Mares (2007)). Yet other authors call our attention to the fact that WS interventions have the potential to generate economic externalities that can outweigh their (potential) distortions (see Lindert (2004)). The focus of this survey is to discuss recent attempts at incorporating the Welfare State in the empirical growth framework. After surveying the main theoretical arguments, we present recent empirical work on the effects of the Welfare State on economic growth with a particular focus on the main methodological problems that still need to be addressed.

The remainder of the paper is organized as follows. Section 2 briefly reviews the main concepts associated with the WS. In section 3 we give overview of the main theoretical arguments on the linkages between the WS and economic growth. Section 4 presents a review of the empirical evidence, highlights the main methodological problems, and suggests ways to move forward in empirical research. Section 5 concludes.

2. What is the Welfare State?

The origins of the WS date back to the late 1800s but the modern use of the concept is usually associated with the implementation of social policy measures in 1948, in the UK, following the Beveridge (1942) report. The construction of the modern WS occurs after World War II in the democratic developed countries, namely the Western European countries and the USA (e.g. the Fair Deal and the Employment Act of 1946), corresponding to a variety of regimes. Economic research on the subject registered different peaks since the 1950s but the debate on the relationship between the WS and economic performance is not a recent one (see Barr (1992); Atkinson (1995); Hassler et al. (2003); Lindert (2004)). More recently,

globalization, the collapse of the Socialist countries, ageing trends in developed countries, among other factors, led to the resurgence of interest in the subject in the late 1990s, with the analysis of the globalization-WS nexus (see Rodrik (1998); Meinhard and Potrafke (2012), Schulze and Ursprung (1999) and Ursprung (2008) surveys), a topic of the utmost importance for developed countries. The 2007-2008 crisis and especially the sovereign debt crisis that hit some European countries since 2010 and the fiscal sustainability problems that followed gave a new breath to the economic research agenda on the WS and more specifically to the relationship between the WS and economic performance (Afonso and Allegre (2011), Andrade et al. (2013), Damerau (2011) and Piachaud (2013)). Nevertheless, the origin of the term is still in dispute⁴ Hudson (2013) and there is disagreement on the concept, possibly because, as Esping-Andersen and Myles (2008) emphasize, it has immensely evolved after the 1950s. The most important social reforms in terms of accrued benefits and population coverage have occurred in the 1970s, with large social expenditures increases in the richest democratic countries until the 1990s (see for example Lindert (2004)). There are other no less important reasons that might explain the lack of consensus on a WS concept: the several dimensions of the WS (e.g. welfare sources, modes of delivery, functions, types of intervention, boundaries of coverage, objectives, Barr (1992)) and also the existence of several ideal and real regimes (see Arcanjo (2006) and Bambra (2007) surveys).

The Encyclopaedia Britannica⁵ offers a general definition that emphasises the roles and principles of the WS: *“concept of government in which the state plays a key role in the protection and promotion of the economic and social well-being of its citizens. It is based on the principles of equality of opportunity, equitable distribution of wealth, and public responsibility for those unable to avail themselves of the minimal provisions for a good life. The general term may cover a variety of forms of economic and social organization.”* There are however definitions more focused on social expenditures, economic instruments and intervention areas. For instance, Lindbeck (2008) presents two definitions, a narrow and a broader one: *“According to a narrow definition, the welfare state comprises two types of government spending arrangements: (i) cash benefits to households (transfers, including mandatory income insurance) and (ii) subsidies or direct government provision of human services (such as child care, pre-schooling, education, health care, and old-age care). By broader definitions, the welfare state may also include price regulation (such as rent control and agricultural price support), housing policies, regulation of the work environment, job-security legislation, and environmental policies.”* Following the latter definition focus and regardless of the division between the narrow and the broader definitions, we can define the Welfare State as a state in

⁴ According to Timmins (1995:6-7) cited by Hudson (2013) the first entry for “welfare state” in The Oxford English Dictionary dates back to 1955.

⁵ The Encyclopaedia Britannica, available at <http://www.britannica.com/EBchecked/topic/639266/welfare-state>.

which the government uses a significant portion of national resources to provide services that benefit individuals or families who meet certain criteria, i.e. they are intended to be consumed individually, as opposed to collective consumption goods such as national defence or internal security⁶.

If we take into consideration the main principles and social expenditures from the definitions above, we may agree with Barr (2001) that assigns two main objectives to the WS: a) a redistributive function (a *Robin Wood* function) – redistribution of income and wealth among individuals; and b) an insurance function (a *Piggy Bank* function) – provides protection to individuals against risks such as sickness, disability, unemployment, ageing, in an environment of imperfect information and uncertainty, through mechanisms of insurance and redistribution aimed at redistributing over the life-cycle. This function seems to have gained an accrued importance nowadays especially for the developed countries. The two functions give rise to public actions, commonly known as social protection and might be defined as “...*the public actions taken in response to levels of vulnerability, risk and deprivation which are deemed socially unacceptable within a given polity or society.*” Norton et al. (2002:543). Social protection is usually divided into social assistance, social insurance and labour market interventions. Social assistance covers public policies that target vulnerable groups (due to low income, age, or other dimensions of poverty). Social insurance covers public policies to mitigate risks, and the beneficiaries make compulsory contributions to the schemes. Due to their specificity, labour market interventions (LMI), although combining objectives a) and b), constitute another distinct group of social protection and might be defined as “*government actions to help and support the unemployed and other disadvantaged groups in the transition from unemployment or inactivity to work.*”⁷. Important public actions such as active labour market programmes (ALMP) are part of LMI and according to the OECD Glossary, ALMP “*includes all social expenditure (other than education) which is aimed at the improvement of the beneficiaries’ prospect of finding gainful employment or to otherwise increase their earnings capacity. This category includes spending on public employment services and administration, labour market training, special programmes for youth when in transition from school to work, labour market programmes to provide or promote employment for unemployed and other persons (excluding young and disabled persons) and special programmes for the disabled.*”⁸

The quantitative description of the WS whatever the preferred approach (there are three fundamental approaches that substantiate the contemporaneous research: the expenses approach, the institutional approach and the regime approach, see Wilensky and Lebaux (1965), (Castles

⁶ See *A Glossary of Political Economy Terms*, Paul M. Johnson, Department of Political Science, Auburn University (http://www.auburn.edu/~johnspm/gloss/welfare_state).

⁷ See http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/EN/lmp_esms.htm.

⁸ See <http://stats.oecd.org/glossary/detail.asp?ID=28>.

(2004, Castles (2009), Gilbert (2009)), Korpi and Palme (2007), Esping-Andersen (1990, Esping-Anderson (1999)) relies on the existence of an international database on social expenditure meeting criteria of quality, comparability and reliability, thus allowing for cross-country analysis. OECD produces such a database: the OECD Social Expenditure Database (SOCX)⁹ that includes 34 OCDE countries for the period 1980-2012. Relative to the Eurostat and the ILO Social Accounting Systems, the SOCX presents a wider social scope and this is one of the reasons why it is so widely used among researchers (see Caminada et al. (2010, Caminada et al. (2012), Fishback (2010), Adema et al. (2011), Adema and Whiteford (2010)).

The SOCX database considers six social expenditure sources (public, mandatory private; public and mandatory private; voluntary private; net Public; net Total) and three types of expenditures (cash benefits, benefits in kind and total) and identifies nine social policy areas in the framework of social protection¹⁰: Old-age; Survivors; Incapacity-related benefits; Family; Active labour market policies; Unemployment; Other social policy areas; and Active labour market policies. The number of social expenditure programmes covered is thirty eight, such as: Total; Old age - Pension; Old age - Early retirement pension; Old age - Other cash benefits; Old age - Residential care / Home-help services; Old age - Other benefits in kind. This disaggregation is important since expenditure composition matters for economic performance and there are policy areas, social programmes and expenditures types that might absorb most of social spending.

In the previous paragraphs we have only considered cash benefits and benefits in kind that serve social purposes but the fiscal system might serve also those objectives by including tax breaks for social purposes (TBSP) that either replace cash benefits or constitute a stimulus to the provision of private benefits. Child tax allowances and tax relief for the provision of private health plans are examples of the former and the latter TBSP, respectively. Additionally, TBSP might be awarded directly or indirectly (employees and private funds) to households. Examples of both types are tax relief for households and favourable tax treatment employer-benefits provided to households (see ADEMA et al. (2011: 25)).

The number of social expenditures programmes listed above provides analysts and researchers with a richness of data that allow for a large scope of studies using different levels of aggregation and taking into consideration different programmes. For example, if the main objective of a cross-country study is to describe the evolution and recent trends in public social expenditure, the standard procedure would be to aggregate in order to get the main components. We might also want to distinguish between the impact of cash benefits (old age and survivors pensions; income support to working age population) and services (health; all other services

⁹ See the OECD Social Expenditure Database (SOCX) (<http://www.oecd.org/social/expenditure.htm>).

¹⁰ More detailed than the above classification of social protection into social assistance, social insurance and LM.

expect health). No less important is that data richness allows researchers to take into consideration the composition of social expenditures and to quantitatively assess the contribution of different items (corresponding to different programmes) to economic performance (economic growth) since different measures might have opposite sign effects, and of different magnitude, on economic performance and growth. The literature reviewed in the next section gives the theoretical rationale for the latter interpretation.

3. Does the Welfare State Influence Growth? An Overview of the Main Theoretical Arguments

From a long-run macroeconomic performance perspective, the fundamental question that has been asked is whether an extensive Welfare State and sustained economic growth are incompatible goals, i.e. whether it is necessary to reduce the first to stimulate the second (see Atkinson (1995)). A main objective of the WS defined as an aggregate of expenditures that enables the provision of the services described in the previous section is that of reducing inequality of opportunities by allowing for a more equal distribution of income. However, the impact of greater inequality on growth remains an unresolved issue in both the theoretical and the empirical literature. Aghion et al. (1999) and Barro (2000) contain a review of this literature suggesting that less inequality can be either beneficial or damaging for growth depending, for instance, on the particular stage of development an economy is in or the specific part of the income distribution that is targeted. Earlier theories predicted a positive influence due to a higher propensity to save of the richer, with higher inequality leading to more physical capital accumulation and thus growth. Endogenous growth theory generally claims that inequality is detrimental to growth on the basis, among others, of the credit market imperfections channel that lead to lower levels of human capital investments and thus slower growth because only initially rich individuals have the collateral to gain access to the credit necessary to invest in human capital. García-Penãlosa (2008) argues that since output growth, from a supply-side perspective, has four fundamental sources, physical capital, human capital, the labour supply and the level of technology, each of these represents a mechanism that relates the two variables, and so, depending on the main source of growth, inequality and growth may be positively or negatively related. Recent empirical studies have also failed to reach a consensus on the sign of the effect of inequality upon growth, arriving at varied and sometimes conflicting results (see Dominicus et al. (2008); Neves and Silva (2014)). In general, cross-country studies suggest that there is a negative relationship between initial income inequality and subsequent economic growth, even after controlling for other important growth influences, but using panel evidence leads to different conclusions. Forbes (2000) argues that this can be interpreted as evidence that inequality is detrimental to growth in the long run but not over shorter time horizons.

Another strand of the economic growth literature that contains some insights on the WS-growth nexus is that on government size and economic growth. Barro (1990) benchmark study argues in favour of the existence of productive public expenditures, those that contribute to an increase in investment in the economy, and unproductive ones, with the former allowing the acceleration of economic growth. WS expenditures that promote capital accumulation can thus be seen as productive public expenditures that enhance growth. For instance, it can be argued that social spending as whole promotes the accumulation of social capital by improving citizens' trust levels (see Kumlin and Rothstein (2005)), while health and education expenditures increase investment in human capital (see Piachaud (2013)). In a recent survey on the general topic of government size and growth, Bergh and Henrekson (2011) highlight the lack of consensus on the sign of the relationship, which the authors attribute to differences across studies on the measurement of government size and the sample of countries under analysis. However, the authors argue that: "(...) on studies that examine the correlation between growth of real GDP per capita and total government size over time in rich countries (OECD and equally rich), the research is rather close to a consensus: the correlation is negative (...)" (p.873). They also suggest that economies with big governments, such as the Scandinavian countries, can still register high growth rates because of (associated) higher social trust levels or by implementing market-friendly policies in other areas.

Focusing on social expenditure alone to determine the influence of the size of the WS on economic growth may, however, be inaccurate since it ignores the impact of the taxes needed to finance its interventions. The main argument is that the higher taxes needed to support a larger WS will decrease the rates of investment and innovation by firms and discourage a larger effort from workers since the government will retain part of their earnings and profits, respectively, and thus lead to a decline in the long-term rate of growth of output (see Afonso and Allegre (2011)). The fundamental issue thus becomes to determine whether the potential economic costs of the Welfare State can be compensated by its respective benefits. Within an exogenous growth framework such as the benchmark Solow model (Solow (1956)), where the growth of technology is the main source of growth but it is not influenced by the decisions of economic agents, the higher taxes levied to finance social protection affect growth negatively during the transition towards the steady state due to lower investment, but not in the long-run, although transition can last for a long time. Endogenous growth theory highlights the role of human capital in the production of technology (see Lucas (1988); Romer (1990); Jones (1995)), whose accumulation can be influenced by the WS as whole as a provider of equality of opportunities or more directly as a provider of health and education. Depending on the stage of development, it is thus possible within this framework that larger welfare states are compatible with higher economic growth rates even if the taxes needed to finance it have negative consequences.

On a normative level, more practical policy implications must be derived from the analysis of the impact of the composition of the WS (and not its total size) on economic growth, namely because of the behavioural or incentive effects of different dimensions of the WS (see Damerau (2011); Piachaud (2013)). From an economic growth perspective, two important dimensions of the Welfare State are public expenditures on education and health, to the extent that they lead to the accumulation of human capital. A healthier and more educated population/workforce corresponds in principle to a higher availability of human capital in the economy, thereby improving the productivity of workers and increasing in this way output (see Mankiw et al. (1992)). In advanced economies it increases the respective innovation capability (see Romer (1990)) and in those that are below the technological frontier it allows for the diffusion and transmission of knowledge in order to process new information and implement successful technologies developed by the leaders (see Nelson and Phelps (1966)). Investment in education and health can thus generate substantial returns over time, not just at the individual level, but especially for the economy as a whole, and the Welfare State can play a crucial role in this dynamic process. Spending on active labour market policies and policies which enable combining work and family, such as parental leave and day care, can also improve human capital and have a growth enhancing effect. Other types of social protection expenditures are often regarded as having negative growth effects due to the reduced incentives associated. Unemployment benefits provide an illustration, with many economic models assuming that they discourage labour supply, since they guarantee an income for the unemployed workers (that discourages returning to work) and also serve as a protection to active workers, which are thus discouraged from higher working effort. But it is also possible to argue for positive behavioural effects of unemployment benefits by affecting the incentives of workers to undertake long-term investments in skills (see Estevez-Abe et al. (2001)). When the unemployment benefits are earnings-related they provide to high-skilled workers, with higher wages, some guarantees that their investments in education will not be lost during periods when they are temporarily out of work. Population aging and the associated increase in the share of elderly render old age pensions an important role in the analysis of the relationship between the WS and economic growth. Maintaining the current schemes available in most developed countries would necessarily imply a rise in taxes with its negative growth consequences. Additionally, the positive behavioural and inequality reduction (particularly higher human capital investment) effects are less likely to apply in this case unless a case similar to that for unemployment benefits can be made. By providing benefits that are proportional to wages, pension schemes provide some guarantees to high-skilled workers that their investments in human capital will not be undermined when they retire.

In summary, the literature reviewed indicates that it is not possible to determine universally whether the Welfare State as a whole stimulates or reduces economic growth. There will be

some measures that have a positive influence, while others will have a negative impact, which makes empirical analysis fundamental to identify the existing relationship.

4. Empirical Evidence on the Effects of the Welfare State on Growth

4.1. Main Findings

The empirical analysis of the relationship between the WS and economic growth has relied on the estimation of growth regressions in which the dependent variable is the growth rate of real GDP, total or per capita, and social expenditures, total or disaggregated according to different categories, appear as the main explanatory variables, along with a number of other independent variables, the so-called control variables, which have proved to be important in explaining output growth in previous empirical studies (see Sala-i-Martin et al. (2004)). These studies explore information for a wide range of countries over different time periods but mostly for OECD countries due to data availability regarding social spending. Although we highlight in the theoretical discussion that different dimensions of the WS are likely to have different growth effects, we start by describing a few studies that examine the correlation between total WS size and growth. Next we review studies that focus on the composition of the WS and their impact on economic growth. We also emphasize studies published in peer-reviewed journals or by credited international organizations after the year 2000 in order to provide an up-to-date picture of the empirical literature on WS and growth¹¹.

Examples of recent empirical studies that take a more aggregate perspective of the Welfare State by considering the impact of public social spending as a whole on economic growth include HERCE et al. (2001), Fic and Ghate (2005), Im et al. (2011), Afonso and Furceri (2010), and Afonso and Allegre (2011). Applying a time series framework, Herce et al. (2001) investigate causality between GDP growth and social protection expenditure in twelve EU countries over the period 1970–1994. The results differ across countries: in seven cases causality runs only from social protection growth to GDP growth, while in the five remaining countries there is no evidence of causality in either sense. In each of these two groups of results it is possible to find countries with different WS models. In particular, the group of countries for which causality does not apply includes Denmark (Nordic WS model), the United Kingdom (Anglo-Saxon model), France (Continental model), and Greece and Italy (Mediterranean model), an indication that the design and implementation of the WS matters. Fic and Ghate (2005) use as an indicator of the size of the Welfare State spending on public transfers relative to public investment spending for 19 OECD high-income countries studied between 1950 and 2001. The authors pay particular attention to the possibility of joint endogeneity of social spending and growth variables and the existence of a non-linear relationship. They identify a

¹¹ For a review of earlier studies see Atkinson (1996) and Arjona et al. (2002).

dynamic feedback process between growth and the WS of the following form: “(...) initially, a high pre-break growth rate induces the welfare state to rise. Over time, a growing welfare state leads to a decline in growth. In the long run, lower growth dampens the growth of the welfare state.” (p.596). Im et al. (2011) compare the influence in developed and developing countries over the period 1990-2007, considering as a proxy for the WS public spending on social protection, education and health relative to GDP. The 85 countries in the sample were categorized into three groups: developing; developed; and semi-developed countries. The fixed effects estimation results point to a positive correlation in developing countries, which becomes negative in semi-developed and developed countries. Afonso and Allegre (2011) try to assess the role of the WS within a more general investigation of the importance of fiscal policy for long-term output growth. Their dataset covers the period 1971–2006 for 15 EU Member States. The coefficients of the growth regression estimated using the GMM technique reveal a negative relationship of social transfers, on the expenditures side, with economic growth and, simultaneously, a significantly negative coefficient attached to social contributions, on the revenues side. Using labour productivity and multifactor productivity as dependent variables in the regressions, the results remain basically unchanged. Afonso and Furceri (2010) focusing on OECD and EU countries also find a negative coefficient attached to social contributions, both in terms of size and volatility, although for EU countries the negative impact of indirect taxation seems to be stronger.

Some empirical studies probe deeper into the issue by disaggregating social expenditures. Although the theoretical arguments point to a positive impact of health and education expenditures, the evidence supporting them is not as clear. We review two recent examples of such disagreement. Baldacci et al. (2004) analyse the relationship between social spending, human capital and economic growth for 120 countries between 1975 and 2000 by estimating a simultaneous equations model, a methodology that allows taking into account the cross-influences between the variables under analysis. The estimated model consists of four equations (growth, investment, education and health), with social spending on education and health as determinants of the availability of human capital in the form of education and health, respectively. The authors analyse in this way the mechanisms of transmission of such expenses, verifying that they effectively contribute to the accumulation of human capital in the countries under analysis. The results show a positive and significant impact of expenditures on education and health in human capital accumulation, which in turn is confirmed as a major influence of the growth rate of real GDP per capita. Hartwig (2012) estimates a growth regression to test the relationship between growth in education and health expenditures per capita, together and separately, and the growth of real GDP per capita in a sample of 18 OECD countries between 1970 and 2005. The only other determinant of growth considered is the rate of growth of investment in physical capital. The results regarding the influence of health and education

expenditures growth on the growth rate of real GDP per capita depend on whether or not the influence of the investment rate is considered and the inclusion of Japan in the sample. In the first case, when the author considers the investment rate as an explanatory variable he does not find any influence for health and education expenditures on growth. However, the exclusion of Japan from the sample makes this influence negative.

An example of an earlier study that attempts a more detailed assessment of the effects of the WS on growth is that of Arjona et al. (2003). The authors start by analysing the impact of total social expenditure on the growth rate of real GDP per working age population of 21 OECD countries over the period 1970 to 1998. The results found using the Pooled Mean Group (PMG) method to estimate a standard growth regression point to a negative impact of total spending on growth that becomes less negative if health expenditures and expenditure on the elderly are excluded. In any case, social spending has a moderate effect on output in the long-term. Next the authors disaggregate social expenditure into active and non-active, where the former includes spending with active labour market policies and the latter the remaining components. The sign of the estimated coefficients differ according to the type of social expenditure, positive and quantitatively important for active spending and negative for non-active.

Afonso and Jalles (2014) main objective is to assess the effects on long-term growth of several spending and revenue budgetary components in a sample of 155 developed and developing countries over the period 1970-2008. The authors apply several different estimation methods that allow them to deal with the econometric problems that usually affect empirical growth studies such as outliers, simultaneity, endogeneity, non-linearities and threshold effects. As far as the influence of the WS is concerned, Afonso and Jalles (2014) disaggregate public social spending according to the following categories: education, health, and social security and welfare. On the revenues side, they explicitly consider social contributions. The statistically significant coefficients on the spending side are those for education expenditures, that have a positive growth impact in the developing countries sub-sample, and those for social security expenditures that have a negative effect on the growth rate of OECD countries.

On a slightly different but yet related note, Furceri and Zdzienicka (2012) assess the short-term effects of social spending on output, consumption and investment for a sample of OECD countries from 1980 to 2005. The results point to a social spending multiplier of about 0.6, not much different from the one for total public spending, 0.5. Disaggregating social spending into nine policy areas revealed that only health, survivors and unemployment expenditures have a positive and statistically significant impact on short-term output growth. A curious result from a long-term perspective is that health spending is the only category that has a positive impact not only on consumption but also on investment.

4.2. Methodological Issues and Challenges Ahead

The empirical assessment of the importance of the WS for economic growth implies the use of WS measures suitable on theoretical grounds for the estimation of growth equations. The most widely used measures of the WS relate to social spending but the impact of the WS also depends on its financing and on institutional features of specific WS programmes, which in turn can have quite different behavioural effects. For instance, total spending may be a misleading indicator if a large share of such expenditures goes to privileged groups in society. Furthermore, if it is the generosity of benefit levels that is believed to have an adverse impact on economic behaviour, a high level of social expenditure does not necessarily imply a high level of generosity. Total spending may be high on account of a large dependent population, not on account of a generous WS. Other features of the design of WS programmes that can influence economic behaviour concern coverage, eligibility, and duration of the benefit. An illustrative example is the unemployment benefits that usually depend on contribution conditions¹², are paid for a limited duration, and are monitored to check that the person is making genuine efforts to seek employment. Differences across countries in terms of these institutional features may change the predicted impact of the WS on growth and thus should be incorporated in the empirical analysis. A promising effort to measure and make comparable across countries and time periods some of these institutional features for specific programmes such as unemployment benefits and old age pensions is that of Scruggs et al. (2014) and the Social Policy Indicator Database (SPIN) produced by the Swedish Institute for Social Research (SOFI), the successor of the Social Citizenship Indicator Program (SCIP) (see Ferrarini et al. (2013)).

Selection bias is a well-documented problem in economic growth empirics (see Dowrick and Nguyen (1989)) since cross-country regressions depend heavily on data availability. If the sample is not representative of the population (the countries of the world) this will result in biased estimated coefficients. For the topic under analysis this might be an important problem since the databases available for macro cross-country analysis are composed of OECD and EU countries only (see Ebbinghaus (2012)).

Another common problem faced by empirical growth studies is that of model uncertainty due to the large number of variables with the potential to influence economic growth (see Brock and Durlauf (2001)) so that different empirical models lead to different conclusions concerning growth determinants (see Sala-i-Martin et al. (2004)). The selection of the control variables to include in the empirical model to assess the importance of the WS for economic growth is thus of crucial importance. Accounting for model uncertainty requires some form of robustness check that attempts to account for all possible combinations of explanatory variables. Concerning model specification, there may also be a saturation point for social expenditure

¹² For example, contribution conditions may induce people to take jobs in order to requalify for subsequent benefit.

beyond which it becomes counter-productive in terms of economic growth, in other words the relationship is probably non-linear. To the best of our knowledge, previous studies do not consider whether the way in which the proxies for WS size and composition enter the empirical model (linear or non-linear) has any substantial impact on the respective estimated coefficients. Additionally, this threshold will probably be dependent on specific national circumstances and the specific design of the WS system.

The accurate assessment of the importance of the WS for growth has also to take into consideration the probable endogeneity of the WS size and composition variables, a problem common to most of the explanatory variables included in growth regressions. For instance, when growth rates are higher less people will be unemployed and so public expenditure with unemployment benefits will be lower. Richer states also tend to have larger welfare states on account of an income elasticity of demand for social expenditure that exceeds unity (see Arjona et al. (2002)). There is certainly the need for more detailed research to overcome the lack of proof for causality. One way to move forward in this direction is to apply the concerns of time series econometrics to groups of countries, using methodologies for cointegration and causality analysis specific for panel data, as in Andrade et al. (2013) that study the importance of public expenditure on education and on health for the behaviour of output in different samples of countries defined according to the respective income levels.

Additionally, a more complete and policy informing analysis of the WS-economic growth relationship requires an evaluation of the transmission channels through which it might occur. However, the studies reviewed in this paper are mainly concerned with the identification of the sign and magnitude of the WS effect on growth, which although important does not shed light on the underlying mechanisms. Exceptions include Afonso and Allegre (2011) that estimate the impact of budget components on multifactor productivity, and Furceri and Zdzienicka (2012) that examine the effects of social spending on investment. Nevertheless, this evaluation should involve testing structural models more theoretically based.

5. Conclusions

This review suggests that the assessment of the growth impact of the WS is subject to a number of methodological issues and argues that some of the most important are: (i) social spending, the most commonly used proxy, may be an insufficient measure of WS size and composition, since institutional features are fundamental determinants of incentives, while taxation is needed to finance expenditures increases; (ii) the robustness of the growth determinants to be included in the estimated growth specifications should be evaluated using appropriate techniques, as well as the functional form of the relationship, questioning the usual assumption of linearity of the WS-growth relationship; (iii) the potential endogeneity of WS variables included on the right-hand side of the regressions has not been sufficiently addressed,

and more attention needs to be paid to estimation techniques that apply time series econometrics concerns to a panel data context; and (iv) the mechanisms that link the WS to economic growth have not been tested in a systematic way. Understanding the different mechanisms that connect the two variables and the circumstances under which they operate is of crucial importance for social policy design and implementation.

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