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IFN Working Paper No. 1109, 2016

The Future of Welfare Services: How Worried Should We Be about Wagner, Baumol and Ageing?

Andreas Bergh

**The Future of Welfare Services:
How Worried Should We Be about Wagner, Baumol and Ageing?***

by

Andreas Bergh[†]

Abstract

Welfare services are an important part of the Nordic welfare states both financially and for welfare state redistribution. Baumol's cost disease, Wagner's law, and population ageing are often said to bring challenges for the future provision of welfare services. While none of the three poses an immediate threat against the financial sustainability of the welfare state, they have important implications for distribution and for the political support for the welfare state. The combination demographic change, a higher relative price of welfare services and increasing demand for welfare services may force politicians to make a difficult choice between increasing taxes, allowing people to top up publicly financed services with additional private financing, or risk eroding support for the welfare state.

Keywords: Welfare services, redistribution, Baumol's disease, Wagner's law, population aging.

JEL Codes: H11, I38, J11, J18

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In welfare state research, a distinction is often made between cash benefits and benefits in kind. The former consists of income transfers and social insurance schemes; the latter largely consists of a set of welfare services (such as schooling, health care and elder care) that are mainly or entirely tax financed and available for citizens at low or no monetary costs. The discussion about role of benefits in kind in the welfare state goes far back. Based on traditional welfare economics it can be argued that in-kind redistribution is inefficient, because the potential beneficiary could typically do better (and never worse) if he were given the cash equivalent of the in-kind subsidy. One might thus ask why not all redistribution is done using cash transfers. There are different types of answer to that question. First, the traditional welfare economic argument that it is sufficient to redistribute income and to rely on markets for allocative efficiency rests on assumptions such as markets being sufficiently competitive (Arrow (1963)) and that equilibria are unique (Foldes (1967)). A second more fundamental objection is that the traditional welfare economic approach implicitly assumes that tax payers care only about the utility of beneficiaries, which may not be true. As noted by Buchanan (1968) taxpayers may well aim to support only “specific spending patterns” (p. 189), in which case re-distribution in kind is not obviously inefficient.¹

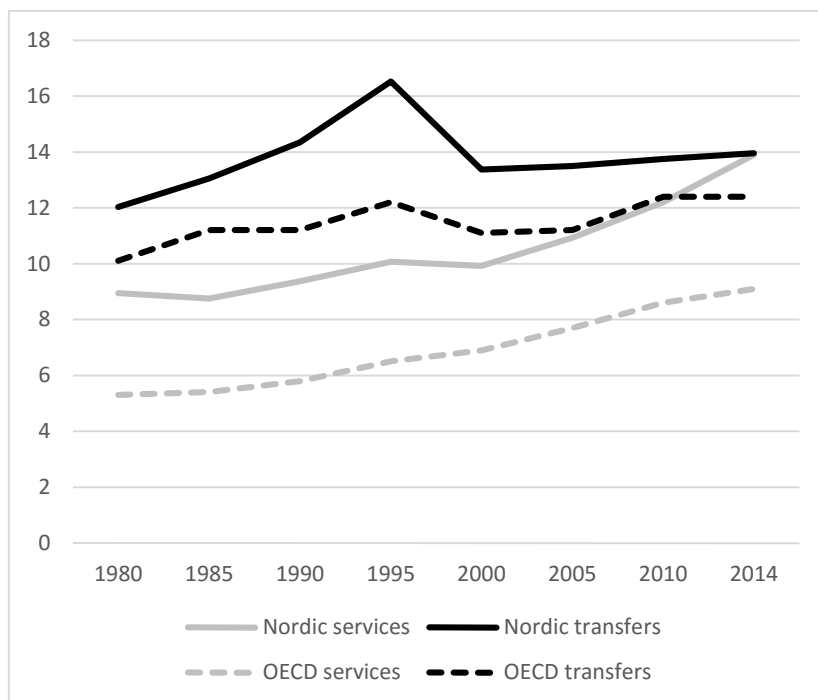
Regardless of how welfare services are motivated, they are an important part of the welfare state and they matter a lot for welfare state redistribution. Compared to other countries, welfare services are particularly extensive in the Nordic welfare states. In the literature on welfare state classifications (Titmuss 1974, Esping-Andersen 1990), welfare states are typically divided into three categories: the ‘marginal’ (typical for Anglo-Saxon countries), the ‘industrial achievement’ (typical for Central European countries) and the ‘institutional’ (typical for Scandinavia). As noted by both Bambra (2005) and Jensen (2008), the research on welfare regimes has focused on cash transfers, paying less attention to the role of welfare services. The contributions of Bambra and Jensen confirm however that the Nordic countries are different also when welfare services are accounted for.²

Compared to the OECD average, the Nordic countries actually differ more from the OECD average in the spending on welfare services than they differ in the spending on cash transfers. As shown in Figure 1, spending on welfare services in the Nordic countries are now financially as important as cash benefits, with both at 14 percent of GDP in 2014.

¹ See Garfinkel (1970) for an analysis that accounts for both beneficiary and tax payer preferences.

² The one exception is health care expenditure, which according to Jennsen (2008) is characterized by uniform levels of expenditure across countries.

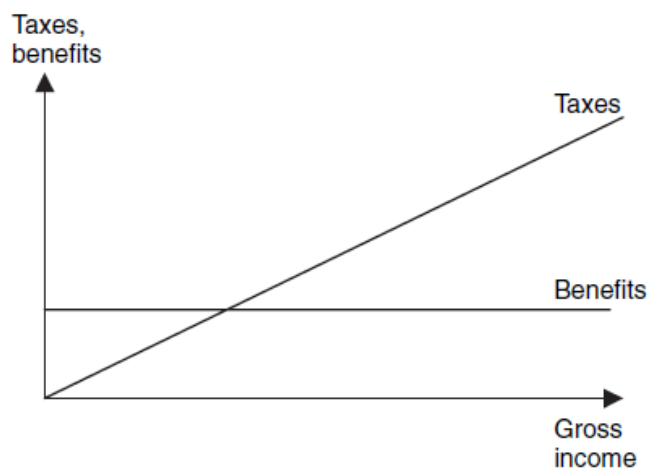
Figure 1. Services and transfers (% of GDP), average for Sweden, Denmark, Finland, Norway compared to OECD average 1980 - 2014. Source: OECD.



1. Welfare services and redistribution

Though sometimes neglected, the provision of welfare services has important consequences for welfare state redistribution. Rothstein (2001) provides a simple model of how universal programs aimed at the entire population have a redistributive effect even when they are financed using proportional taxes, illustrated in figure 2.

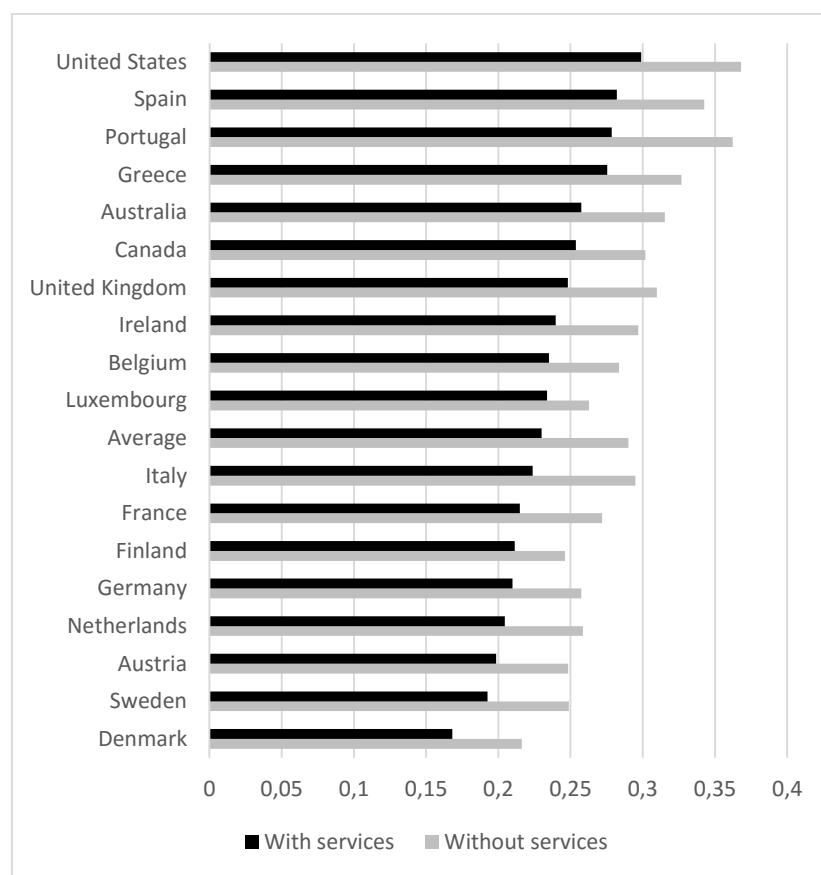
Figure 2. Redistribution in a stylized welfare state (based on Rothstein 2001)



Because cash transfers and welfare state services both matter for welfare state redistribution, inequality measures based only on the distribution of household income will not fully capture all political efforts to increase equality. It is far from obvious, however, how the redistributive effect of welfare services should be accounted for.

Welfare services contribute to equality both directly and indirectly. Figure 3 illustrates an attempt by Verbist och Matsaganis (2012) to approximate the extra redistribution created by welfare services by simply adding the value of welfare services to household disposable income, and calculating Gini coefficients that include the value of welfare services. The OECD average Gini coefficient in 2008 decreases from 0.29 to 0.23 when the value of welfare services is included. The Nordic countries are similar to the average, with Sweden falling from 0.25 to 0.19, and Denmark falling from 0.22 to 0.17.

Figure 3. Gini coefficient 2008 for disposable household income including and excluding the value of tax financed services. Source: Verbist och Matsaganis (2012).



The calculations in Figure 3 are problematic in several ways. Most importantly, they are based on the assumption that receiving welfare services worth a certain amount is similar to receiving the same amount in cash. That is typically not the case. When the content of publicly provided services differs more from what households would buy if given cash instead, there is less extra direct redistribution

associated with welfare services. The estimates in Figure 3 should therefore be seen as an upper bound on the extra redistribution created by welfare services.

A second problem is that the degree to which the content of the welfare services provided matches what households would buy with the cash equivalent is likely to differ between countries because political systems differ. As a result, the cross country ranking shown in figure 3 is not entirely reliable.

Both problems are related to the discussion above on benefits in kind versus cash benefits. Should the value of welfare services and their impact on distribution be calculated using the preferences of the beneficiaries or the preferences of the tax payers, or possibly using some other set of social preferences? The welfare services provided by the welfare state may differ not only from what beneficiaries would buy with the cash equivalent, but also from what tax payers would want to provide.

A third problem with the data in Figure 3 is that they do not capture the indirect or dynamic channels by which welfare services can affect the income distribution. For example, if publicly provided schooling contribute to a more egalitarian distribution of human capital in the population, one should expect that incomes are also more equally distributed. The main reason why primary schooling contributes to a more equal income distribution is not that households receive schooling worth a certain amount of money yearly, but rather the way in which schooling affects the distribution of human capital in the population. A substantial and significant equalizing effect of primary education has been identified for Sweden by Meghir and Palme (2005) and a survey by Abdullah et al. (2015) demonstrates that a large literature has found a similar link between education and income equality.

To summarize: The provision of welfare services is financially important. As shown in Figure 1, the Nordic countries have during the recent two decades become more similar to the OECD countries when it comes to expenditure on cash transfers, but they have actually become more different in spending on welfare services. Welfare services have thus become an increasingly important characteristic of for the Nordic welfare states. Welfare services are also an important mechanism by which the welfare states affects the income distribution and promotes equality more generally.

Against this background, it is motivated to ask if there are threats or challenges for the future provision of welfare services. There is no shortage of analyses that point to potential problems for the welfare state connected to the provision of welfare services. In particular, problems related to Baumol's cost disease, Wagner's law and the population aging are often mentioned. These three are discussed in the following.

2. The Baumol effect

The Baumol effect, also known as Baumol's cost disease, can be traced back to Baumol (1967) where the explicit premise is that economic activities can be grouped into two types: "technologically progressive activities in which innovations, capital accumulation, and economies of large scale all make for a cumulative rise in output per man hour" and "activities which, by their very nature, permit only sporadic increases in productivity" (p. 415-6). More generally, activities differ in the relative importance of man hours as a production factor. For some activities, typically those that require face to face human interaction, productivity increases are rare and difficult to achieve. While technological progress has increased output per hour worked substantially in the manufacturing industry, the time needed to produce many services, for example the time it takes to help an old man eat a meal, has remained more or less constant. More generally, if wage increases tend to be uniform across the labour market, the relative price of services will increase.

The implications of Baumol's analysis is sometimes said to have dramatic consequences for the public sector, and in particular for the provision of welfare services. As recently noted by Andersen och Kreiner (2015), both the IMF (2012) and the European Commission (2013) refer to Baumol's cost disease as an important expenditure driver for the public sector. But under what circumstances must will higher productivity in some parts of the economy lead to cost increases or other problems for the public sector? First, two clarifications must be made.

First, the effect noted by Baumol (1967) applies to all services where manual labor time and human interaction are important inputs with no or very imperfect substitutes, regardless of whether these are part of the public or the private sector. Baumol (2012) discusses health care and education but also the performing arts. The Baumol effect has also been used to explain the decline of the big bands and the growth of rock 'n' roll (DeBoer 1985). While it may well be the case, especially in universal welfare states, that many of the activities where productivity increases are rare and difficult to achieve occur within the public sector, the Baumol effect itself is independent of the public-private dimension.

Second, it is far from clear how productivity should be measured in the public sector. Despite these measurement problems, there are many welfare services where both potential and actual productivity increases are possible, among other things because of labor saving technologies and improved management (see, for example OECD 2006), Productivity Commission (2005), Carter et al. (2011) and Arnek et al. 2013)).

When it applies, Baumol's disease implies that the tax rate is determined by the fraction of total labor employed in the public sector (Lindbeck 2006), Andersen and Kreiner 2015). It is a necessity that taxes must be increased when the fraction of the labor force employed in the public sector increases, but for a given fraction, the Baumol effect does not imply any upward pressure on expenditure and

thus not on taxes. A higher relative price of services caused by increasing productivity in manufacturing in itself is no expenditure driver. It does, however, increase the opportunity cost of services, and policymakers that wish to maintain or even increase public financing of welfare services may find it harder to motivate this spending pattern.

It bears emphasizing that the driving force for the Baumol effect is a fundamentally desirable development, namely increasing productivity in some parts of the economy, leading to rising real incomes. The challenges come from the fact that these productivity increases do not occur uniformly. For any given average rate of productivity growth in an economy, it is only to be expected that in some sectors it will be higher and in others it will be lower. If large parts of the economy experiences high productivity growth, average income will increase and demand patterns will change as a result of income effects. The result may well be increasing demand for services where productivity has increased less.³ If this is the case, it is actually be a sign of progress that low-productive sectors of the economy are expanding.

It is thus incorrect to describe Baumol's disease as an expenditure driver, and it does not suggest that the welfare state will run into problems due to rapidly increasing expenditure on public services. Andersen and Kreiner (2015) formally shows that the Baumol effect does not imply that the welfare state is unsustainable. In fact they show that, under certain assumptions, the Baumol effect is compatible with constant principles for the supply of services, a constant distribution of well-being and a balanced budget, and also leaves room for Pareto improvements.

While the challenges for the welfare state caused by the Baumol effect are less about financial sustainability, they are probably more about political sustainability and distribution. As noted above, welfare services play an important role in welfare state redistribution. When welfare services become relatively more expensive, it can be seen as increasing the relative price of redistribution. As possible response is to make publicly financed welfare services less redistributive. Policymakers that wish to maintaining public support for redistributive welfare services may thus find it increasingly difficult to do so.

3. The Wagner effect

Adolph Wagner (1893) proposed that there is a positive relationship between the level of economic development and the size of the public sector. This general proposition is compatible with several exact meanings. Henrekson (1993) discusses various interpretations and concludes that it is a

³ It should be noted that in many cases, productivity is notoriously hard to measure because products and services, as well as the quality with which they are associated, are hard to define and measure.

reasonable interpretation is that Wagner claimed that public spending as a share of GDP is positively related to real GDP per capita.

As noted by Durevall och Henrekson (2011) Wagner's view that the public sector's share of GDP tends to grow as real per capita GDP increases was an accepted fact in public economics among influential observers such as Atkinson och Stiglitz (1980) and Easterly och Rebelo (1993), and also in mainstream textbooks (such as Hindriks och Myles (2006)). Until the early 1990s, Wagner's proposition had received strong empirical support (see, for example Musgrave (1969), Mann (1980) and Abizadeh och Gray (19856)) and is still today often referred to as a law.

Surveying the more recent literature, Durevall and Henrekson (2011) categorize 40 studies published after 1990 and show that about 35% fail to find evidence for Wagner's Law, 30% find support when controlling for other variables or focusing on specific types of expenditures, and 35% obtain unqualified support for the hypothesis. Their own study of the long run development within Sweden and the UK since 1800 suggest that Wagner's Law does not hold in the long run, but that data are consistent with Wagner's Law for the periods 1860–1913 and 1920–1975.

Can it be said that Wagner's law is now falsified? Strictly speaking, any observation where it clearly does not hold is arguably sufficient to change the label from law to regularity. Given how rare laws are in the social sciences, the positive correlation between the public sector's share of GDP and real GDP per capita remains an important regularity.

An important explanation for the Wagner regularity is that the long run income elasticities are well above 1 for many welfare services that in many countries are provided mainly by the state. An often cited source is Fogel (1999), who calculated long run income elasticities for various consumption categories in USA as shown in Table 1.

Table 1. Long-term income elasticities for USA (1875-1995).

Food	0.2	Health Care	1.6
Clothing	0.3	Education	1.6
Shelter	0.7	Leisure	1.4

Source: Fogel (1999).

According to Fogel (1999) the long run income elasticity for welfare services such as health care and education is well above unity.⁴ Hirsch (1961) calculates an income elasticity at 1.1 for the US over the period 1900-1958 for public education expenditure only. High income elasticities for health care in other OECD countries are also documented by OECD (1985) for the period 1960-1983 period. More recent studies based on micro data (e.g. Parkin et al. (1987)) have found lower elasticities, but according to Getzen (2000) the diversity of findings reflects the fact that individual income elasticities are typically near zero, while national health expenditure elasticities are commonly greater than 1.0.

As a result, we expect expenditure on health care and education to expand as a share of total expenditure as countries grow richer. This is also the trend documented by OECD (20006) for both public and private expenditure in OECD over the period 1970-2005. The fact that countries that grow richer tend to spend a larger share of the GDP on these services does not necessarily mean that public expenditure on these areas must also increase their GDP share. While lots of historical data are in line with the Wagner regularity, the crucial question with regard to the future of the welfare state is if further income growth will imply further increases in public sector size. The answer ultimately depends on political decisions, discussed further in section 5.

4. Aging

Demographic change is an often mentioned challenge for the welfare state. The basic idea is that a relatively older population increases expenditure via both the pension system and increasing demand for welfare services such as health care and elder care. For example, Morrow and Roeger (1999) estimated that the ratio of the population above 65 to the population in labor active groups will increase from 24 to 49 per cent within the EU15 countries between 2000 and 2040. Similar predictions are made in more recent analyses: According to the 2015 Ageing Report from the European Commission, the ratio is projected to increase from 27.8% today to 50.1% in 2060 for the EU as a whole.

Based on such population forecasts it is easy to predict a dismal future for ageing societies, in particular where the welfare state plays an important role in the income smoothing over the life cycle. Again, one must be careful not to overstate the problems.

While the demographic changes is often mentioned as a challenge for the welfare state, the demographic situation is actually less alarming in the Nordic countries compared to for example Greece, Poland and Portugal (European Commission 2015), and a likely explanation is that the family

⁴ Note also the high income elasticity reported by Fogel for leisure. It is natural that people want to expand non-material activities as incomes increase. That trend poses yet another challenge for the public sector because labour income is taxed whereas leisure is not.

and labor market policies of the welfare state have contributed to keeping fertility rates high (Rovny 2011).⁵

Most importantly, the long run problems associated with population ageing are smaller if people can be expected to work roughly a constant share of their lifespan. Still, it must be stressed that substantial challenges during the 2020s and 2030s remain even if the average retirement age increases. To see this, a simple calculation based on the official population forecasts in the Nordic countries is sufficient.

Figure 5a shows how the working age share of the Swedish population (15 to 64 years old) is expected to decrease from 63 percent today to 60 percent in the 2030s, and falling further during the 2050s to reach 58 percent around 2060. Over the same time period, the share aged 75 or older is predicted to increase from 8.5 percent today to 11 percent in the 2020s and to reach 13 percent in the 2040s. Based on numbers like these it seems safe to predict an increasing demand for elder care and health care that coincides with a shrinking tax base made up of those in working age. Such predictions, however, ignore the counter effect that the definition of “working age” is likely to change as life expectancy increases.

Looking back one decade in Sweden reveals that the employment rate among 65 to 74 year olds has been steadily increasing, from 9.9 percent in 2005 to 16.5 percent in 2014. This corresponds to a yearly increase of 0.73 percentage unit in the employment rate. Moreover, the increasing employment trend for 65 to 74 year olds was not visibly affected by the financial crisis, in contrast to the employment for the entire adult population. The trend towards increasing employment rates among 65 to 74 year olds in Sweden thus seems to be relatively robust. Adding employed 65 to 74 year olds to those who are counted as working age, changes the prediction for the future substantially if we are willing to assume that employment among 65 to 74 years olds continues to increase the way it has the most recent decade. As a more conservative scenario, assume instead that the future yearly increase is 70 percent of the yearly increase from 2005 to 2014 (which for Sweden means a yearly increase of $0.7 \times 0.73 = 0.51$ percentage units). The difference between the two scenarios is illustrated by the fact that employment among 65 to 74 year olds will have risen to 40 percent in 2060 in the conservative scenario, and to 50 percent in the optimistic scenario.

Figure 5a—d shows the result of doing these calculations using the official population forecast for Sweden, Denmark, Norway and Finland.⁶ As can be seen in Figure 5, even the conservative scenario improves the picture substantially in all countries except Denmark (where employment for 65 to 74

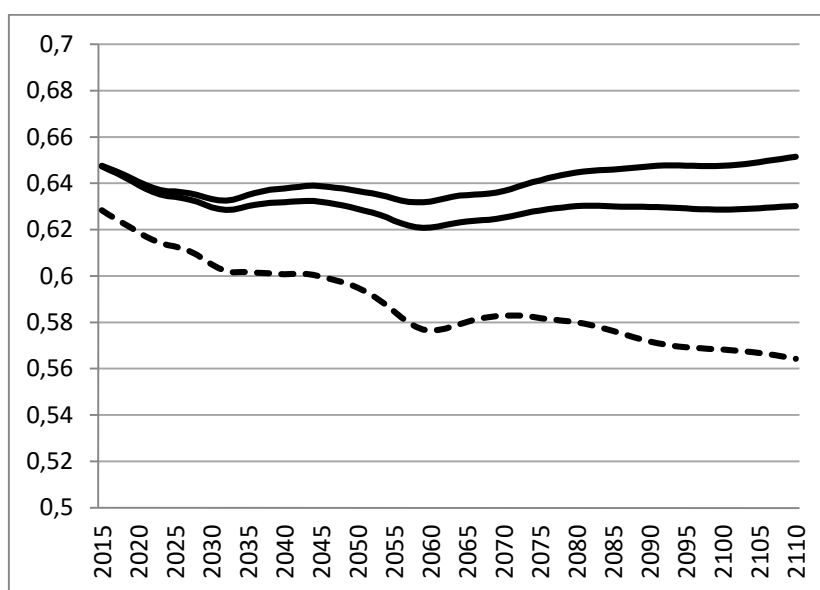
⁵ Interestingly, Rovny also find that the presence of employment protection legislation — rules concerning hiring and firing — hinders the growth of fertility rates.

⁶ Note that only Sweden and Norway have forecasts that reach the year 2110, whereas Denmark’s stops at 2050 and Finland’s at 2060.

years olds fell from 10 percent in 2005 to 9,1 percent in 2009, and then increased to 11,8 in 2014 (corresponding to a yearly increase of 0.2 percentage units over the latest decade).⁷ On the other hand, even in the optimistic scenario demographic balance will still worsen in all countries at least until the 2030s.

Figure 5. Population share in working age 16 to 64 years (dashed) and including an increasing share of 65-74 year olds. Upper solid: optimistic scenario with future increase based on trend 2005 to 2014. Lower solid: conservative scenario based on trend 2005 to 2014 multiplied by 0.7)⁸

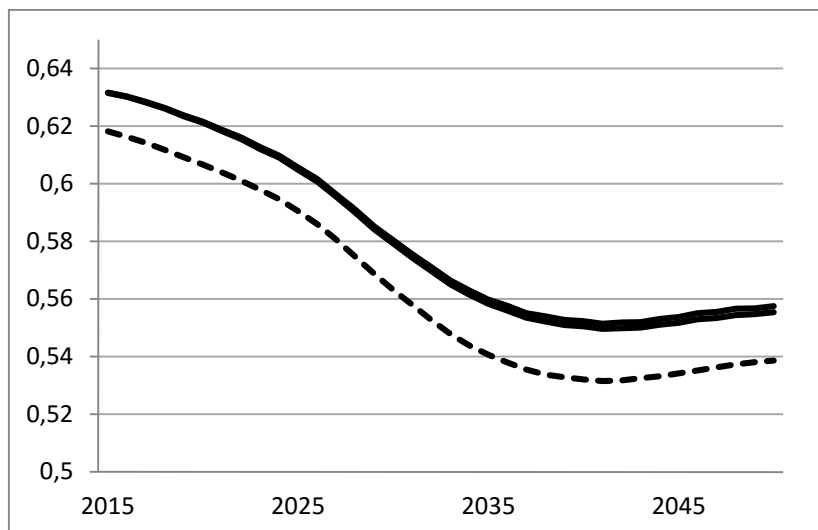
a. Sweden



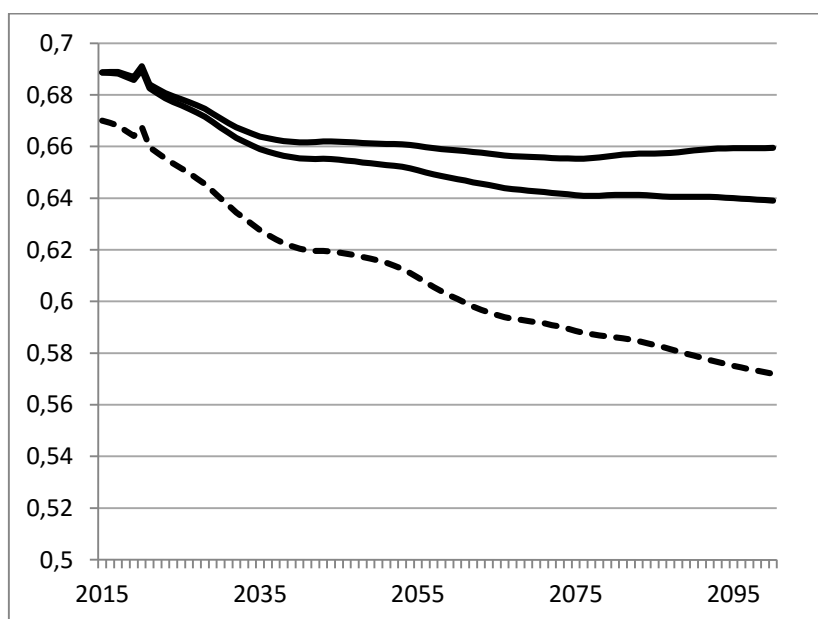
b. Denmark

⁷ In Finland the trend in employment for 65 to 74 years olds is similar to the trend in Sweden, with employment increasing from 5.1 percent in 2005 to 10.2 percent in 2014, corresponding to a yearly increase of 0.56 percentage units. Norway is also similar, with an increase in employment for 65 to 74 years during the same period from 12,8 to 19,3 percent, or 0,72 percentage units yearly.

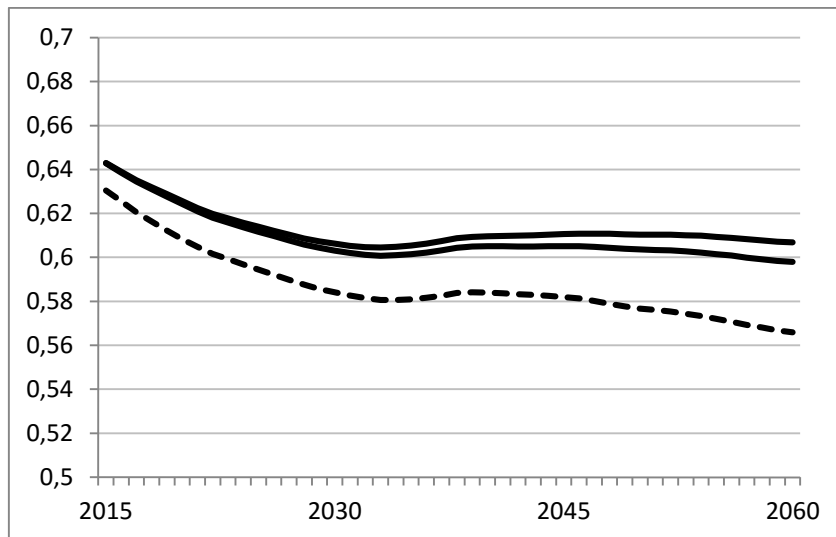
⁸ Source: Calculations based on official population forecasts by Statistics Sweden,



c. Norway

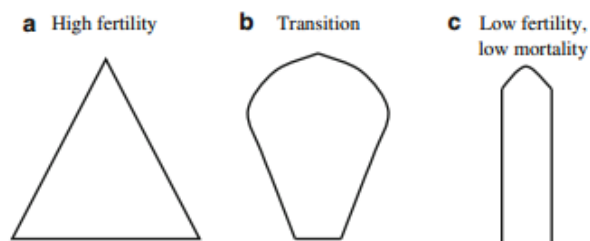


d. Finland



As shown by Bengtsson and Scott (2010) the main driver behind the demographic changes is the transition from high fertility to low fertility, and only a small part is explained by increased longevity. A schematic explanation is given by Bergh (2010), reproduced in Figure 6.

Fig 6. Schematic population pyramids during before, during and after the transition from high to low fertility.⁹



When fertility and mortality is high, the demographic structure is akin to the left triangle in Figure 6. When fertility drops, the population pyramid is transformed to the well-known mushroom shape, with a relatively large share of old in the population. The mushroom shape is the reason why the demographic balance in Figure 5a to 5d will deteriorate for most countries during the next decades, but the situation should improve once the cylinder stage is reached.

Finally, it is motivated to as how increased longevity will affect health care expenditure. If we live longer, will we also need more health care? The answer depends on the extent to which increasing life expectancy adds healthy years to our lives, or years when we need expensive health care to stay alive.

⁹ Source: Bergh (2010).

This is a well-researched topic, and there is agreement in the literature that health care costs increase by increased proximity to death, suggesting that longer lives should only have small effects on total expenditure. Christiansen et al. (2012) summarize the state of research and confirm that ageing as such can be expected to cause only a modest increase in health care expenditure per capita in the future. Their own empirical study, based on 15 EU countries, support this conclusion. They also give examples of cross-country studies where demography loses significance when institutional characteristics are controlled for factors. OECD (2006) reaches a similar conclusion: rising health care expenditure is mainly explained by rising incomes, and only to some extent by population aging.

5. Taxes, topping up or paying twice – can the welfare state muddle through?

For the welfare state, the combination of the Baumol effect, the high income elasticity of welfare services and the aging population creates a challenge that must be acknowledged and discussed. As productivity increases, society grows richer. With higher income, people are likely to demand more welfare services. But some incomes grow faster than others. When increasing average incomes are combined with increasing income dispersion, and the income elasticity for welfare services is above unity, the difference between the level and quality of welfare services demanded by high income earners and low income earners will grow. Furthermore, welfare states services have traditionally played an important role in making universal redistributive towards low-income earners. As the Baumol effect means that they become relatively more expensive, they are increasingly demanded by high income earners. When more is demanded from services that are to be produced by the public sector, higher taxes are required. Raising taxes may be problematic for efficiency reasons, especially in countries where average taxes are already relatively high. Moreover, the need to raising taxes in order to improve welfare services in ways demanded by high income earners adds a potentially problematic political dimension.¹⁰

If tax increases are ruled out, two remaining options are the so-called topping up strategy and the paying twice strategy. In this context, topping up entails that those who desire to do so may add private financing on top of the publicly financed welfare service level in order to achieve the desired level, quantity or quality of the service. If topping up is not allowed, high income earners still have the option to pay twice, in the sense that after paying taxes to a welfare state where the provision levels are insufficient by their standards, they buy private insurance arrangements on the market for privately provided welfare services.

¹⁰ However, see Blomquist et al (2010) for an interesting idea involving increased tax progressivity as a way to make high income earners to pay more for publicly provided services.

In the short run, the difference between the 'topping up' and the 'paying twice' strategies may seem small, but the long run political dynamic is fundamentally different. Allowing topping up can be increase the political support for public provision (Epple och Romano (1996), Gouveia (1997)), while having high income earners paying twice is likely to erode their willingness to pay taxes to finance the public system. Empirical support for the latter mechanism has been provided by Hall and Preston (1998) who showed that people who opt out from publicly provided health care and pay for private health insurance support less spending on the public system.

To put it harshely, policy makers are facing an unpleasant choice between three alternatives: Increasing taxes, facilitating topping up and accepting increasing inequality of access to welfare services, or having high income earners paying twice and risk eroding welfare state support. In practice, the three strategies are not mutually exlusive. As discussed by Bergh (2008) there are signs that Swedish policy makers implement at least the incremental changes that are necessary to secure majority support for a high tax welfare state. In many cases, the changes are likely to imply that the vertical income distribution of the welfare statedecreases, as many welfare services are changed according to the preferences of the middleclass. The tendency for welfare state programs to adjusted to the interests of the middle class for political reasons is well-documented (Goodin and Le Grand, 1987)

If the strategy continues, policy makers in the future may well opt for a mix of higher taxes, topping up and having some groups paying twice, resulting in the nordic welfare states muddling through the challenges ahead. In any case it can be concluded that while the problems caused by the Baumol effect for financial sustainability have been somewhat exaggerated, the political problems related to vertical income redistribution may well be underestimated.

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