The Welfare State and Economic Performance

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Förord

Långtidsutredningen 2015 sammanställs vid Finansdepartementets Strukturenhet. Utredningen har bl.a. till uppgift att presentera en samlad bedömning av den långsiktiga ekonomiska utvecklingen. Ett viktigt led i arbetet är att ta fram fördjupade analyser inom relevanta områden. Dessa publiceras som fristående bilagor till utredningen.

Föreliggande bilaga studerar sambanden mellan välfärdsstatens utformning och ekonomisk tillväxt. Rapporten har utarbetats av professor Torben M. Andersen vid Aarhus universitet.

Höga snedvridande skatter och passiva inkomstomfördelningar är i allmänhet negativa för den ekonomiska effektiviteten. Den offentliga sektorns storlek säger dock inte mycket om hur väl en ekonomi fungerar. Av central betydelse är vilka varor och tjänster som sektorn producerar och de incitament som skapas vid beskattning och transfereringar. I bilagan analyserar Andersen hur Sverige och andra nordiska länder har lyckats kombinera god ekonomisk utveckling med relativt jämlika inkomster. Författaren diskuterar även framtida hot mot den s.k. nordiska modellen, t.ex. en åldrande befolkning, globalisering och en ökad efterfrågan på offentligt tillhandahållna varor och tjänster.

Arbetet med bilagan har följts av en referensgrupp bestående av personer med god insikt i dessa frågor. Författaren ansvarar själv för rapportens innehåll, slutsatser och förslag. De resultat som framkommer i Långtidsutredningens bilagor kommer att behandlas i utredningens huvudbetänkande.

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Sammanfattning

Ett återkommande tema i den politiska debatten är om en stor offentlig sektor hämmar eller främjar den ekonomiska utvecklingen, mätt t.ex. som inkomst per capita eller tillväxt. Åsikterna i frågan är ofta politiskt präglade, men vad kan forskningen lära oss i den här frågan?

Sverige och de övriga nordiska länderna är särskilt intressanta i det här sammanhanget. Den så kallade nordiska modellen är väl känd för sin stora offentliga sektor och sin jämlikhetssträvan. Ändå är genomsnittsinkomsterna bland de högsta i OECD. Hur har Sverige och de övriga nordiska länderna lyckats förena en stor offentlig sektor och en hög skattekvot med en förhållandevis stark ekonomisk utveckling?

Det finns mycket teoretisk och empirisk forskning som belyser frågan. Den här rapporten syftar till att ge en selektiv översikt över denna forskning. Fokus ligger på att förklara hur det i den nordiska modellen är möjligt att förena en stor offentlig sektor, jämlikhet med en stark ekonomisk utveckling. Detta är inte bara intressant ur ett historiskt perspektiv, utan även viktigt ur ett framtidsperspektiv för att hitta lösningar på politiska utmaningar för att upprätthålla det som kännetecknar den nordiska modellen.

Även om den nordiska modellen har vissa typiska kännetecken, såsom en stor offentlig sektor, en hög skattekvot, organiserade arbetsmarknader osv., finns det två övergripande saker som är värda att betona. Om man gräver djupare är det för det första lätt att hitta tydliga skillnader mellan de nordiska länderna när det gäller vissa specifika politiska val, trots att de på det stora hela liknar varandra. Detta tyder starkt på att modellen definieras utifrån övergripande mål och inte utifrån specifika politiska val. För det andra är modellen inte statisk utan har genomgått kontinuerliga reformer och anpassats till förändringar, både i det ekonomiska

klimatet och i samhället i stort. I ett jämförande perspektiv har modellen visat sig vara mycket anpassningsbar, något som kanske kan vara lika viktigt som modellens övriga egenskaper.

Diskussioner om den offentliga sektorns roll utgår ofta från det enkla skolboksexemplet, där offentliga interventioner i syfte att få en mer jämlik inkomstfördelning via olika skatter och transfereringar snedvrider incitamenten, vilket leder till minskad ekonomisk effektivitet. Med andra ord leder försöken att dela kakan mer lika till att kakan blir mindre. Det finns således en avvägning mellan jämlikhet och ekonomiskt resultat. De nordiska ländernas resultat är inte något bevis för att det inte finns en sådan avvägning, men det gör att man kan ifrågasätta om den är särskilt tydlig och om den kan dämpas med politiska åtgärder.

Det enkla skolboksperspektivet behöver prövas i flera dimensioner. För det första går det inte att avgöra vilken betydelse skatterna har utan att precisera vad skatter finansierar. Ekonomins totala resultat vid ett visst skattetryck är inte detsamma oavsett om skatterna finansierar t.ex. utbildning eller tidig pensionering. För det andra är effekten av de övergripande incitamenten inte bara beroende av nivån på skatter och transfereringar utan även av andra villkor i det sociala skyddsnätet. Dessa villkor kan få viktiga konsekvenser för sysselsättningsincitamenten. För det tredje kan offentliga interventioner i samband med marknadsmisslyckanden vara motiverade av effektivitetsskäl, och då blir avvägningen en annan. Det innebär att om offentliga interventioner används för att komma till rätta med marknadsmisslyckanden kan det till en viss gräns vara positivt för både den ekonomiska utvecklingen och jämlikheten.

Det sägs ofta att välfärdsmodellen sträcker sig "från vaggan till graven" på grund av den stora betydelsen en individs ålder har för när en person drar nytta av, respektive bidrar till, välfärdsstaten. Eftersom tonvikten i välfärdssystemen av uppenbara skäl ligger på unga (barnomsorg och utbildning) och gamla (pensioner, äldre-omsorg samt hälso- och sjukvård) och systemen finansieras genom inkomstskatter, är de unga och gamla nettomottagare och den arbetsföra (medelålders) befolkningen nettogivare. Det här är ett, implicit eller socialt, kontrakt mellan generationer. Det påstås ibland att man med det här systemet bara fördelar resurser över genomsnittspersonens livstid, vilket antyder att det inte har någon

dynamisk nettoeffekt. Detta är vilseledande av minst två skäl. Om kapitalmarknaderna är ofullkomliga innebär det sociala kontraktet möjligheter som annars skulle ha förblivit outnyttjade. Om det t.ex. är svårt eller väldigt dyrt att finansiera utbildning kan vissa begåvade ungdomar välja bort utbildning (eller deras föräldrar inte ha råd att betala för den). Det innebär att befolkningens human-kapital inte utnyttjas fullt ut, med negativa effekter på inkomst och tillväxt. Det implicita kontraktet kan vara ett sätt att övervinna detta marknadsmisslyckande, med inte obetydliga effekter för både den ekonomiska utvecklingen och (o)jämlikheten. Effekterna kan faktiskt bli större när huvuddelen av kostnaderna är koncentrerade till livets första del, i det avseendet att förmånerna i livets tidiga skede i ett nuvärdesperspektiv har större betydelse än senare bidrag och förmåner, vilket även går att finna empiriskt stöd för. Det innebär att investeringar i livets första år har större betydelse än passivt stöd senare i livet, vilket i sin tur har en positiv inverkan på den ekonomiska utvecklingen.

Ovanstående resonemang visar att det i diskussionerna om hur den offentliga sektorn påverkar den ekonomiska utvecklingen är viktigt att dela in de offentliga utgifterna och deras finansiering i kategorier, snarare än att titta på bruttotal. Något förenklat kan vissa utgifter benämnas ”aktiva” och andra ”passiva”, beroende på hur de påverkar sysselsättning och inkomst. En arbetsmarknads-inriktad utbildning vore t.ex. en aktiv utgift, medan gynnsamma pensionsvillkor som ger friska arbetstagare möjlighet att gå i pension i förtid vore en passiv åtgärd (men kan vara motiverat av andra skäl än ekonomisk utveckling). På samma sätt kan vissa finansieringsmodeller vara mindre snedvridande än andra. Det finns färsk empirisk forskning som bekräftar betydelsen av dessa skillnader.

Forskare har i många empiriska studier försökt att belysa förhållandet mellan den offentliga sektorns storlek och ekonomisk utveckling, mätt som t.ex. inkomst per capita eller tillväxt. Trots den omfattande forskningen finns det i den här delen av forskningslitteraturen svagt stöd för att det skulle finnas något starkare samband mellan den offentliga sektorns totala storlek och ekonomisk tillväxt. I senare forskning där man brutit ned utgifterna och deras finansiering har man dock hittat tydligare empiriska belägg. Aktiva eller produktiva utgifter har en positiv

inverkan på det ekonomiska resultatet om de finansieras med de minst snedvridande skatterna, och det omvända gäller för passiva utgifter som finansieras genom snedvridande beskattning. Detta visar varför det inte finns något enkelt svar på frågan om välfärdsstatens betydelse för den ekonomiska utvecklingen, och att hänsyn måste tas till välfärdsstatens struktur och inriktning. Det empiriska resultatet visar att de nordiska länderna inte bara har stora offentliga sektorer utan även en starkare inriktning mot aktiva utgifter. Finansieringsmodellen har dock inte samma inriktning, eftersom t.ex. fastighetsskatten bidrar till en relativt liten del av de offentliga intäkterna, trots att det är en av de minst snedvridande beskattningsformerna.

Om man i stället tittar på rättvisesidan av välfärdsstaten så finns skillnaden mellan aktiva och passiva former kvar. Den traditionella (om)fördelningspolitiken kan karakteriseras som passiv, eftersom den är ett försök att genom skatter och transfereringar förändra en fördelning av marknadsinkomster som anses orättvis till en rättvisare fördelning av disponibel inkomst och därmed av konsumtionsmöjligheter. I en aktivare omfördelningspolitik skulle utbildnings- och arbetsmarknadspolitiken kunna utformas så att fördelningen av marknadsinkomster uppfyller fördelningsmålen.

De nordiska länderna är kända för att höra till de länder som har den jämlikaste fördelningen av disponibel inkomst. Även om den passiva omfördelningen spelar roll, förbiser man ofta att grunden för det jämlika resultatet läggs redan på arbetsmarknaden, i det avseendet att fördelningen av marknadsinkomster tillhör de mest jämlika. Dessutom visar forskningen att en jämlik fördelning av marknadsinkomster bygger på en jämn fördelning av kompetens. Detta visar att utbildning i vid bemärkelse är viktig för jämlikheten. Utbildningsmöjligheterna kan begränsas av både ekonomiska och sociala faktorer. Offentlig utbildning kan vara lösningen på båda och bidrar på det här sättet inte bara till mer humankapital utan även till en jämlikare kompetensfördelning och därmed även till en mer jämlik inkomstfördelning. Medan den passiva omfördelningen belastar den offentliga budgeten, gäller det motsatta för den aktiva omfördelningen, som med tiden leder till att fler personer kan försörja sig själva på en acceptabel nivå.

Det implicita eller sociala kontrakt som finns inbäddat i välfärdsstaten har också en stark intragenerationell koppling. Olika

delar av det sociala skyddsnätet garanterar inkomsten i händelse av t.ex. arbetslöshet, sjukdom, förlorad arbetsförmåga osv. Det innebär att resurser vid en viss tidpunkt omfördelas från dem som inte påverkas av dessa händelser till dem som påverkas. Eftersom sådana händelser kan drabba alla innebär systemet även en form av försäkring. Alla individer vet att det sociala skyddsnätet och välfärdstjänsterna finns om de skulle drabbas av en händelse som minskar deras förmåga att försörja sig själva. Det här är en indirekt försäkringseffekt som har en direkt positiv välfärdseffekt om aktörerna är riskobenägna och inte kan diversifiera sådana risker på andra sätt. Det kan även bidra till risktagande och flexibilitet, som i sin tur bidrar till ett bättre ekonomiskt resultat. Inte heller för det sociala skyddsnätet går det således att tydligt skilja mellan effekterna på det ekonomiska resultatet och jämlikheten. I de nordiska länderna har det sociala skyddsnätet av tradition en aktiv inriktning – arbetslinjen – genom att man betonar att systemen endast är tillgängliga för personer som inte kan försörja sig själva och genom att man ställer olika sysselsättningsvillkor (krav på aktivt arbetssökande, deltagande i aktivitetsprogram osv.). Detta är en del i förklaringen till varför arbetsstyrkan är så stor och sysselsättningsgraden är så hög i de nordiska länderna, trots ett relativt generöst socialt skyddsnät. Baksidan är att sådana program är resurskrävande.

De nordiska ländernas ställning i förhållande till andra länder, både när det gäller ekonomiskt resultat och ojämlikhet, beror således på politikens utformning. Flera faktorer ligger bakom detta. En är att en utökad välfärdsstat bygger på en hög sysselsättningsgrad. Om sysselsättningen sjunker minskar skatteintäkterna och de sociala utgifterna ökar. Därför har modellen ett inbyggt krav på ett sysselsättningsfokus. Eftersom det är små och öppna ekonomier har den internationella konkurrensen också hela tiden varit en bakgrundsfaktor.

Den nordiska modellens fall har förutspåtts många gånger. I likhet med Mark Twain kan man säga om den nordiska välfärdsmodellen att ryktet om dess död är starkt överdrivet. Den nordiska modellen är inte befriad från kriser, och djupa ekonomiska kriser är en del av de nordiska ländernas historia. Trots turbulensen har modellen visat sig vara motståndskraftig och utmärker sig i internationella jämförelser som ett exempel på hur

man kan förena sociala mål med en välfungerande ekonomi. De nordiska länderna ligger i topp i de flesta internationella jämförelsetabeller över länders resultat. En del i detta är att det i institutioner och politik finns ett starkt inrotat arv som utgör ett socialt och politiskt kapital som också gör det möjligt att i tid genomföra långtgående reformer för att säkerställa modellens fortlevnad.

I ett framtidsperspektiv är några av de trender som behöver hanteras åldrande befolkning, globalisering, efterfrågan och utbud av offentliga tjänster. Dessa utmaningar är i sig globala och inte specifika för den nordiska modellen, och vissa länder har större utmaningar än t.ex. Sverige och Danmark, som har varit ledande när det gäller pensionsreformer. Utmaningen är att hitta lösningar som är förenliga med målen i den nordiska modellen.

Åldrandet, till exempel, är en universell utmaning, och förändringar i pensionssystemen (inklusive pensionsåldern) är oundvikliga. Anledning är den ökande livslängden, vilket i sig inte ska ses som ett problem utan välfärdsökande. Om pensionsåldern skulle öka i takt med livslängen skulle balansen mellan åren som förmånstagare respektive bidragande till välfärdsstaten kunna upprätthållas. Reformer som syftar till att bibehålla det sociala kontraktet över generationer kan inte på något meningsfullt sätt kategoriseras som nedskärningar av välfärdsstaten. Även om en ökande livslängd består av fler år med god hälsa, innebär den förändrade demografiska strukturen att det ställs nya krav på sjuk- och äldrevården, två av välfärdsstatens viktigaste områden. Åldrandet innebär ett tryck uppåt på de passiva utgifterna, vilket kan leda till neddragningar i de aktiva utgifterna. Givet en bindande budgetrestriktion och ökade passiva utgifter måste medvetna prioriteringar göras i framtiden. I detta sammanhang är det viktigt att klargöra vilka offentliga utgifter och verksamheter som främjar produktivitet, sysselsättning och konkurrenskraft i den privata sektorn. Det innebär också att finansieringen av den offentliga sektorn kommer under luppen. Finns det möjligheter att minska de snedvridande incitamenten som finansiering genom skatter innebär och finns det alternativa finansieringskällor?

Globaliseringen är inte något nytt fenomen för de nordiska länderna och kravet på att fortsätta vara konkurrenskraftiga är djupt rotat i politiken. Den innebär dock kontinuerliga utmaningar.

Globaliseringen tenderar att tillsammans med de tekniska framstegen öka lönespridningen och därmed skapa större ojämlikhet. Ett viktigt skäl är den ökande efterfrågan på kompetens. Ett sätt att motverka denna trend skulle kunna vara en passiv omfördelning, men trycket på de offentliga finanserna och de möjliga snedvridande effekterna av en sådan åtgärd gör detta till en mindre lockande lösning. Vid aktiva åtgärder för att förbättra utbildningen, både dess kvalitet och dess kvantitet, är perspektivet ett annat. Åtgärder för att minska den "återstående" gruppen människor som saknar arbetsmarknadsinriktad utbildning kan vara den allra viktigaste faktorn för att öka sysselsättningen och säkerställa en mer jämlik inkomstfördelning. Migration – inklusive migrerande arbetstagare – är en annan viktig aspekt av globaliseringen. Migration kan leda till att urvalsmekanismer införs i det implicita eller sociala kontrakt som välfärdsstaten vilar på om invandrare tenderar att dra nytta av systemet och utvandrare tenderar att vara nettogivare. De empiriska resultaten om direkt välfärdsdriven migration är knappa. Oavsett vilka motiv som ligger bakom invandringen skulle en stor tillströmning av personer med låg kompetens dock utgöra en påfrestning för modellen genom att antingen utmana omfördelningsmålen eller möjligheten att upprätthålla en hög sysselsättning.

Slutligen är behoven av och kraven på välfärdsstaten inte statiska. Detta gäller inte bara förändringarna på arbetsmarknaden utan även tillhandahållandet av tjänster. Målet är att tillhandahålla välfärdstjänster av modern standard som tillgodoser de flesta människors behov. Vid sidan av samhällsutvecklingen är detta ett rörligt mål, vilket märks mest på de kontinuerliga förbättringarna inom livsvetenskaperna, som uppenbarligen har stora välfärds-effekter men som även tenderar att öka utgifterna för hälso- och sjukvård och därmed utgör påfrestningar på de offentliga finanserna. Samtidigt kan det vara svårt att öka produktiviteten för vissa personalintensiva tjänster, t.ex. omsorg, och de tenderar därmed att bli dyrare relativt sett. Denna utveckling tyder på att vi kommer att få se en fortsatt debatt om hur man ska finansiera och producera tjänster, däribland om hur man kan göra den offentliga sektorn mer produktiv och effektiv.

Summary

It is a recurrent theme in policy debates whether an extended welfare state impedes or promotes economic performance measured by e.g. per capita income or growth. Viewpoints on this issue are often closely aligned with political observations, but what can research teach us about this question?

Sweden and the other Nordic countries are particularly interesting in this context. The so-called Nordic model is well known for relying on a large public sector and pursuing egalitarian objectives, and yet average incomes are among the highest within the OECD. How have Sweden and the other Nordic countries managed to square large public sectors and high tax burdens with comparatively strong economic performance?

A large theoretical and empirical amount of research provides insights on this question, and this report aims at providing a selective overview with a focus on explaining how a large public sector, egalitarian outcomes and strong economic performance are reconciled in the Nordic model. This is not only of retrospective interest, but important in a forward perspective pointing to possible ways to address policy challenges so as to maintain the hallmarks of the Nordic model.

While the Nordic model has some key characteristics as a large public sector, high tax burdens, organized labour markets etc., two overarching points are worth stressing. First, going one step deeper one easily identifies significant differences across the Nordic countries in specific policy choices despite the similar aggregate characteristics and performance indicators. This strongly suggests that the model is defined in terms of overall objectives and not in terms of specific policies. Second, the model is not static but has seen ongoing reforms and has been adapted to changes in both changes in the economic environment and in society more widely.

In comparative perspective the model has shown a large adaptability, perhaps this is as important as the models other characteristics.

Discussions of the role of the public sector often take outset in the basic text-book setting where public intervention to achieve a more egalitarian income distribution via various taxes and transfers distort incentives, leading to a reduction in economic efficiency. In plain words, attempts to distribute the cake more equally shrink its overall size. There is thus a trade-off between equality and economic performance. The Nordic performance does not refute the existence of such a trade-off, but it does question whether it is very sharp and whether it can be muted by policy design.

The simple textbook view needs to be qualified in several dimensions. First, the role of taxes for economic performance cannot be settled without specifying what taxes are financing. The overall performance of the economy for a given tax burden is not the same irrespective of whether taxes finance say education or early retirement schemes. Second, and related, the overall incentive effects depend not only on the level of taxes and transfers but also on other conditions attached to the social safety net. These conditions may have important implications for the employment incentives. Thirdly, moving into the realm of market failures, public intervention may be motivated on efficiency grounds, in which case no trade-off need exists. Or to put it differently, if public intervention overcomes market failures, it may up to some point be conducive for both economic performance and equality.

The welfare model is often dubbed a "cradle-to-grave"-model due to the strong age dependence in when the average person benefits from and contributes to the welfare state. Since welfare arrangements for obvious reasons are biased towards the young (child care and education) and the old (pensions, old age care and health) and the financing is via taxation of income, it follows that the young and old are net-beneficiaries and the working-age group (the "middle-aged") are the net-contributors. This is an implicit or social contract across generations. It is sometimes suggested that this arrangement is simply reshuffling resources across the average person's life time, implying that it does not have any net effect. This is misleading for at least two reasons. If capital markets are imperfect, the social contract offers possibilities which otherwise

would be left unexploited. E.g. if financing of education is difficult or very expensive, some talented young may refrain from education (or their parents may be unable to finance it), which implies that the full human capital potential in the population is not fully exploited with detrimental effects on income and growth. The implicit contract may overcome this market failure with non-trivial effects for both economic performance and (in)equality. Actually it can do more when it is front-loaded in the sense that the early in life net-benefits in present value terms matter more than later contributions and benefits, as they do empirically. It implies that the investments early in life matter more than passive support later in life, which in turn has positive effects on economic performance.

The reasoning above brings out the importance of decomposing public expenditures and their financing into categories, rather than looking at gross numbers when discussing how the public sector affects economic performance. At some simplification, some expenditures may be termed "active" and others "passive" depending on their effects on performance indicators like employment and income. An active expenditure would e.g. be labour market relevant education, while an early retirement scheme allowing healthy workers to retire early would be a passive scheme (but may be motivated on other grounds than economic performance). Similar, some modes of financing are less distortionary than others. The importance of these distinctions is supported by recent empirical evidence.

A large number of empirical studies have tried to shed light on the relation between the size of public sector and economic performance measured in terms of e.g. per capita income or growth. Despite the intensive research, this branch of the literature leaves weak support for any strong relation between the overall size of the public sector and economic growth. However, more recent work having decomposed expenditures and their financing find more clear empirical evidence. Active or productive expenditures have a positive effect on economic performance if financed by the least distortionary modes of taxation, and vice versa for passive expenditures financed by distortionary taxation. This shows why the discussion on the role of the welfare state for economic performance cannot be answered simply, but has to take into account the structure and orientation of the welfare state. The

empirical evidence shows that the Nordic countries not only have large public sectors, but also have a stronger orientation of their expenditures towards active spending. However, the mode of financing is not similarly aligned since e.g. property taxation contributes a relatively small share of tax revenue, despite this being one of the least distortionary modes of taxation.

Turning to the equity side of the welfare state, the distinction between active and passive modes carries over. Traditional (re)distribution policies may be characterized as passive since they via taxes and transfers attempt to transform a distribution of market incomes considered unfair into a more fair distribution of disposable income and thus consumption possibilities. A more active approach to redistribution would be to design education and labour market policies so as to ensure that the distribution of market incomes meets the distributional objectives.

The Nordic countries are known to be among the countries with the most equal distribution of disposable income. Although passive redistribution plays a role, it is often overlooked that the basis for the egalitarian outcome is created already in the labour market in the sense that the distribution of market incomes is among the most equal. Moreover, evidence shows that an equal distribution of market incomes relies on an equal distribution of qualifications. This points to the importance of education in its broad sense as being important for equality. An equal distribution of income requires a relatively equal distribution of qualifications. Education possibilities may be constrained by both financial and social factors. Public education can overcome both and in this way contribute not only to more human capital but also to a more equal distribution of qualifications and thus income. While passive redistribution puts the public budget under pressure, it is opposite for the active approach which over time reduces the number of people being unable to support themselves at a politically acceptable level.

The implicit or social contract encompassed in the welfare state has also a strong intragenerational link. Various elements of the social safety net ensure income in the case of events like unemployment, illness, loss of working capabilities etc. At a given movement this entails redistribution from those not being affected by these events to those being affected. However, since such events

may arise for all, these arrangements also constitute an insurance function. All individuals know that the social safety net and welfare services are there if they are exposed to an event reducing their ability to support themselves. This is an implicit insurance effect which has a direct positive welfare effect if agents are risk averse and have no access to other means by which to diversify such shocks. It may also be conducive to risk taking and flexibility, which in turn improves economic performance. Hence, even for the social safety net it is not possible to make a sharp distinction between effects on economic performance and equality. There is a tradition in the Nordic countries of an active orientation of the social safety net – the workline – by stressing that these arrangements are only available to individuals unable to support themselves and by including various employment conditionalities (requirements on active job-search, participation in activation programmes etc.). This is a contributory factor in explaining why the labour force is so large and employment rates are so high in the Nordic countries, despite a relatively generous social safety net. The flipside is that such programmes are resource demanding.

The Nordic comparative position with respect to both economic performance and inequality reflects thus policy designs. Underlying this are several factors. One is that an extended welfare state relies on a high employment rate. If the employment rate falls, tax revenue decreases and social expenditures increase. Therefore the model has a built-in requirement of an employment focus. Likewise, being small and open economies facing international competition has been a background factor all along.

The demise of the Nordic model has been predicted several times. As for Mark Twain it may be said on behalf of the Nordic welfare model that rumours on its death are widely exaggerated. The Nordic model is not crisis free, and deep economic crises are part of the history for the Nordic countries. Despite the turbulence, the model has proven resilient and stands out in international comparisons as an example of how to reconcile social objectives with a well-functioning economy. Accordingly, the Nordic countries rank in the top in most international league tables comparing country performance. Part of this is a strong legacy ingrained in institutions and policies, constituting a social and

political capital also making it possible to implement far reaching reforms in due time to ensure the viability of the model.

In a forward perspective some of the trends to be coped with are ageing, globalization and requirements to publicly provided services. These challenges are as such global and not specific to the Nordic model, and some countries face larger challenges than e.g. Sweden and Denmark, which have been front-runners in pension reforms. The quest is to find solutions in accordance with the goals of the Nordic model.

Ageing, as an example, is a universal challenge, and changes in pension systems (including retirement ages) are inevitable. The main driver is increasing longevity, in itself a welfare improvement. Having retirement ages increasing with longevity ensures that the balance between years contributing to and benefitting from the social contract underlying the welfare state is maintained. Reforms along those lines cannot in any meaningful way be categorised as retrenchments of the welfare state. Although there is a substantial element of healthy ageing, the changing age composition puts pressure on the health and old-age care system – two key responsibilities of the welfare state. Ageing thus induces an upward pressure on passive expenditures which may squeeze active public spending. Given the tight public finances and the upward pressure on passive expenditures, tight prioritization is called for in the future. To this end it is important to clarify which public sector activities may support productivity, employment possibilities and thus competitiveness for the private sector. This also brings the financing of the public sector in play; are there any ways to reduce the negative incentive effects of tax financing and are there alternative modes of financing?

Globalization is not a new phenomenon for the Nordic countries, and the constraint to remain competitive is deeply ingrained in policies. However, it poses ongoing challenges. Globalization in combination with technological advances tends to widen the wage distribution and thus create more inequality. A major reason is an upward drift in the demand for qualifications. One response would be passive redistribution to counteract this trend, but pressure on public finances and the possible distortionary effects of such a move make this a less attractive solution. Active measures aiming at improving education along

both the qualitative and quantitative dimension have a different perspective. In particular, a reduction of the "residual" group not receiving any labour market relevant education may be the single most important factor in improving employment and ensuring a more equal distribution of incomes. Migration – including migrating workers – is another important aspect of globalization. Migration may introduce selection mechanisms in the implicit or social contract underlying the welfare state if immigrants tend to benefit from the system and emigrants tends to be net contributors. The empirical evidence on direct welfare driven migration is scant. However, irrespective of the motive for immigration, a large inflow of individuals with low qualifications would put the model under pressure by either challenging the distributional goals or the possibilities of maintaining a high employment level. Finally, the needs and demands to the welfare state are not static. This not only applies to changes in the labour market, but also to the service provision. The objective is to deliver welfare services of contemporary standards meeting the needs of most people. Alongside developments in society this is a moving target, most visible due to steady improvements within life-sciences which clearly have tremendous welfare effects but also tend to increase health expenditures and thus putting public finances under pressure. At the same time it may be difficult to improve productivity for some services – those intensive in human interaction like care – and they thus tend to become relatively more expensive. These developments imply a continuous debate on how to finance and produce services, including how to make the public sector more productive and efficient.

1   Introduction

It is a recurrent theme in policy debates whether an extended welfare state impedes or promotes economic performance measured by e.g. per capita income or growth. Viewpoints on this issue are often closely aligned with political observations, but what can research teach us about this question?

In debates on these questions, the Nordic countries – and Sweden in particular – are often highlighted as examples of countries which have shown that an extended welfare state can be reconciled with a strong economic performance in comparative perspective. In the wake of the financial crisis, the appraisal of the Nordic model has revived.[1]

The purpose of this paper is to take stock of what can be said about the role of the Nordic welfare model for economic performance in light of recent theoretical and empirical work. Much debate on these issues takes an outset in the standard textbook case of an income tax distorting labour supply. Hence, focus has been on the tax burden measured in various ways and on empirical assessments of the labour supply elasticity. From this, rather wide ranging policy conclusions are sometimes made. This is problematic both for theoretical and empirical reasons. Cross-country evidence does not provide ready support for the devastating consequences of high tax rates – actually the Nordic countries are, despite high tax burdens, characterized by high

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[1] It may be worth reminding that the Nordic model is not crisis free and its popularity has had its cycles. In 1995 Lundberg (1995) wrote about the rise and fall of the Swedish model. Lindert (2004) gives several examples of the change from praise to demise of the Swedish model in newspapers like the Wall Street Journal, the Economist etc. During the 1990s the Danish labour market was repeatedly referred to as a bad example, while it during the 2000s gained popularity under the heading of flexicurity. The recent international interest in the Nordic model is illustrated by the cover of the Economist (February 2nd 2013) "The next supermodel – why the world should look at the Nordic countries".

employment rates and are among the richest countries in the OECD. On a theoretical level it is often overlooked that the simple textbook case considers a tax levied on labour financing activities which do not in any way affect production or consumption possibilities. Likewise the social safety net is often portrayed as offering either lump-sum transfers or transfers conditional on not working. Both are far off the mark relative to both how taxes are spent and how social safety nets are designed in the Nordic countries.

The point is not that taxes do not matter – they do, and they can have large detrimental effects on economic activity. The point is that the effects of public sector size and taxes depend critically on policy design. The effects of taxes in general cannot be seen independently of what they are financing and how the entire welfare model is structured.

This introduces an important distinction of what may be termed a "passive" and "active" welfare state.[2] The passive version resembles the textbook case of a government finding the market distribution of income unacceptable and redistribution via taxes and transfers. The active version also aims at affecting the distribution of market incomes. Inherent in this distinction is the role of market imperfections. In the textbook case of the passive welfare state, the only distortion is the taxes arising from the need to finance redistribution. Allowing for market imperfections, the perspective becomes very different, as will be expounded below.

To understand the performance of the so-called Nordic welfare model, it is necessary to consider more carefully what should be understood by this model. In policy debates the welfare state is often associated with specific policy instruments and designs. This view leads to a strong status quo bias and a perception that most policy changes are retrenchments of the welfare state. This view is misleading for several reasons. The Nordic countries – as explained in more detail below – differ significantly in specific policy arrangements despite similar overall objectives and performance. This strongly suggests that the Nordic welfare model is defined in terms of overriding objectives and principles rather than specific policy instruments. Moreover, there have been important policy

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[2] This is related to the discussion of the social investment state, cf. Giddens (2000).

shifts and reforms over the years, and still the Nordic countries stand out in the same way in international comparative perspective. The model is not the result of a master plan implemented at a point in time, but rather a result of a dynamic development where the overarching objectives have remained stable but the means of achieving them have been changing alongside changes in economic structures and possibilities.

This paper offers a survey of the findings from theoretical and empirical analyses to extract some lessons on how to account for the performance of the Nordic model. Focus is on two key aspects associated with the model, namely the strong role of the life-cycle pattern in services provided by the welfare state and the redistribution via transfers and expenditures. There is a voluminous literature on the need and scope for public intervention both in general and in specific policy areas. It is beyond the scope and space of the present paper to offer a comprehensive overview.

The paper is thus selective in focusing on aspects important to understanding the economic performance of the Nordic model. This is important not only to account for the historical development but also as a guidepost for future policy settings. Space also excludes specific discussions of important topics from the long list[3] of policy challenges including globalization of product and labour markets, migration, demography, efficiency/productivity in public service production, increasing demands for services, as well as the political economy aspects related to support for welfare arrangements and reforms. It is also beyond the scope of this paper to elaborate on the history and development of the Swedish and Nordic welfare model.

The paper is organized as follows: The economic performance of the Nordic countries is briefly chartered in Section 2. Some key characteristics of the Nordic welfare model are laid out in Section 3. Section 4 starts out by clarifying some basic insights from economic theory on the effects of taxation before turning to the implications of the cradle-to-grave welfare model for economic performance. This section also reviews empirical evidence on the role of the public sector for economic growth. Distributional policies may be directed at repairing on the distribution of market

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[3] Some of these are addressed in e.g. Valkonen and Vihriälä (2014).

outcomes or at influencing the distribution itself, and this is explored in Section 5. The social safety net and its implications for insurance are discussed in Section 6, and Section 7 gives some concluding remarks.

2   Economic performance

The essence of how countries perform economically is encapsulated by average income and its distribution. This is also underlying the most essential trade-off in economics,that between efficiency and equity dubbed the big trade-off by Okun (1975). Average income can be taken as a proxy measure for efficiency and income distribution (e.g. the Gini coefficient) as a measure of equity. Clearly, many more elements are relevant for living standards and welfare, but these two measures capture the essence of the debate.

The standard textbook reasoning is that redistributive policies distort incentives and thus lead to efficiency losses in terms of lower employment and thus income, see Section 4.1. Hence, more equity can be attained, but at the cost of less efficiency. An immediate corollary of this is that countries with a large and extended tax financed welfare state may succeed in lowering inequality but at the cost of a much less efficient economy and thus lower average material living standards.[4]

Average income and income inequality are plotted in Figure 2.1 for OECD countries. This cross-plot does not reveal any clear pattern or trade-off. There is a weak, though insignificant, negative correlation between inequality and income which at face value suggests that more equity is associated with more efficiency (or vice versa), see e.g. the widely cited book "The Spirit Level" by

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[4] Prescott (2004) is an exponent of this view arguing that the lower income level in some continental countries compared to the US can be attributed to a higher tax burden. Other arguments have been that Europeans have a stronger preference for leisure, that the welfare state via generous benefit levels lowers labour supply, and the role of imperfect competition (unions), see e.g. Alesina, Glaeser and Sacerdote (2005), Ljungqvist and Sargent (2007), and Gordon (2006). Note that the Nordic countries are an outlier in this context.

Wilkinson (2009) and the OECD (2011).[5] However, this interpretation may be contested.

Figure 2.1   Income and inequality, OECD countries 2010
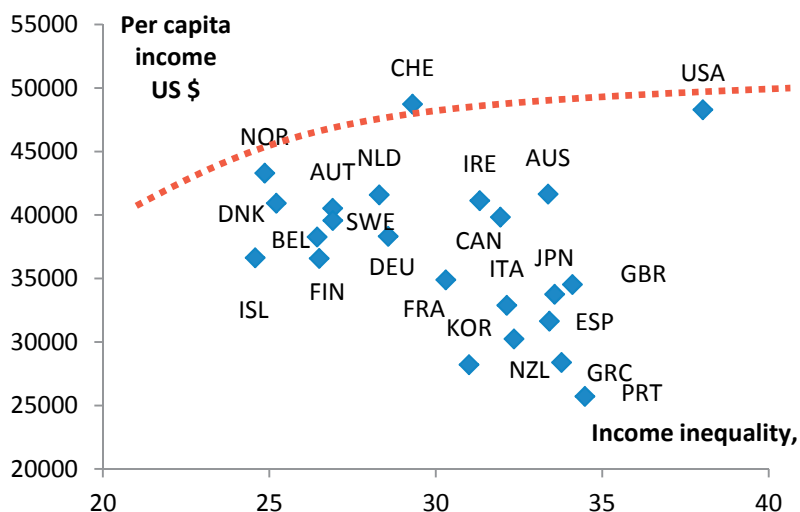
Note: Income measured as GDP per capita, current prices, current PPP. Income inequality is given as the Gini coefficient defined on equivalent disposable income for the entire population. For Norway GDP is for mainland Norway. Luxembourg is considered an outlier and not included. The dotted line illustrates the best practice frontier estimated in Andersen and Maibom (2015).

Data source: Based on data from www.oecd-ilibrary.org.

One way to interpret evidence of the type given in Figure 2.1 is that the position of a given country reflects not only the extent of the welfare state (size and composition) but also political and institutional factors. In some countries there may be scope for improvements in both efficiency and equity since policies due to political economy factors or other reasons may be inoptimal. Care should thus be taken in interpreting such cross plots (see below on empirical work on inequality and growth), and they should not be confounded with the trade-off prevailing in the absence of political or institutional impediments on the determination of economic policies. To filter out political and institutional barriers, it is of interest to identify the best-practice frontier in the efficiency-equity space. This is done by use of a so-called stochastic frontier

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[5] There is also a literature exploring whether inequality and growth are related, see Section 4.3.

analysis in Andersen and Maibom (2015) based on data for the period 1980-2010. The frontier is illustrated in Figure 2.1 by the dotted locus. The analysis shows that i) the elasticity of the frontier is close to minus one, i.e. a one percent lower equality is associated with a one percent higher income level, ii) the slope of the frontier has not become more steep over the sample period (1980–2010), but some countries have moved towards the "north-east" implying higher income and less equality, and iii) for the countries at or close to the frontier (best practice countries), there is a significant negative effect of taxes on both income and inequality, as predicted by standard theory. Whether the slope of the best practice frontier identified in this way is "steep" or "flat" is in the eyes of the beholder. More interesting in this context is the fact that the Nordic countries belong to the best-practice countries, and stand out by having achieved a high income level and a low level of inequality in comparative perspective. The key question – which will be pursued in the following - is thus how to design the welfare state so as to achieve both high income and low inequality (flattening the slope of the trade-off)?

Related to the above is the question whether countries with an extended welfare state have a lower growth potential (empirical evidence on the nexus between economic growth and public sector size and structure is further discussed in Section 4.3) than countries with a lower tax burden. Figure 2.2 gives income levels for the Nordic countries relative to the income level in the US[6] over the period 1970–2012. While there are variations in this ratio (some driven by country specific factors and some by US variations), it displays no trend for the Nordic countries. Clearly there have been crises and policies have been adjusted, also in the Nordic countries, but it is to be expected that policies would have to be adjusted to remain among the best-practice countries, cf. further discussion below.

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[6] Cross-country comparisons are often used in academic research and the media frequently report "league tables" ranking country performance for various indicators. This approach is not unproblematic. As a case in point USA is often used as a benchmark. One reason is that it consistently has been among the high income countries in the OECD, and in this way constitutes a benchmark. However, the US is large, has a hegemonic position among western countries and supplies the global reserve currency, among other things. It is thus questionable whether the US position is replicable by any other country, and in this way constitutes a usable benchmark, especially for small countries.

**Figure 2.2   Per capita income relative to USA, 1970–2012**
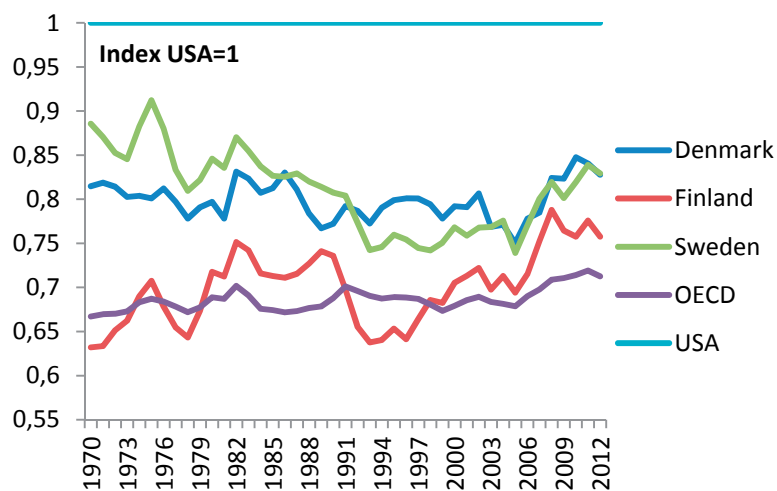
Note: Income measured as GDP per capita, current prices, current PPP. For Norway there is a clear
upward trend due to the petro-sector, and for this reason Norway is not included in the figure.
Data source: Based on data from www.oecd-ilibrary.org.

It is beyond the scope of this paper to provide a detailed discussion
of the determinants of production and income levels. For the
following discussion it is useful to note the importance of two
factors in determining per capita income, namely hourly
productivity and per capita labour input.[7] Figure 2.3 displays
combinations of productivity and labour input for OECD
countries. It also shows by the line the combinations of
productivity and labour input yielding the same per capita income
as in the US (so-called isoquants). The Nordic countries (except
Norway, due to the petroleum sector) fall short of the US both in
terms of productivity and labour input.

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[7] Per capita income Y/P is equal to the product of hourly productivity Y/(HE) and per
capita labour input in hours HE/P, where Y is income, P population size, H working hours,
and E employment.

**Figure 2.3   Per capita income, productivity and labour input, OECD countries 2012**
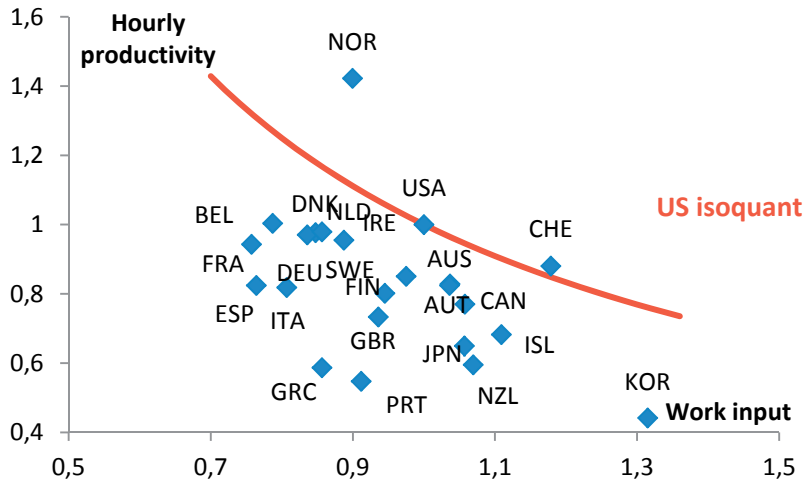
Note: Hourly productivity measured as GDP at current prices and PPP relative to average hours actually worked, and work input is total hours worked (average hours actually worked times civilian employment) relative to total population. All variables are measured relative to US values, and the US-isoquant gives combinations of work input and productivity leading to the same per capita income as in the US. Norway is in an outlier position since petro activities are included in GDP.

Source: Computed based on data from www.oecd-ilibrary.org.

Total labour input can be split along the intensive (hours) and extensive margin (number of persons). In comparative perspective working hours are low, but labour force participation is high in the Nordic countries. Figure 2.4 illustrates the age dependent employment rates, and it is seen that they are among the highest within the OECD, especially for the age group 30–60. One important reason for this is a high female labour force participation rate. It is thus an important point that the Nordic countries have been more successful in supporting labour along the extensive than along the intensive dimension, an issue discussed further below.

Figure 2.4   Age dependent employment rates, 2012
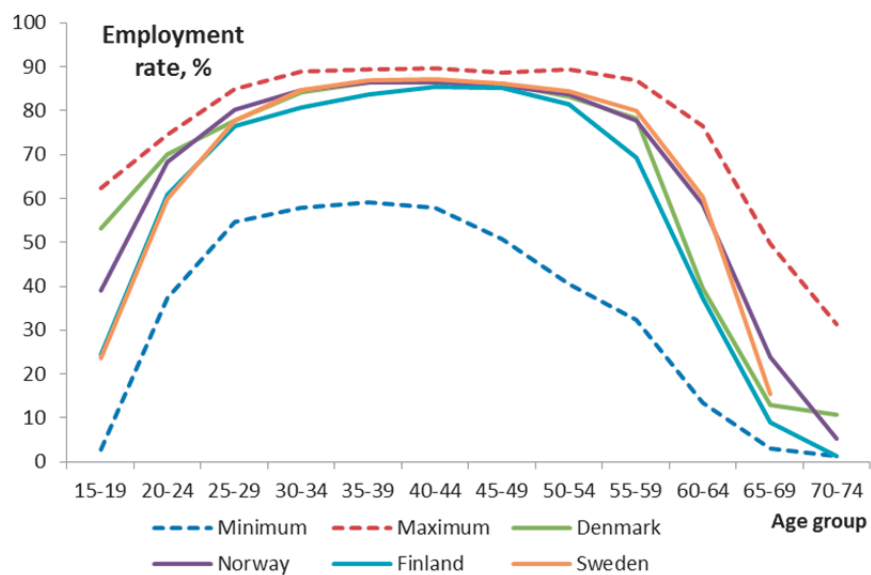
Note: Employment to population rate for both sexes. Minimum is the lowest employment rate for the given age group among OECD countries, and Maximum is the highest employment rate for the given age group among OECD countries.

Data source: Based on data from www.oecd-ilibrary.org.

3   Welfare state characteristics

An extended welfare state as in Sweden and the other Nordic countries has been known under the name of the Scandinavian or Nordic welfare model. Esping-Andersen (1990) launched a widely used welfare state typology where the Nordic model is associated with universal social rights to all; that is, eligibility to welfare arrangements is individual and independent of contributions as well as social status.[8]

As a prelude, first a remark on terminology and measurements. In the public discourse the terms public sector, welfare state and welfare society are often used interchangeably. The term welfare state may be deceptive since it tends to associate all welfare arrangements with the public sector. This is misleading since in particular labour market institutions are also important (see e.g. Barth and Moene (2013)). It is beyond the scope of this paper to discuss labour market institutions.[9] With this caveat the terms welfare state and public sector are used interchangeably in the following. It should be noted that there are significant measurement issues pertaining to the public sector and in cross-

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[8] This model differs from the liberal or residual model relying more on market solutions leaving the state in a more marginal role, and the continental role where entitlements are related to status and the family plays a larger role. The classification proposed by Esping-Andersen (1990) has been contested on various grounds, but it remains useful to identify some key properties. There is a large political science and sociological literature on welfare regimes in general and the Nordic model in particular, see also e.g. Korpi and Palme (1998), Rothstein (1995).

[9] This is associated with a compressed wage structure but also wage setting institutions with a clear focus on the importance of wage competitiveness for small and open economies. This is also related to what is sometimes dubbed a "consensus tradition" where solutions are sought with the social partners on important issues in relation to business and labour market conditions. Political discourse is thus less partisan than in many other countries, perhaps a reflection of the historic legacy of being small and open countries in fierce international competition.

country comparisons. They are discussed in some detail in Appendix.

The welfare arrangements rest on two pillars, namely the social safety net offering income support to people unable to support themselves and provision of basic welfare services like education, health and care. Important premises are that the social safety net should offer decent living standards to those incapable of supporting themselves, and that the welfare services provided should meet the reasonable requirements of most people. The publicly provided services are not a second-rate solution only used by those who cannot afford otherwise. They are to be used by all and to be of contemporaneous standards (see e.g. Andersen et al. (2014) for a further discussion). The welfare arrangements are financed via various forms of taxes. The Nordic welfare state can thus be characterized by individual entitlements and collective financing in the sense that entitlements are for all independently of financial contributions to the welfare state.[10]

The growth of the public sector is largely concentrated to the 1950s and 1970s. In the mid-1950s the tax burden in the Nordic countries was at about the same level as in the US, see Figure 3.1. Since the 1980s the size of the public sector measured by the expenditure share or tax burden relative to GDP has been more stable, cf. Figure 3.1, which may be interpreted as the welfare state has become mature.[11] The expansion of the public sector can roughly be divided in two phases. First, public expenditures and thus provision of welfare services rose driven by improvements in education, health care etc., and second the social safety net was expanded and expenditures increased (also driven by the crisis in the 1970s).

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[10] This is the basic principle, but there are important exceptions. E.g. unemployment insurance which has membership fees, and pensions related to previous earnings. In addition there are residence requirements for public pensions.

[11] Based on overall expenditure or revenue shares, the size or extent of the public sector has been steady for three to four decades. Views on retrenchment of the welfare state or expansion alongside globalization have not been vindicated.

Figure 3.1   Total tax revenue as a share of GDP, 1955–2012
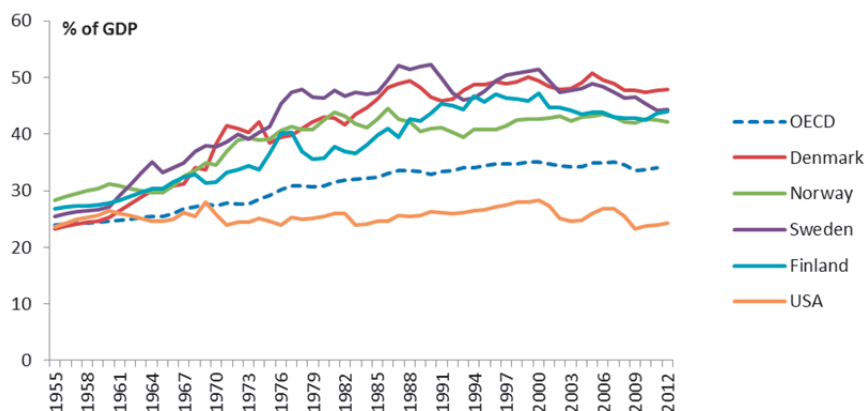
Data source: 1955-65 OECD Revenue Statistics 2007, 1965–2012 www.oecd-ilibrary.org.

Despite the concept of a Nordic model, a careful study of policies in the Nordic countries reveals some striking differences.[12] First, there are no unique approaches or solutions adopted in the Nordic countries, the key policy instruments do not in any significant way differ from those applied in other countries. It is not the ingredients, but the packaging which makes a difference. Second, there are notable differences among the Nordic countries in the specific policy design of welfare policies and their financing.[13] As an example, Denmark and Sweden have chosen very different paths in the design of pension systems.[14] Unemployment insurance is voluntary in Denmark, Finland and Sweden, but mandatory in Norway. While tax burdens are high in the Nordic countries (except for Iceland), the tax structure differs with Denmark having the larger share of tax revenue accruing from direct income taxes and value added tax, while e.g. Sweden raises much more tax

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[12] In terms of welfare arrangements Finland is usually considered a latecomer in the "Nordic welfare model", and Iceland has, at least before the financial crisis, explicitly stated that it is not opting for the Nordic model (see Gylfason (2015)). In recent years Norway has become an outlier due to the large importance of oil revenues.

[13] In terms of monetary regimes the Nordic countries feature the whole span from floating exchange rates with inflation targeting (Iceland, Norway and Sweden), fixed exchange rates (Denmark) and membership of the European and Monetary Union (Finland).

[14] Sweden has adopted a so-called notional defined contribution scheme where benefit entitlements are proportional to contributions during working-life, while Denmark has a system combining tax financed pensions with defined contribution labour market pensions.

revenue from social contributions, cf. Figure 3.2. These differences in specific policy designs underline the point that the package matters more than the specific ingredients. It further implies that the naïve "copy and paste" perspective often taken in comparative policy discussions focusing on a single or few policy instruments is misleading since it overlooks the complementarities between the different policy elements. The Nordic model should not be defined or assessed in terms of specific policy instruments, what matters is the overarching objectives. They have remained stable over time, but the specific policies/instruments to reach them differ across time and countries.

Figure 3.2 Tax structure, OECD countries, 2011
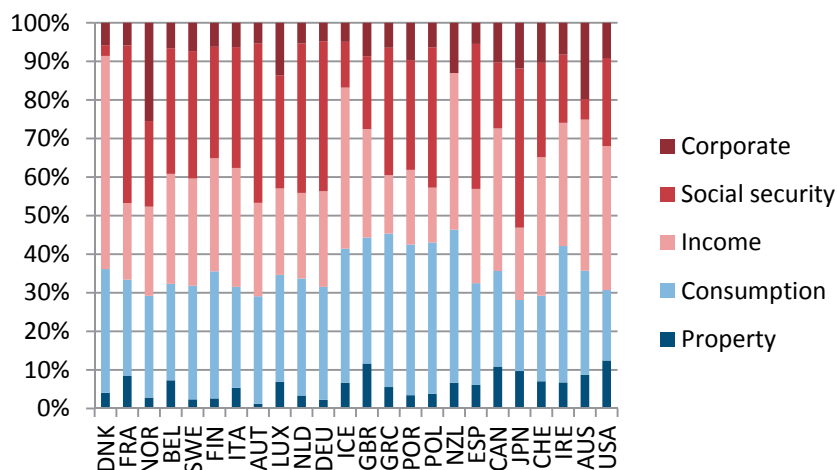
Note: Revenue from different revenue sources as a percent of total public tax revenue. Countries are ordered from highest to lowest gross tax burden.
Source: www-oecd-ilibrary.org.

As noted the welfare state rests on two important pillars in the public sector, namely the social safety net and the provision of welfare services. Figure 3.2 shows the total public expenditures on these two pillars. Consider first the social safety net. There are several important points to be made. Social transfers in the Nordic countries are often portrayed as being very generous.[15] This is a

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[15] The average replacement of various social transfers has declined in recent years in Sweden, see Bengtson et al. (2014) and Socialförsäkringsutredningen (2012).

statement which needs to be carefully qualified. Considering e.g. the average replacement rate for unemployment benefits for the average worker, it is not particularly high in the Nordic countries compared to the OECD average (see e.g. Andersen and Svarer (2007)). However, for low income groups the replacement rate is high. This property carries over to the social safety net in general; that is, the compensation offered to groups with low income and/or marginal attachment to the labour market as well as lack of work capability is high in a comparative perspective, see e.g. Hansen (2004). While the system has some universal traits in the sense that eligibility is an individual right independent of contributions[16] and status, it is important to point out that the social safety net in all the Nordic countries has means testing. It is not a passive system equivalent to a "demo-grant" system. It is also an explicit condition for entitlement that one is not able to support oneself. Importantly the social safety net also features a number of conditionalities as part of the eligibility criteria. These are known as the active labour market policies and include requirements on active job search, participation in educational programmes, job training etc. The active labour market policy has the dual purpose of enhancing qualifications and employability as well as strengthening job search incentives, see Section 6.4.

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[16] As already noted there are exemptions to this in e.g. the unemployment insurance scheme.

Figure 3.3   The social safety net and public consumption
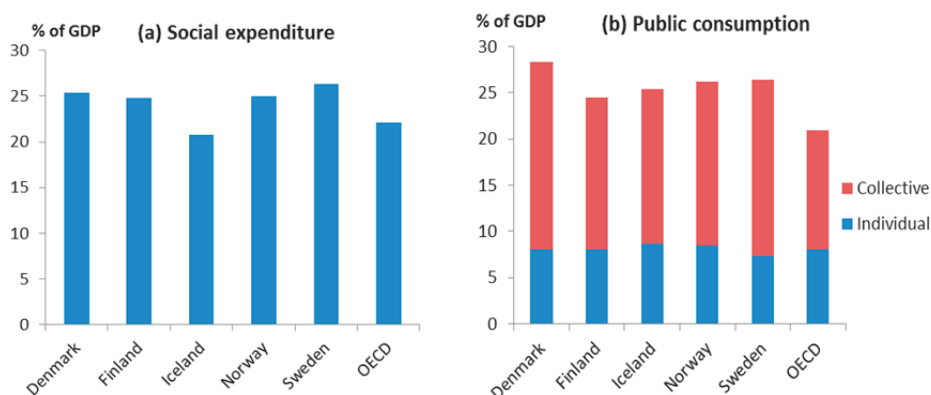
Note: a) Include all forms of social transfers, care etc. For Norway as a share of mainland GDP. b)
Public consumption as a share of GDP split between individual and collective public expenditure.
Data applies to 2011. For Norway as a share of mainland GDP.
Source: www.OECDilibrary.org

Turning next to public consumption (see Figure 3.3 part b), there
is an important distinction between collective and individualized
expenditures. The former refers to classic public sector activities
like administration, policy, legal system, military etc. The latter
refers to solutions offered directly to individuals and which in
principle could be offered by the market[17], the family or the civil
society (public provision of private goods). The main items are so-
called welfare services like education, health, and child and old age
care. What makes the Nordic countries stand out is the extensive
provision of welfare services, cf. Figure 3.3b. These expenditures
constitute about 2/3 of total public consumption. Importantly,
they are provided on a universal principle since they are available to
all and financed collectively via taxes.[18] Moreover, since access is
based on universalism, service provision contributes to
redistribution and equality beyond what is captured by standard
income measures. The effect is significant as seen from Figure 3.4
showing both the standard Gini coefficient defined over disposable
income (also used in Figure 2.1 above) and the Gini coefficient

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[17] Market imperfections may be one reason why they are provided by the public sector, cf.
below.
[18] There may be some user charges. This applies in particular to child-care.

when including the value of services received from the public sector (the logic being that this would be equivalent to an income transfer of the same amount).[19] For all OECD countries public provision of services contributes to a reduction in inequality; that is, there is a progressive element in welfare provision. The proportional reduction in inequality is larger in the Nordic countries than in other countries (reduction in the case of Sweden is 23 percent, while in the US it is 18 percent) showing that significant redistribution is taking place via public provision of services.

Figure 3.4   Redistribution via services, 2007
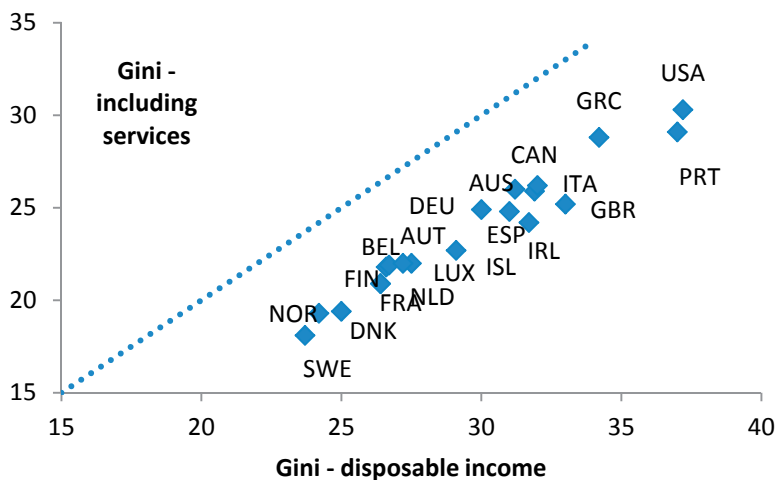
Note: The Gini-disposable income is the Gini coefficient measured over equivalent disposable income (standard measure), and the Gini-including series is the Gini coefficient when adding the value of service use to disposable incomes. The dotted line is the 45-degree line.
Source: OECD(2011b).

Public expenditures also differ across a different dimension in how they affect economic performance. At some simplification a distinction may be made between active and passive expenditure, where the former has a direct impact on employment and income in opposition to the latter. An example of an active expenditure may be education while a passive expenditure would be e.g.

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[19] For a detailed analysis for Sweden see Andersson et al. (2012), and for Norway see Aaberge et al. (2010).

pensions. Clearly there may be good welfare reasons to have so-called passive expenditure, but in understanding how the size and composition of the public sector interact with economic performance the distinction is important (and is discussed further below). A stylized decomposition of public expenditures in active and passive expenditures is made in Figure 3.5. The Nordic countries have a high spending level, but also a high level of active spending. This strongly suggests that the composition of the public sector is as important as its composition in relation to economic performance.

**Figure 3.5   Total and active public spending, OECD countries 2011**
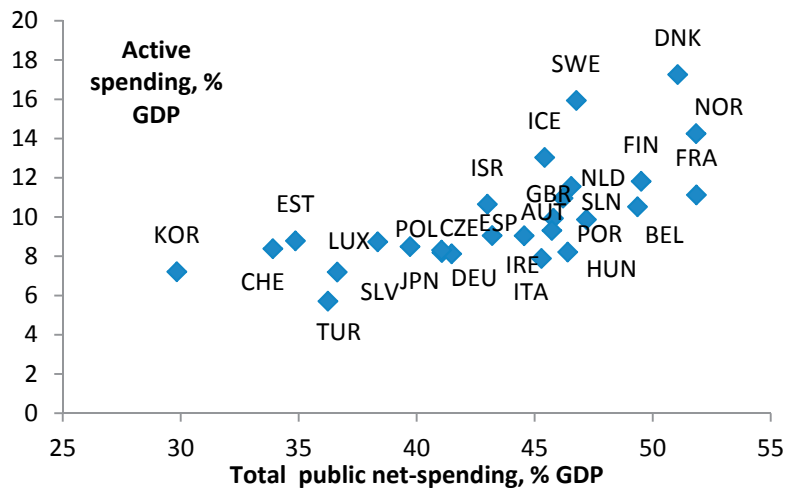
Note: Active expenditures include education, health expenditures for persons below the age of 60, child and old age care and active labour market policies. Expenditures are made comparable by correcting for the tax treatment of social transfers, cf. Appendix. Own calculations based on data from www.OECD-ilibrary.org.

The welfare state is often portrayed as a "from cradle to grave" model. This is captured in Figure 3.6 based on data for Norway, Sweden and Denmark. The figure shows the average net-transfers from the welfare state to the individual at different ages. In net terms the welfare state is to the benefit of the young and the old, while the working-age population on average is the contributors ensuring the financial balance of the model. This pattern is also found for other countries, but clearly the amplitude increases with the extent of the welfare state, see Andersen and Bhattacharya

(2015). This property of the welfare state is important for economic performance and is discussed in more detail in Section 4.2.

Figure 3.6   Age dependent net-transfers between the individual and the welfare state – Denmark, Norway and Sweden, 2009
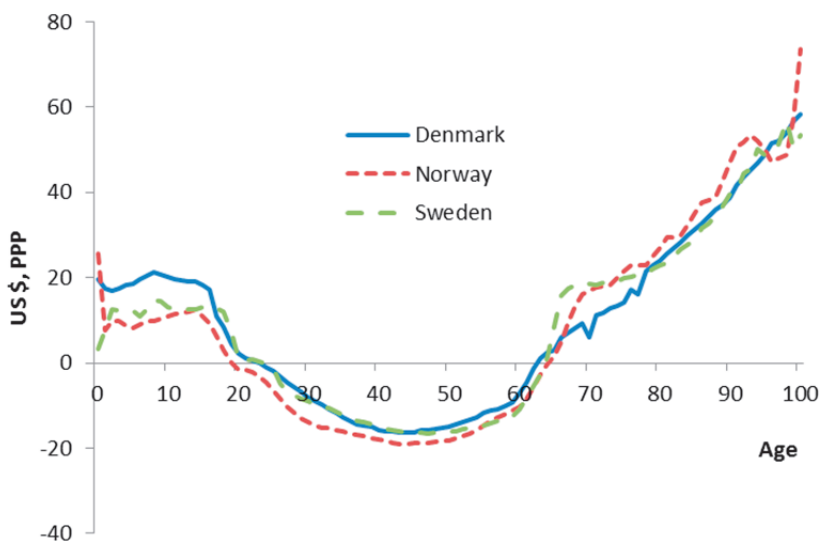
Note: The net transfer is defined as the difference between the value of various services and transfers received and tax payments for an average person at given ages. Non-individualized expenditures are distributed equally over all individuals. Data for Denmark and Norway applies to 2009, and for Sweden 2008. Swedish data is adjusted for wage increases in 2009, and data is presented in USD using OECD PPP adjusted exchange rates. Units of 1.000 USD.

Data source: Danish Economic Council (2012), Norwegian Ministry of Finance (2011), Swedish Ministry of Finance (2011) and www.oecd.org.

Figure 3.6 also brings out why the welfare model is an "employment model" and relies on a higher labour force participation of those in the work age group, cf. Figure 2.4. With an extended welfare state a decrease in employment has wide public financial implications due to the double budget effect released by larger expenditures on the social safety net and reduced tax revenue.[20] Since the welfare state is extended, this effect is large. Unless the (private) employment rate is high, it will be difficult to

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[20] Swedish Fiscal Policy Council (2008) shows how public finances are affected by transitions between employment and various social transfers.

ensure the financial viability of the model. This is seen clearly from Figure 3.7 giving the sensitivity of the budget to a one percentage change in private employment.

**Figure 3.7   Budget sensitivity to variations in private employment**
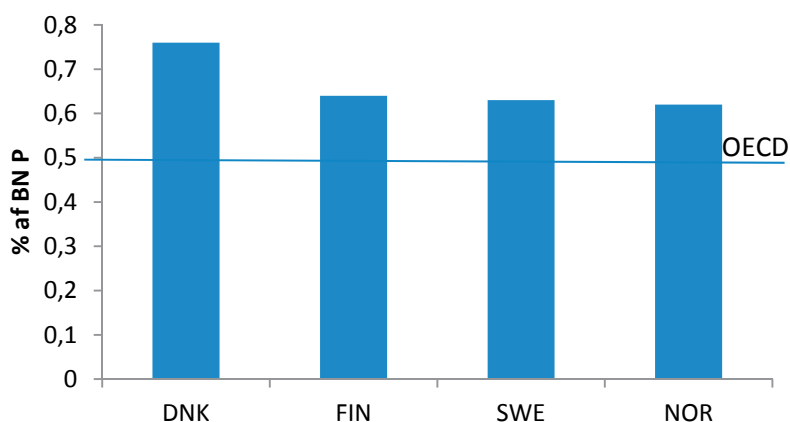
Note: The figure shows the one-year budget effect measured relative to GDP of a decrease in employment of one percent. Horizontal line gives the OECD average.
Source: OECD (2011) Employment Outlook.

Given the large public sector and the organized labour markets, it is often claimed that Nordic countries are semi-socialist countries adopting "policies against markets". This is not an accurate description of the private sector and therefore of what in economics jargon may be termed product markets. Fairly liberal policies have been pursued, and state intervention in the form of state-owned companies and the like has not played a large role in comparative perspective. The Nordic countries are better characterized as following a social-liberal model with a liberal private sector and extensive social objectives catered for through labour market institutions and the public sector. Figure 3.8 shows an index of product market regulation and intervention for OECD countries. For a large group of countries the differences in the index are small. Denmark and Finland belongs to a group of countries with relatively low product market regulation, while Norway and Sweden belong to a group of countries with a medium index value. The Nordic countries do not stand out as having a particular less liberal private sector than other OECD countries.

This also holds historically, although the Nordic countries have followed the common trend towards deregulation of product markets.

Figure 3.8   OECD index for product market regulation, 2013
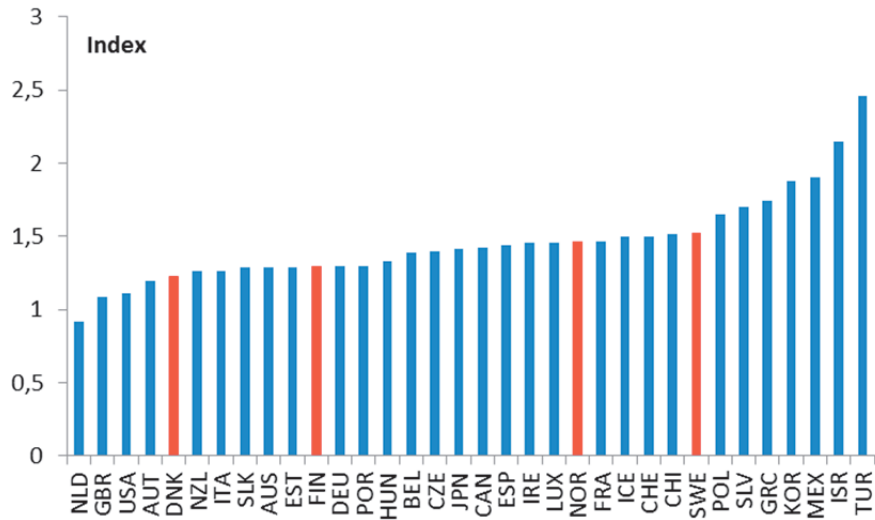
Not: Data for USA applies to 2008.
Source: OECD Product Market Regulation Index, www.oecd-ilibrary.org
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4 Welfare state arrangements and economic performance

A distinctive feature of the Swedish and thus Nordic model is the extent of service provision and the implied strong life-cycle pattern in net-contributions to the welfare state, cf. Figure 3.6. While it is difficult to imagine a welfare state where there is no such pattern, the amplitude and thus the extent of the shifting of resources and options across the life-cycle is much stronger in the Nordic countries than in other countries (see e.g. Andersen and Bhattacharya, 2015). This section considers the implication of tax financed service provision for economic performance at the macro-level, that is, employment and income/growth. To set the scene, the section starts with a brief recapitulation of how the tax-expenditure nexus affects economic performance in standard models and then turns to some key reasons why this does not fully capture all effects. This section also includes empirical evidence on how both the size and composition of the public sector affect economic performance measured by economic growth.

4.1 Preliminaries – Basic theory insights

It is useful to start by a short overview of the implications of taxes for economic performance. When discussing taxation and distortions two issues are often confused, namely whether taxes lead to a distortion and the precise way in which tax rates affect labour supply and, hence, employment, wages etc. Tax financing has a common pool property inducing a wedge between private and social returns; that is, private after tax returns unambiguously fall short of the social before tax returns. In the context of labour supply this implies that the individually chosen level of labour

supply unambiguously falls short of the social optimal level. This captures the common pool problem that e.g. a labour supply changes release effects which the individual does not take into account in its decision. The individual looks at the after tax reward for work, while the implications for tax revenue are disregarded. The latter does not rely on irrationality, but on the fact that there is no relationship between the individual tax payment and entitlement to welfare services. From the society´s perspective these implications for tax revenue should also be taken into account, hence the individual underestimates the return to e.g. work.

The next question is how individual labour supply responds to a change in e.g. the labour income tax rate. This is a much more complicated question, and often theory leaves an ambiguous answer. The standard approach to answering how labour supply responds to a tax change is based on the textbook model of individual labour supply where counteracting income and substitution effects are identified as crucial. A higher tax reduces the reward from work (the substitution effect) tending to lower labour supply, while the higher tax reduces disposable income inducing the individual to work more (the income effect). These two effects go in different directions, and hence there is an ambiguity in the answer to how a tax change affects labour supply. Empirical evidence does, however, find that the substitution effect tends to dominate.[21]

While this is an important basic insight, it is often overlooked that this setting assumes that the tax is financing something which does not have any behavioural consequences for the individual by affecting for instance marginal utilities of private consumption or work. But this may be misleading when taxes are financing welfare services like health or day care. In short the labour supply responses in equilibrium cannot be assessed independently of what the taxes are financing.

This is illustrated in Figure 4.1 considering three different cases distinguished by whether the tax is financing i) a lump sum transfer

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[21] See e.g. Hausman (1985). For empirical evidence see e.g. Evers et al. (2005) and Meghir and Phillips (2008).

to all[22], ii) a public sector activity which does not affect marginal utilities of individuals, or iii) a public activity like day care affecting the marginal utility of leisure (active spending). As is seen the effects are very different. When the tax finances a lump-sum transfer to all citizens, the income effect is neutralized and only the substitution effect is at play. If the tax finances a general public activity which has no influence on individual decision making[23], the counteracting income and substitution effects determine the outcome. As discussed below, a large share of public consumption is individual in nature, implying that this case poorly represents the workings of the welfare state.

Figure 4.1   Employment and taxes
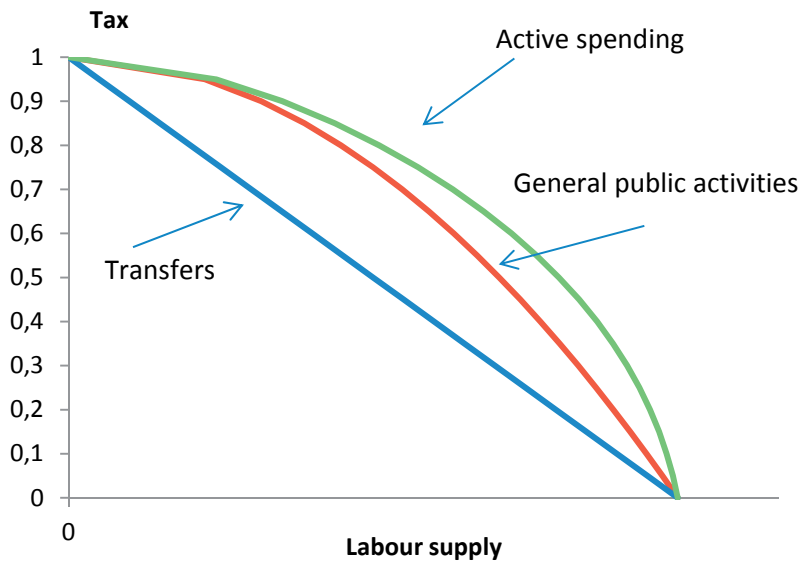
Note: Numerical illustration based on simple textbook model of labour supply where a proportional income tax either finances transfers, general public activities or active spending reducing the marginal disutility from work. General public activities are defined by not affecting marginal utilities from consumption or leisure.

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[22] When tax revenue is handed back as a lump-sum transfer to all individuals, only the substitution effect is released. An expansion of this system will lead to a higher tax, and thus unambiguously a lower labour supply.

[23] Usually modelled by separable preferences where the utility derived from general public activities is additively separable to utility derived from private activities. As noted below this is a poor approximation of a large part of public activities.

If public spending affects individual decision making, there are additional effects, and some tax financed activities may boost labour supply or imply a non-monotone response to the tax rate. As a case in point, the expansion of public day care and old age care facilities in the Scandinavian countries are often mentioned as preconditions for the increase in female labour force participation rates (see e.g. Rosen, 1996).[24] It can also be interpreted in the sense that economies of scale in child and old age care are exploited, which makes it possible in net terms to expand labour supply[25] and therefore strengthen the financial basis of the welfare model. The public provision of child care has also been motivated in terms of learning and socialization as well as gender implications by shifting a traditional task for which women have traditionally been mainly responsible out of the family sphere. The arrangements help account for the fact that female labour force participation rates in the Scandinavian countries are high in international comparisons. Likewise health activities may have an effect on labour supply.

This underlines the point that statements on the effects of taxes on labour supply and employment cannot meaningfully be made without taking into account what the taxes are financing. It also points out that care has to be exerted in interpreting estimates of labour supply elasticities. If the estimates do not explicitly account for what taxes are financing, the estimates implicitly reflect how tax revenue historically has been spent on various purposes (see also Section 4.3. below). These estimates may be misleading when used to evaluate the effect of tax changes financing a different composition of public activities. Evidence on the marginal effect of changes in taxes – other things being equal – is useful for some purposes, but not when addressing the big question of taxes and economic performance in a cross-country perspective. In short, theoretical work on labour supply distortions is often misused in policy advice, and empirical evidence on labour supply elasticities may be highly problematic inputs to evaluations of policy.

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[24] And a reason why fertility rates are relatively high in the Nordic countries.
[25] Jaumotte (2004) finds that policies which stimulate female participation include a more neutral tax treatment of second earners (relative to single individuals), tax incentives to share market work between spouses, childcare subsidies, and paid parental leave.

4.2   The cradle-to-grave arrangement

The cradle-to-grave property of the welfare state depicted in Figure 3.4 is a core element of the welfare model. The design of the welfare state implies a clear age dependency in the net-contributions; that is, the average person is a net beneficiary when young and old and a net contributor when in the working age group. This arrangement is in its nature Pay-As-You-Go (PAYG); that is, the net contributions of those in the working age group[26] cover the expenditures to the young and old.[27] This inter-dependence may be termed a social or implicit contract across generations embedded in the welfare state.[28] The traditional family responsibilities of the parents to take care of their children and their own parents have been institutionalized in the welfare state. Is there any efficiency gains associated with this arrangement, or does it only serve a capital market purpose?

To answer this question it is useful to start by considering the expected present value of the net transfer received by a newborn. In this case the net-contributions shown in Figure 3.6 are weighted by the survival probabilities, and the present value is computed under various assumptions on the discount rate, cf. Table 4.1. A newborn Swede has an expected present value of net benefits from the arrangement equal to 700 000 SEK or more.[29,30] Simple intuition would have that such a gain should not be possible. If newborns are net-beneficiaries receiving more than they are contributing in expected present values terms, how can the welfare arrangement be financially viable? Actually it is, as can be seen from assessment of fiscal sustainability (Finansdepartementet, 2014).

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[26] The larger share of revenue financing the welfare state accrues from the direct or indirect taxation of earnings while in the work age group, cf. Table 6. Some taxation may be delayed, e.g. taxation of consumption.

[27] Clearly the system does not have a strict balanced budget constraint, and deficits/debts are possible. However, the nature of the system is PAYG.

[28] There is an issue of political support for this contract which has been addressed in a large literature, see e.g. Rangel (2003) and Kaganovich and Zilcha (2012).

[29] Similar computations for Denmark show that the expected net present values of the net benefitsfor a newborn are about 400 000 DKK, see Andersen and Bhattacharya (2015).

[30] This is of the same orders of magnitude as found in generational accounting analyses, see Haigst et al. (2012).

Table 4.1 **Expected net present value of social contract, newborn, Sweden 2008**

Discount rate	Expected net present value, 1.000 SEK
2	731
3	773
4	835

Note: The relevant discount rate is the growth corrected real rate of interest. Computed based on population forecasts from Statistics Sweden and age-dependent net contributions to the public sector from Finansdepartementet (2011). The number should be interpreted as the expected present value of net contributions of an average newborn in 2008 with survival probabilities as in the forecast and the present welfare arrangements.

To explain these findings consider a very stylized case where the population is stripped down to consist of two age groups only, labelled young and old, respectively. Each period young are born, and the old disease. Make the two groups equal in size, implying that the population size is constant. Assume that each young contributes 100 SEK in taxes, and all old receive a pension of 100 SEK. Clearly the budget balances, the PAYG constraint is met, and the system is financially viable. The present value of net transfers for a newborn is -100+100/(1+r)<0 for any discount rate r>0; i.e. in present value terms the newborn will be a net contributor for any positive discount rate. If instead each young receives education of value 100 SEK when young paid by taxes of 100 SEK levied on the old, the present value of the net transfers received is 100-100/(1+r)>0 for r>0; i.e. the individual is a net beneficiary from the system in present value terms for any discount rate. This simple example brings out two important points, namely i) even under a strict PAYG condition ensuring financial viability of the system, the present value of net contributions/transfers of a newborn can be different from zero[31], ii) if the present value of the net contribution is negative, cf. Table 4.1, it suggests that the implicit contract is front loaded; i.e. the net-benefits received early in life matter more than those received later in life.

The front-loading of the social contract is crucial. Consider Figure 4.2 which gives a very stylized version of the social contract in Figure 3.6 to point out that it can be interpreted as being composed of two contracts, a forward and a backward (implicit)

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[31] Clearly the reverse does not hold. A non-negative expected present value of net transfers need not be consistent with a balanced budget.

contract. By forward is understood that something is received before contributing, and oppositely for the backward contract. The forward contract thus has a borrowing element, while the backward contract has a savings element. The social contract implied by the Swedish welfare model includes both the forward and the backward contract, c.f. Figure 3.6. The computations reported in Table 4.1 show that the forward part of the contract is dominating.

Figure 4.2   The elements of the social contract
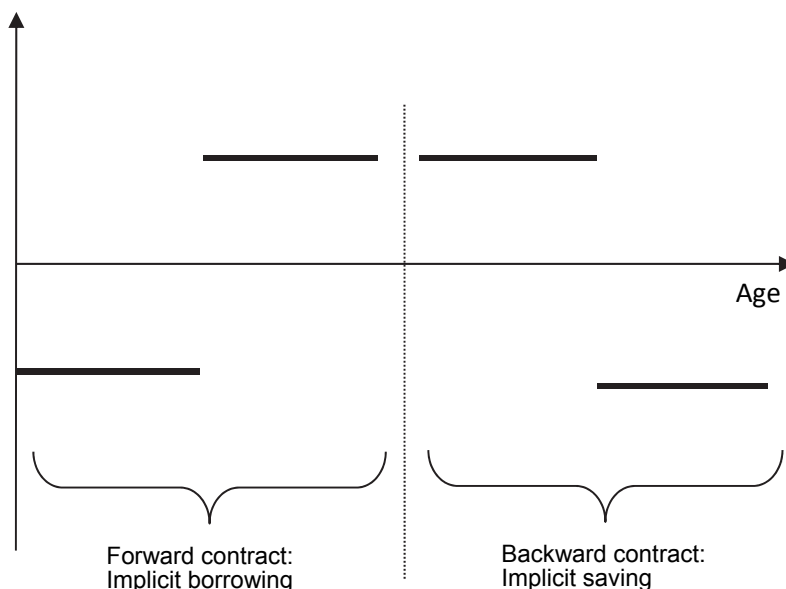
The fact that the social contract can be seen as a combination of a borrowing and a savings element is sometimes interpreted in the sense that the welfare state is basically performing a capital market function shifting resources over the life-cycle. This interpretation raises two questions, namely whether there are imperfections in the capital markets justifying public intervention, and whether there are any systematic return differences between the PAYG system and capital markets. These two arguments are considered in turn.

An important contribution by Boldrin and Montes (2005) demonstrated that the social contract can overcome capital market imperfections. If capital markets are incomplete, perhaps in the

extreme form of not making borrowing possible at all, then clearly educational investments are suboptimal. Boldrin and Montes (2005) showed that an implicit contract where the young receive education, the middle-aged pay taxes while the old receive a pension can replicate the allocation arising under complete capital markets.[32] The reason why both education and pension should be in the package is that introduction of tax financed education would benefit inaugural generations receiving education but would harm the first generations financing this (paying taxes but receiving no education). To ensure that no cohort is made worse off by the investment in education, the middle-aged tax payers can be compensated by a pension when old (to be paid by the then middle-aged having received public education), and thus be made indifferent to the introduction of the implicit contract of the welfare state. This is a striking result. An implicit welfare contract including both education and pension overcomes market failures and can be implemented without making any cohorts worse off and some better off and thereby release long-run gains. An immediate corollary is that an economy with such a contract obviously has a larger public sector, but also higher output due to the higher investments in education.

An obvious comment to this finding is that while capital markets may have been very incomplete historically, it is less clear that this is so today. This seems to diminish the gains from the social contract. Moreover, if there are problems in financing education, it may seem more obvious to address this problem directly (e.g. state guaranteed borrowing arrangements) rather than via a complex social contract.[33] Finally and crucially, while the result by Boldrin and Montes (2005) is striking, it does not fully capture the essence of the welfare state. The social or implicit contract in Boldrin and Montes (2005) has a zero present value to the newborn, stressing that it serves a capital market function only. But as shown above the actual social contract in Sweden has a positive expected present value of net transfers, suggesting that the contract is doing more than replacing missing capital markets.

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[32] For a discussion of how this result depends on the source of capital market imperfections, see Andalfatto and Gervais (2006) and Wang (2013).

[33] Note the difference to the discussion on welfare accounts which usually focuses only on the savings (and insurance) aspect, see e.g. Bovenberg, Hansen and Sørensen (2008).

To explore this further, note first a well-known result in the economics of pensions. The implicit return in a PAYG arrangement is basically the growth of the wage sum.[34,35] In a dynamically efficient economy this return is below the market return. An immediate implication is that implicit saving in a PAYG arrangement has a lower return than explicit savings in the market. Therefore public PAYG pensions are return dominated by funded pensions.[36] This implies that PAYG public pensions lower long-term welfare.[37]Turning this argument on its head, it implies that implicit borrowing in a PAYG arrangement takes place at a lower return than explicit borrowing in the market. This suggests that the forward part of the implicit contract is potentially welfare improving, while the backward part is not[38] (for a formal demonstration see Andersen and Bhattacharya, 2015).

In economies with finitely lived agents, the market allocation (even in the absence of market failures) does not reach the Golden Rule allocation (or modified Golden Rule) where steady state utility is maximized, see e.g. Blanchard and Fischer (1989). The capital stock is too low; that is, savings are not sufficiently high. Finitely lived agents do not take into account the future welfare gains a higher capital stock will induce. This result generalizes when considering not only investments in real capital but also other forms of investments like human capital or health. The sub-optimal levels of investment potentially leave a room for public intervention to move the economy closer to the Golden Rule, that is, to increase long-run or steady state welfare. This holds even if capital markets are perfect and public and private activities in e.g. education and health are perfect substitutes, implying that the public activities on a one-to-one basis crowd out private activities

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[34] The revenue base is in reality somewhat broader, but this does not change the thrust of the argument.

[35] The Swedish Pension system is also build around this principle, since the growth of the wage sum is the basis for regulation of the income pension.

[36] This is the well-known Aaron (1966) result and underlies arguments for transition from PAYG to a funded pension system, see e.g. Feldstein (1995).

[37] This result may be modified taking into account non-diversifiable risk as well as distributional concerns.

[38] This is a fundamental issue in pension reforms. The Swedish pension reform ensures that the system can cope with demographic changes and align pension to labour income (consumption smoothing), but it is effectively a PAYG system and thus return dominated by a funded system. A shift to a funded system would, however, create a transition problem.

(see Andersen and Bhattacharya (2014) for the case of health). This is thus a qualitatively different argument than when public intervention is rationalized in overcoming market failures. It is pivotal that public intervention leads to a higher level of education or health investments than in the laissez-faire situation where it is sub-optimal. Steady state welfare improvements are associated with the forward part of the contract, and thus the fact that borrowing in the PAYG system takes place at a lower return than in the market. It is an implication of this, that public intervention and thus a larger public sector may be associated with higher output and consumption. Public intervention may move the economy closer to the Golden Rule allocation even when markets are complete but agents have finite horizons.

Notice an important difference between the forward and backward contract. The backward contract is easy to implement since some inaugural generation benefits without having to contribute, and oppositely for the forward contract. Releasing the potential long-run gains from the forward part of the contract may be associated with losses to current generations. Therefore the backward contract may play a crucial role in implementation since it can be used to compensate those financing the first increments in public investments. In Andersen and Bhattacharya (2015) it is shown that it may be possible to propose policy packages which release long-term improvements in welfare moving beyond the laissez-faire under the demanding constraint that no cohorts are worse off than in the absence of the intervention. These packages include both the forward and the backward parts, but it is an implication that the backward part can be phased out eventually. Crucial for this implementation result is the presence of some externality from education or health which produces sufficient gains to compensate for the higher taxes needed to finance the investments.

The nature of the cradle-to-grave model is thus not only that it redistributes across the life-cycle and in this way performs a capital market function. This role is important in itself, but in addition it may release gains from investments in the young which are not feasible even under complete private markets. Welfare state arrangements may in this way be associated with welfare gains, and

this helps explain why countries with extended welfare states display favourable economic performance indicators.

4.3   Empirical evidence on public sector size and growth

What is the impact of the public sector (size and structure) on the composition, level and growth rate of economic activity? A controversial question[39] with obvious policy implications.

The preceding discussion brings forth the complexity between the size and structure of the public sector and economic performance. Taxes distort incentives[40], but public activities may through various routes overcome market failures or in other ways improve economic performance. Ultimately it is an empirical question how these various effects interact. There is a vast empirical literature exploring how the public sector size and its composition affect economic performance usually captured either by per capita income levels or growth rates. Growth effects imply level effects, but not vice versa. Therefore growth effects are potentially of much larger potential effects since they accumulate over time.

The level versus growth divide is mirrored in the difference between *exogenous* and *endogenous* growth models. In exogenous growth models population growth and technological progress determine the growth rate. Fiscal policy may via various channels affect the level and composition of economic activity, but in general not the growth rate (of course it may affect population growth and technological growth, but this is usually taken to be of secondary importance). In *endogenous growth* models policy may affect growth rates. The endogenous growth models stress external effects and spillovers, implying that factors of production which can be accumulated (e.g. physical and human capital) are not displaying decreasing returns to scale. If policy affects the accumulation of these factors of production, they affect growth

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[39] See the exchange between Fölster and Henrekson (1999) and Agell, Lindh and Ohlsson (1999) as well as between Korpi (2004) and Håkanson and Lindbeck (2005).
[40] In some cases this is desirable e.g. in relation to environmental regulation, withso-called Pigou taxes addressing various forms of market failures.

rates. Obvious examples include public investments in infrastructure which may increase the marginal product of private capital, and therefore release the endogenous growth mechanism (see Agénor (2008)). A similar mechanism may be generated via human capital (Barro (1990) and Barro and Sala-i-Martin (1992)). Since the public sector is heavily involved in the accumulation of human capital via education, it follows that the public sector size and structure may matter for growth rates (for a survey see e.g. Zagler and Dürnecker (2003)). The effects of policy may be direct via e.g. human capital or infrastructure which enters the production function, but also indirect via influences on factor markets (labour supply) and thus accumulation of various forms of capital. These effects have to be weighed against the distortionary effects of the taxes financing these activities. Both the level and structure of government expenditures are thus of importance. This opens for a variety of channels through which public sector activities can affect growth rates in the upward or downward direction both from the expenditure and revenue side.

This reasoning suggests a distinction between active/productive and passive/non-productive expenditures, cf. Figure 3.5, and distortionary and non-distortionary forms of revenue. In the simple form productive expenditures enter directly into the production function, while non-productive expenditures do not. Distortionary forms of taxation affects savings-investment decisions, while non-distortionary do not (see e.g. Barro (1990)). While the distinction between the two forms of expenditures and revenues helps explaining the mechanisms, it is often blurred since it is model-specific and it is ultimately an empirical question[41]. Still it makes the point that one cannot make inference on how economic performance depends on the public sector from aggregate measures of revenues and expenditures. The composition of both sides of the budget matters. Productive expenditures[42] may thus enhance growth if they are financed by non-distortionary

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[41] Under some assumptions e.g. consumption taxes may be inconsequential for growth, in others they are not (see e.g. Zagler and Dürnecker (2003)).

[42] In empirical work (see e.g. Kneller et al. (1999), Bleaney et al. (2011) and Gemmell et al. (2011)) productive expenditures include general public expenditures, defence, education, health, housing, transport and communication. Distortionary taxation includes taxes on income and profit, social security contributions, payroll taxes and taxation of property.

taxes, and distortionary taxes reduce growth if they are financing non-productive investments, cf. Table 4.2. If productive expenditures are financed by distortionary taxes, a non-linear relation may arise where growth is at first increasing and later decreasing in the level of productive expenditures. The reason is that the initial marginal impact of such expenditures may be large, while the distortions are increasing in the tax level. This produces a so-called "growth hill", see e.g. Bania, Gray and Stone (2007).

Notice the observational equivalence between this distinction and the forward/backward distinction pertaining to the implicit social contract. The front-loaded expenditures like education and parts of health expenditures are examples of active or productive expenditures, while e.g. pensions belong to the passive or non-productive expenditures. Whether the empirical findings are to be interpreted as reflecting a growth effect or a static efficiency gain is open to debate.

Table 4.2   Growth effects of public expenditures and revenues

		Expenditures	
		Productive	Non Productive
Taxation	Distortionary	Ambiguous – possible non-linear effect (Growth hill)	Growth retarding
	Non-distortionary	Growth enhancing	Growth neutral

The empirical challenge is formidable. The basic question is how the entire economy performs given the size and composition of public activities. Clearly this depends on a vast amount of other factors characterising the economy and its institutions. Microeconometric evidence is thus not directly relevant since it addresses partial questions; that is, if some tax or expenditure is changed given that all other aspects of the public sector are unchanged. The question here is a systemic or general equilibrium question on how the entire economy would perform in a hypothetical other situation with a different size or composition of the public sector. The literature therefore resorts to cross-country studies in an attempt to make inference from variation in performance and public sector structure across countries. This requires that it is possible to control for all other factors beyond

the public sector structure which may explain cross-country differences. Something which is very hard in empirical work, and the result should thus be interpreted with caution. More specific empirical issues are discussed below.

There is a vast literature exploring the empirical relationship between fiscal policy and economic growth. A first wave of analyses peaking in the late 1990s relied mainly on cross-country studies. The studies did not leave clear-cut results, and in a meta-study based on close to 100 published studies exploring the implications of the size of the public sector for growth Nijkamp and Poot (2004, p. 93) concluded that "we find broad support for the view that the empirical evidence on the effect of conventional fiscal policies is rather fragile, although the commonly identified importance of education and infrastructure is confirmed". These studies suffered from a number of methodological problems (see e.g. Bergh and Henrekson (2011)).

Recent empirical work on these issues have made two important advances in the form of panel studies and building more explicitly on the hypothesis advanced by endogenous growth models. The latter implied that expenditures and revenues are disaggregated rather than focusing on the importance of the size of government measured either by total revenues or expenditures.

A particularly severe problem is that regressions often do not take proper account of the public sector budget constraint, which implies that the interpretation of coefficient estimates is at best unclear and often confused. Regressions often include either some aggregate measure (public expenditures or tax burden) or some specific components of the two. However, these various components are related via the budget constraint, and a change in an expenditure component has to be matched by a change in a revenue component (or debt accumulation/decumulation).[43] Since the mode of financing is critical (see also below), it follows that the effect of say a change in expenditures cannot be assessed

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[43] One may think of the budget constraint as stipulating equality between revenues and expenditures (long-run constraint) or including a budget balance item allowing for debt (de)accumulation. The latter approach is often pursued but is not unproblematic since it leaves unclear the debt level to which the economy may be converging or how future adjustments of the fiscal policy will be.

independently of how they are financed (Helms, 1985).[44] At best a regression where output growth is made to depend on an aggregate expenditure or revenue measure tells us something about how a proportional scaling of all expenditures would affect growth if it is financed by a proportional scaling of all revenue components. Therefore regressions that do not take the budget constraint explicitly into account are hard to interpret (Bleaney et al., 1999).

There are some studies which i) utilize panel estimation methods (pooled mean group analyses), ii) disaggregate expenditures and revenues, and which iii) explicitly take into account the public sector budget constraint summarized in Table 4.3. It is seen that in accordance with the classification in Table 4.1, distortionary taxation reduces growth while productive expenditure enhances growth. There is thus empirical evidence supporting that the composition of both expenditures and revenues matter for growth. This may explain why the earlier literature obtained less conclusive results. If e.g. expansions of the public sector in the form of productive expenditures have been financed by distortionary taxation, one would tend to find a negligible net effect on observed growth rates, see e.g. Gemmell et al. (2011).

It is an issue whether the estimated effects are small or large. It should be noted that a change in the growth rate from say 2 to 2.3 percent may seem small, but after 50 years GDP has increased by factor 2.69 in the first case and 3.12 in the latter. Small differences accumulate and get large. It also points to a problem of interpreting empirical estimates since imprecision in estimates can have potential long-run effects.

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[44] A regression including as independent variables all public revenue and expenditure entries suffers from a multicollinearity problem since revenue minus expenditure equals the budget balance. This problem can be solved by leaving out one fiscal variable (say unproductive expenditures,) and hence the interpretation of the coefficients to the remaining fiscal variables is the growth effects of a change in the variable in question financed by a change in the left out variable.

Table 4.3   **Empirical studies – composition of public sector expenditures and revenues and growth**

Study	Sample and method	Fiscal policy measures	Results[1]
Kneller, R., M.F. Bleaney, and N. Gemmell (1999)	22 OECD countries 1970-1995 Static panel model (5-year averages)	Expenditures and revenues in % of GDP per capita Various decompositions	Growth effect: Distortionary taxation = -0.41 Productive expenditures = 0.27
Bleaney, M., N. Gemmell, and R. Kneller (2001)	17 OECD countries 1970-1995 Dynamic panel model (annual data)	Expenditures and revenues in % of GDP per capita Various decompositions	Growth effect: Distortionary taxation = -0.41 Productive expenditures = 0.39
Bania, N., J.A. Gray and J.A. Stone (2007)	49 US states 1962-97 Non-linear dynamic panel model (5-year intervals)	Expenditures and revenues in % of total personal income per capita	Growth effect for personal income: Distortionary taxation: Level = 1.71 Squared = -0.03 Top point of growth tax curve for tax ratio = 29% Non-productive expenditures = -0.78 Financed by productive expenditures
Gemmell, N., R. Kneller and I. Sanz (2011)	17 OECD countries 1970-2004 Pooled mean group regression (annual data)	Expenditures and revenues in % of GDP Various decompositions	Growth effect: Distortionary taxation = -0.25 Productive expenditures = 0.26
Arnold et al. (2011)	21 OECD countries 1971-2004 Pooled mean group regression (annual data)	Tax measured by share of tax revenue Various decompositions of tax instruments	Long-run elasticities of per capita GDP wrt. income tax = -0.98 Financed by revenue neutral adjustment of consumption and property taxes
Gemmell, N., R. Kneller and I. Sanz (2013)	15(12) OECD countries 1980-2004 Pooled mean group regression (annual data)	Estimated average tax rates and statutory rates	Growth effect of statutory tax rates: Cooperate tax rate = -0.02 Top personal income tax rate = -0.06 financed by non-productive expenditures

Note: The respective authors' preferred regression is reported. Results are for the case where financing is via non-productive expenditures, non-distortionary taxation unless otherwise stated. The table gives coefficient estimates significant at conventional levels. A pooled mean group regression has an error-correction form and allows for country-specific short-run effects and differences in dynamics, but imposes the same long-run coefficients in the long-run relation (this restriction is tested).

Using the same methodology[45], some studies have considered the more specific role of various forms of taxation. Arnold et al. (2011) consider the effects of various taxes on per capita GDP for a given overall tax burden (see also Arnold (2008)). The long-run elasticity of per capita GDP to an increase in income taxes compensated by reduced consumption and property taxes is close to -1, showing that the tax structure matters for GDP levels in the long run.[46] A shift from income taxes to consumption and property taxes for an unchanged overall tax revenue will thus have a sizeable positive effect on GDP. In Arnold et al. (2011) the following ranking of various taxes in terms of GDP levels in the long run is made: Corporate income taxes have the strongest adverse effect, followed by personal income taxes. Consumption taxes have less negative effects, while property taxes and in particular recurrent taxes on immovable property appear to be the least harmful!

Gemmell et al. (2013) raise the point that studies using revenue shares (typically relative to GDP or the relevant tax base) may not capture the actual tax rates precisely, and definitely not the difference between average and marginal tax rates. They find robust evidence that increases in marginal rates of personal income taxes as measured by the top rate and (less robustly) the average labour tax rate is associated with adverse long-run growth outcomes. The macro average taxes – on consumption, labour and especially capital – generally appear to be less robustly associated with GDP or productivity growth than the micro-based marginal tax rates on personal and corporate income. They do not find any harmful long-run growth effects from increases in (average) consumption taxes. Notice that these studies consider tax reforms for unchanged tax burdens and thus expenditures (level and composition) in an attempt to isolate the tax distortions from other effects of public sector activities.

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[45] A different methodological approach is taken by Yagan (2013) exploiting a 2003 reform in the US of dividend tax in a quasi-experimental design. This study does not find any evidence that the tax cut affected corporate investments.

[46] It should be noted that their estimation includes various control variables including physical capital, human capital and population growth. The long-run elasticity of per-capita GDP is in all estimations significant and above one.

Regressions where output growth is related to various fiscal variables (and other control variables) suffer from a number of problems:

A crucial question is one of causality. There are two major problems or sources of endogeneity. Over the business cycle expenditures tend to be counter-cyclical and revenues pro-cyclical. Lower growth is thus associated with a higher expenditure share and a lower revenue share. Estimations which do not properly filter out business cycle fluctuations may thus have a downward bias in the assessment of the growth impact of expenditures, and vice versa for taxes. In the medium to long run, expenditures may be driven by so-called Wagner effects; that is, growth in income increases the demand for public activities, implying a positive relationship between growth on the one hand and expenditures and revenues on the other (tending to make expenditures appear to improve growth).

Somewhat surprisingly, none of the studies referred to above address measurement issues in relation to the public sector and GDP, in particular in cross-country studies.[47] As argued in Appendix, there are reasons why expansion of public sector activities may enhance GDP simply from the fact that activities are shifted from the non-market sphere into the market sphere and thus become included in GDP. Over time national account procedures for imputing the value of activities in the public sector may on the other hand imply that registered GDP growth is lower, the larger the share of activities conducted in the private sector.

Finally, there is the issue of whether empirical evidence of the form summarized in Table 4.3 yields support to endogenous growth mechanisms. The results in the papers summarized in Table 4.3 may be taken to suggest that there are endogenous growth mechanisms at work. However, even though growth effects are found, the sample periods underlying the estimations are rather short. It follows that it may be very difficult to separate transitional dynamics from long-run or steady state effects. It is well known that exogenous growth models imply transitional

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[47] An early study by Mofidi and Stone (1990) considers the effects of fiscal policy variables on private investments and employment. They find that taxes financing transfers reduce investment and employment, and expenditures financed by taxes are growth neutral. See also Arnold et al. (2011).

dynamics released by policy changes (see e.g. Turnovsky (2004)), and the interrelationship captured in the studies referred to above may capture this rather than the steady state effects associated with endogenous growth. While the early enthusiasm about endogenous growth models was great, the hype has subsequently been less strong[48], and the empirical evidence is inconclusive on whether transitional dynamics or endogenous growth mechanisms have been uncovered.

Where does this take us in relation to the question on the relationship between the public sector (size and structure) and economic performance? Even if revenues and expenditures are disaggregated, they remain in most studies measured in a way that does not directly relate to specific policy instruments, and this makes the specific policy implications less clear. But the empirical evidence clearly underpins the point that unconditional statements on the relationship between the size of the public sector and economic performance are highly problematic from both a theoretical and empirical point of view. The role of taxes and expenditures depends on designs and purposes, and therefore a more disaggregated perspective is warranted. The composition of expenditures and revenues is essential, and this calls for a more careful consideration of public sector activities.

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[48] For a general assessment of endogenous growth models, see e.g. Jones (1995).

5   Inequality

The measures on economic performance considered above shed light on the income or wealth side of the efficiency-equity discussion, and the next step is thus the other side, inequality. The following focuses primarily on wage inequality, in particular problems for low income groups.[49]

Empirical work has explored the relationship between inequality and growth. A number of such studies find that more inequality is associated with lower growth (see e.g. Persson and Tabellini (1994) and Alesina and Rodrik (1994), and more recently Ostroy (2014)).These findings have been contested by work using panel methods on improved data sets (Li and Zou (1998) and Forbes (2000)). These studies find evidence of a positive relationship between inequality and growth.

Both inequality and growth are endogenous variables depending on economic structures, policies and institutions. It is thus possible that certain changes may make inequality and growth move in the same direction (positive correlation), while others make them move in opposite directions (negative correlation). It is therefore not straightforward how to interpret empirical results on the co-movement of inequality and growth. Even though some studies do attempt to control for various background variables, it is difficult to do so in a way allowing inference on causality from cross-country studies; cf. also discussion in association with Figure 2.1 above. In order to identify whether policies can reduce inequality

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[49] For more general discussions of inequality as well as the debate on the functional distribution of income initiated by the work of Piketty (2014) see Molander(2014) and Roine (2014).

and increase growth at the same time, it is discussed below how inequality can affect growth.[50]

It is a well-known fact that the distribution of wages and thus income has become more unequal in recent years; see e.g. OECD (2011b) and Atkinson et al. (2011). It is a trend which has been ongoing for two or three decades, and in some countries intensified by the Great Recession. Market forces are a main driver. Technological changes in combination[51] with globalization have affected labour markets and wage formation significantly. Moreover, policies have in some countries been changed in a less redistributional direction. This may follow from structural reforms aiming at strengthening the incentive structure or positioning countries differently on the trade-off between efficiency and equity.

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[50] There is also an important political economy literature exploring how inequality may affect growth. In a more unequal society, there is larger support for redistributive policies, which in turn leads to higher taxation and regulation harmful for economic growth (see e.g. Barro (1990), Persson and Tabellini (1994) and Alesina and Rodrik (1994)). Another explanation focuses on market imperfections, and they are presented and discussed below.
[51] It may be debated whether the economics profession has clearly worked out the effects of these reforms in the efficiency-equity space. E.g. most studies of unemployment insurance systems focus on the incentive effects. In particular in the light of the Great Recession it has been questioned whether the right balance has been achieved.

Figure 5.1   Employment rate for low skilled, OECD countries 2012
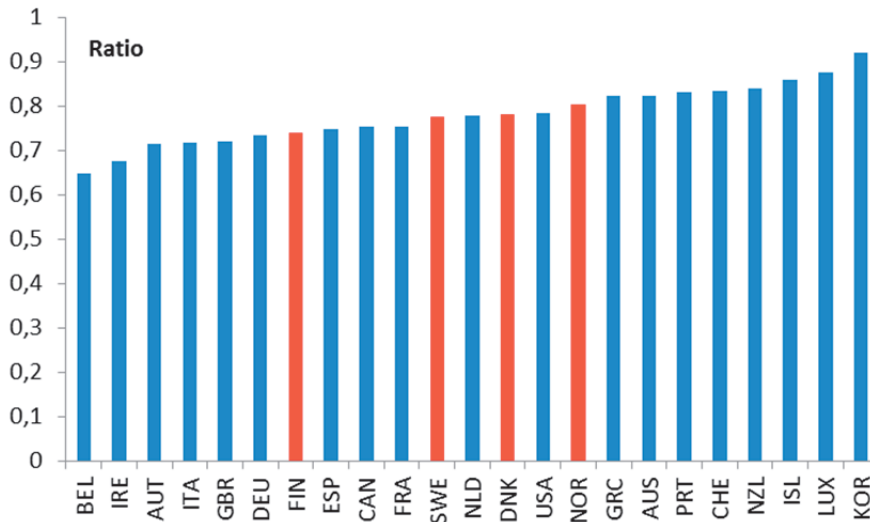
Note: Ratio of employment rate for individuals with highest level of education below upper secondary
education relative to employment rate for individuals with upper secondary or post-secondary non-
tertiary education.
Source: OECD (2014).

Skill-biases or educational divides have become clearer in recent
years. Much of the widening inequality is driven by increases at the
top and stagnating or even falling real wages at the bottom. In all
countries employment rates of low educated groups are falling
significantly short of the average employment rate, cf. Figure 5.1.
In most OECD countries about 1/5 of a cohort does not obtain an
education providing labour market relevant qualifications, and the
steady improvement in the qualifications of the labour forces has
halted for many countries, see Figure 5.2.

Figure 5.2 Educational achievement – Population with at least an upper secondary school education by age group, 2010
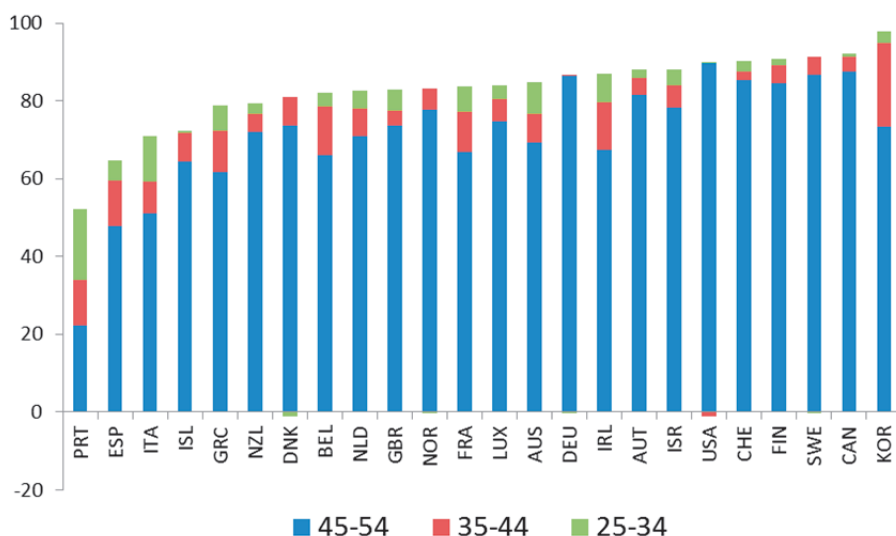
Source: OECD (2014).

5.1 Active and passive redistribution

The classical discussion of redistribution has its outset in the distribution of market incomes. Is the distribution fair and is there need for redistribution? However, the distribution of market income is endogenous and depends on labour demand and supply, and thus policies, most notably educational policies. Redistribution taking outset in realized marked incomes may thus be dubbed a passive redistribution policy, while educational policy in the broad sense of affecting the distribution of market incomes may be dubbed an active redistribution policy. Clearly these two approaches to redistribution have widely different implications both in the short run by targeting different groups and in the long run for the overall level of living standards and for public finances.

Cross-country evidence reveals an interesting link between the distribution of education, market incomes and disposable incomes. Countries with low inequality in disposable income also have a low inequality in the distribution of market incomes. And low inequality in market incomes is associated with low inequality in

education, cf. Figure 5.3. This does not imply that taxes and transfers do not play a role in redistribution[52], but it stresses that the basis for an equal income distribution rests on low inequality in market incomes, which in turns depends on low inequality in education. Put differently, active redistribution policies may be as important as passive redistribution policies in ensuring an equal income distribution.

Figure 5.3   Inequality – education and market income, OECD countries

Inequality education and market income   Inequality market and disposable income
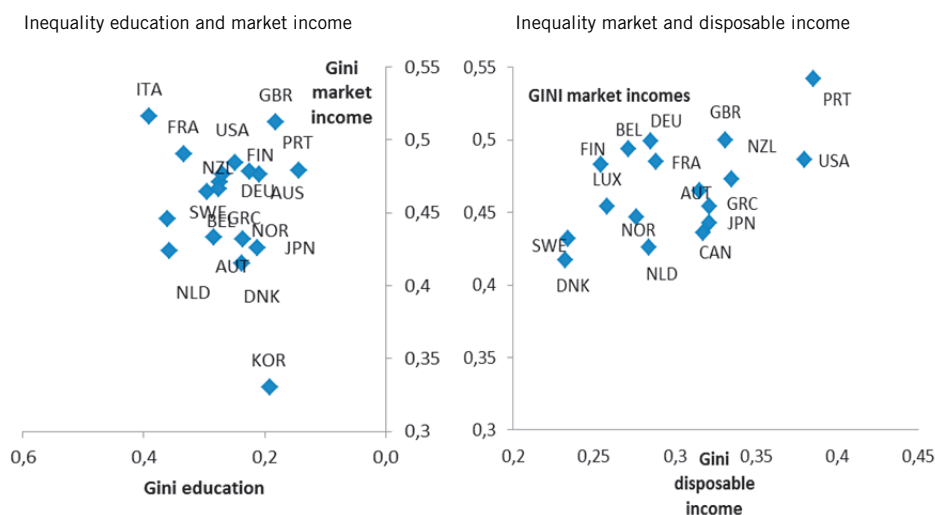
Note: Inequality in disposable income and market income measured by the Gini-coefficient. Inequality in education measured by the coefficient of variation for test of literacy and numeracy 2012 based on data from www.oecd-ilibrary.org and http://piaacdataexplorer.oecd.org.

This point is particularly important in countries with strong egalitarian preferences ruling out working-poor. This implies that the levels of social transfers and minimum wages are relatively high[53], which in turn implies a higher entry threshold in terms of qualifications to find a job. To ensure equal opportunities and to

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[52] Clearly, taxes affect the distribution of market incomes via tax distortions. It is e.g. possible that a more progressive taxation system leads to less inequality in market incomes because fewer have high incomes. However, it is in general ambiguous whether the inequality in market incomes is increasing or decreasing in the tax rate. It depends, among other things, on what determines the wage distribution and whether low/high wage groups react most to a tax change.

[53] In the Scandinavian countries minimum wages are determined in labour market negotiations. Clearly, the level is related to transfer levels offered in the social system.

make an egalitarian outcome consistent with a high employment level, it is thus a requirement that the qualification structure is reasonably compressed (avoiding a too large population share with low qualifications). Maintaining a compressed wage structure and a high employment level requires that the qualification structure is such that supply of low skilled labour is small. To put it differently, it is becoming increasingly difficult to obtain egalitarian outcomes passively, and an equal distribution of education (qualifications) is a prerequisite for egalitarian labour market outcomes (employment and wages). Trends in the labour market put increasing burdens on passive redistribution policies and thus the financial viability of this policy strategy. Accordingly the perspective in a strengthening of active redistribution policies.

Interpreting active redistribution policies in the perspective of the efficiency-equity trade-off also raises the possibility of making it possible to increase both efficiency and equity. This applies both when efficiency is interpreted in a static and dynamic sense. There is a large literature assessing the importance of education for employment and income at the individual level. The general findings (see e.g. OECD (2014)) are that education is associated with higher labour supply/employment (longer working hours, less unemployment, less absence due to sickness, later retirement) and a higher wage. Education is also associated with better health, longevity, social outcomes and participation in social and political activities (OECD, 2014). It is conceptually difficult to identify the causal links here, and there may be severe selection problems. However, some studies do find a causal link between education and health; see Conti, Heckman and Urzua (2010). Heckman et al. (2014) find that cognitive and socio-emotional skills are explaining labour market and social outcomes.

It is well known that human capital has an important role for growth and thus the level of income (see also Section 3). There is a large literature exploring the role between education and productivity increases, see e.g. de Fuente (2011) and Hanushek and Woessmann (2011). In a first wave of empirical studies, education was measured quantitatively by e.g. the share of population reaching certain educational levels defined in terms of length of studies. These studies found a positive, though not very large productivity effect of education. A more recent second wave has

included both quantitative and qualitative measures of education, and they find a stronger role for education in driving productivity growth, see Figure 5.4. Quality of education measured by various tests is at least as important as education measured quantitatively (years of education/level of education). It is particularly noteworthy that education for broad groups in the labour market is at least as important as for the elite, see Hanushek and Woessmann (2011). This suggests that educational policies may have important effects on both efficiency and equity.

Figure 5.4   Educational quality and productivity growth, OECD countries
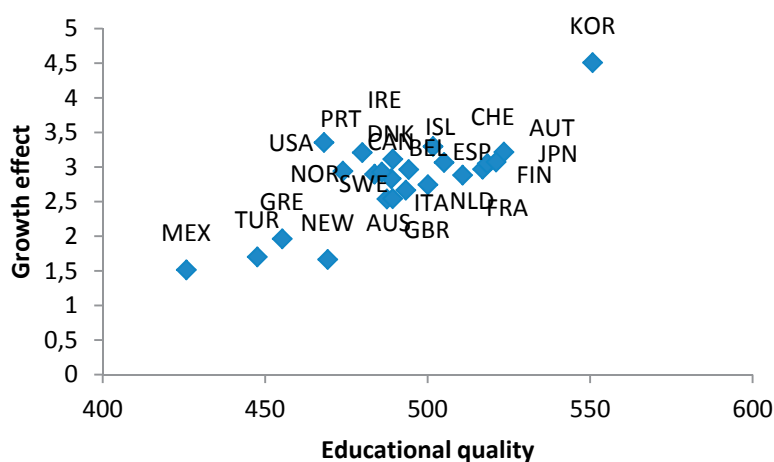
Note: The chart is an "added variable plot" based on a regression of growth over the period 1960-2000 on initial income and education both measured quantitatively (average length) and qualitatively (test results in math and natural sciences). All countries on which the regression is based are included in the figure.

Source: Hanushek and Woessmann (2011).

The wage distribution is formed via the interaction between labour demand and supply. All theories of the wage distribution attribute a role to relative supplies and demands.[54] If labour demand increases (decreases) for a particular type of labour, its relative position will improve (deteriorate). The development in the wage structure can be seen as the race between education and technology

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[54] It is also deeply ingrained in trade theory, cf. e.g. the Stolper-Samuelson theorem.

as exposed already by Tinbergen (1972).[55] Empirical work shows that the educational expansion during the 1960s and 1970s in a number of countries had an important effect on wage distributions. This debate has been revived in recent years due to widening wage inequality. Technological changes and globalization have been highlighted as the drivers of this development. Goldin and Katz (2009, p. 291) conclude that the "lion's share of rising wage inequality can be traced to an increasing educational wage differential". The traditional focus on the implications of skill-bias has recently been amended by the discussion of tasks and its implications for labour demand, see Autor and Acemoglu (2010). It is very difficult empirically to disentangle the contributions of different factors to increasing inequality. Technological changes and globalization are intertwined processes, and (de)regulation is undertaken in response to changes in the economic environment. OECD(2011) presents empirical evidence that globalization is less important than technological changes, but that policy changes like product market deregulation, lower unemployment benefit replacement ratios, declining tax wedges have contributed to the increase as well (see also Jaumotte, Lall and Papagerogiou (2013)).

The key distributional issues are illustrated in Figure 5.5 capturing the stylized facts given in Figure 5.3. The positive association between inequality in education and inequality in market income is given by relation A_0, and the one between inequality in market income and disposable income by relation B_0 (the redistribution line). With an initial distribution of qualifications $I_q(0)$, the distribution of disposable income becomes $I_d(0)$. Consider now changes in the labour market tending to increase inequality; the A_0 locus shifts to A_1. For an unchanged distribution of qualifications and redistribution mechanisms, the inequality in disposable income increases to $I_d(1)$. To restore the level of inequality in disposable income to its original level, $I_d(0)$, one would have to either make the system more redistributive (shifting the redistribution line from B_0 to B_1 entailing more passive redistribution) or change the distribution of qualifications

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[55] "The income distribution may then be derived from the distribution required and qualifications available. Income could become almost equal if there is no tension between the two distributions. People would not need to be of equal productive quality in order to attain this near-equality of incomes", Tinbergen (1972, p. 256).

to $I_q(1)$, i.e. more active distribution. Both active and passive redistribution[56] must be financed via taxes, which in turn affects both the level and distribution of market incomes. This raises questions on the relation between active and passive redistribution and the optimal use of the two instruments.

Figure 5.5   Inequality in qualifications, market income and disposable income
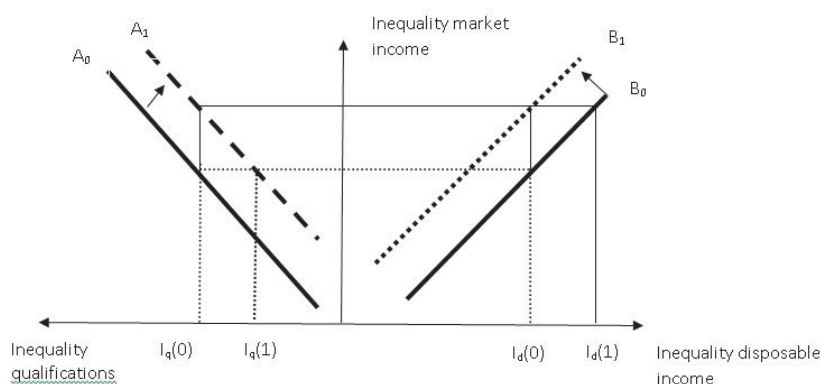
5.2   Public intervention in education

There is a large literature discussing public intervention in education motivated in capital market imperfections (see Section 4), externalities[57] (see Section 4) or risk (see Section 6 and e.g. Eaton and Rosen (1982)). It is beyond the scope of this paper to give a comprehensive overview, see e.g. Hanushek (2002), and the focus here is on the interaction between distributional aspects and education choices and how it relates to active vs. passive (re)distribution.

One strand of literature has considered how to allocate educational resources. This literature primarily considers

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[56] In the presence of risk, ex post redistribution also performs an ex ante role of providing insurance, see Section 6.

[57] Externalities give an obvious reason for public involvement in education, but are not directly related to the distributional issue discussed here.

educational choices along the intensive margin in a setting where agents differ in abilities. Arrow (1971) pointed to a regressive bias in the allocation of educational resources. If a given amount of educational resources are to be allocated across agents with different abilities, human capital production is maximized by allocating according to abilities under the assumption that the marginal human capital effect of a given educational input is increasing with abilities. From a human capital perspective, resources should be devoted to the more able, and passive redistribution should address the distributional aims (see also Hare and Ulph (1979)). Allowing for private education choices, Bovenberg and Jacobs (2005) and Jacobs (2012) argue that a government wanting to redistribute should also subsidize education. The argument being that the income tax financing redistribution distorts educational choices and this can be circumvented by educational subsidies.[58] While these are important findings, they do not directly address the issues raised here since they only focus on education along the intensive margin. The distributional issue pertains mainly to education along the extensive margin, that is, to increase the number of skilled/educated workers. Historically it has been a great achievement to increase the share of educated, but as discussed above significant problems remain.

5.3   Inequality and growth

Distributional aspects have a direct influence on educational choices in the presence of market failures. Even if agents have the same abilities and preferences, educational inequalities and path dependencies may arise when capital markets are incomplete.[59] A seminal contribution by Galor and Zeira (1993) considered an overlapping generations model with private financing of education

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[58] These studies assume that the government can commit. If the government has a commitment problem, it will ex post tax the return to education excessively, and this motivates educational subsidies, see e.g. Andersson and Konrad (2003).

[59] There is an analogy between the distribution of land and human capital. A more equal distribution of land is associated with economic development, and likewise for human capital. There is also the interrelationship between the two. For a discussion and references see e.g. Galor, Moav and Vollrath (2009).

in a setting where capital market imperfections are captured by the rate of return on borrowing exceeding the savings rate. Under this capital market structure, the initial wealth distribution, and thus the ability to self-finance education, becomes crucial. Agents able to self-finance education have a lower opportunity cost than those who have to borrow to finance education. In the specific model considered by Galor and Zeira (1993), financing capabilities depend on bequests, (altruistic parents) and thus the wealth of parents. Income and wealth depend on education, and this creates an intergenerational link in education and income. Low educated parents have low income and leave little bequest, implying that their children do not become educated, and oppositely for educated parents.[60] In this way the capital market imperfection implies a social stratification in educational choices and outcomes. The important policy implication is that the income/wealth distribution matters for educational choices and outcomes. This does not, however, imply that any form of passive transfers would strengthen educational possibilities for children from low income families. In the specific model considered by Galor and Zeira (1993), it is effectively assumed that increased transfers would directly affect the educational possibilities, but in a more general setting this is not necessarily the case. The transfers have to be directly targeted to the imperfection, the scope for financing education.

Historically, the scope for educational financing has clearly been of paramount importance. It is debatable whether it is presently the most binding constraint in Sweden and the other Nordic countries given the extensive public financing of education, implying that the direct economic costs of education are not as important as in countries with primarily private financing of education.[61] As already discussed in Section 4, the social contract in the welfare state can overcome capital market imperfections. However, this does not imply that there are no constraints on educational

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[60] In the original Galor and Zeira (1993) model agents either become educated or non-educated, and the economy converges to a steady state where children of non-educated are non-educated and vice versa for educated families; i.e. there is no social mobility in the long-run equilibrium.

[61] Educational choices can moreover be affected by myopia. For low-income families the opportunity costs of education in terms of foregone labour income may also be larger (since marginal utility of income is higher).

choices. Ample evidence shows that social background is important for educational attainment, and this gives a different rationale for public intervention than capital market imperfections.

The role of social gradients in educational options and choices is of a particular policy concern since it questions equality of opportunity in pursuing abilities and developing interests and motivation. Ensuring equal opportunities is an ethical value in itself, but may also have other effects. Equality of opportunity concerns both the formal access and entry possibilities into the educational system as well as the outcomes. When social and cultural capital matters, a removal of economic and formal barriers for entry into the educational system is not sufficient to create equal opportunities in outcomes. From an efficiency point of view it implies that the human capital potential in the population is not exploited as best as possible, or phrased by Halsey (1961) that there is an unused "pool of ability".

The social gradient in education is strong. While the precise mechanisms are debated there is ample empirical evidence that the social background of children and youth affect their educational attainment (entry and performance). To list a few key findings of importance for the following discussion:[62,63]

– The odds that young people will attend higher education are low if neither of the parents has completed higher education, and much higher if one of the parents has a higher education, OECD (2012).

– The barrier is not only economic, but cultural, and social capital matters critically (Holm and Jæger, 2007). Even for children with comparable performance in primary and lower-secondary school in terms of grades, there is a social gradient in educational choices (OECD, 2012).

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[62] See e.g. Holmlund et al. (2011) for an overview and discussion of various methods to separate the two. Among other things it is concluded that "...we think that all these twin, adoption, and IV finding suggest that schooling is in part responsible for the intergenerational schooling link: more educated parents get more educated children because of more education" (p. 626).

[63] Heckman has in a number of studies analysed the role of (early) intervention in overcoming social barriers for education, see e.g. Heckman and Mosso (2014) for an overview and references.

- Literacy and numeracy proficiency depend positively on parents' levels of education (OECD, 2014).

- Schooling has a substantially larger impact on preparing students from less-educated families to enter higher education. There is a link between inequalities in early schooling and the frequency of students from families with low levels of education enrolling in higher education, see Heckman and Mosso (2014).

- The advantage of having highly educated parents is smaller in countries with high educational levels, high overall quality of overall schooling, and large public involvement in education (smaller private costs) (OECD, 2012).

- Social mobility is lower in countries with higher income inequality, cf. Björklund and Jäntti (2009) and Corak (2013).

These findings suggest that education may be constrained by more than economic barriers (credit constraints) and this may be a reason for public intervention. The following considers this issue in some detail, both because it is of relevance in explaining the Nordic position, but also because it is highly relevant in a forward perspective. To clarify the mechanisms, focus is solely on social barriers to education. Clearly, personal characteristics and in particular abilities matter as well, but these aspects are disregarded to focus on the role of social barriers. The following is based on Andersen (2015).

Consider a standard overlapping generations setting where individuals live for two periods. As young, educational efforts are made to acquire education and become skilled as old. Individuals succeed in education and become skilled with a probability depending on both their educational input and their social background. Children with skilled parents have a higher chance of becoming skilled for a given educational input than children with unskilled parents. This captures key elements of the social factors outlined above. As young, agents can spend time studying or working as unskilled, and as old they work as skilled if succeeding in education and unskilled if non-educated. Education thus has an

opportunity cost in terms of foregone income as young.[64,65] Since children with skilled parents other things being equal have a better chance of succeeding in education, they invest more in education, and this tends to reinforce their chance of succeeding in the educational system and become skilled. Similarly, children with unskilled parents are less inclined to pursue and thus less likely to succeed education.

In equilibrium there is social mobility, but social status is reproduced in the sense that children with skilled parents are more likely to become skilled than children with unskilled parents and vice versa. There is a dynamic effect of a change in education. If more education inputs are invested, more will become skilled, which in turn affects future educational choices and thus the share of skilled. In this sense there is a virtuous circle in education.

This raises questions on the rationale and form of public intervention. Assume for the sake of argument that the public sector can offer educational inputs which are perfect substitutes to private education; i.e. the public sector does not have any options which are not available in the market. In the same vein it is assumed that public education is general and accessible to all at the same term (i.e. it is not targeted specific groups). As a first approximation, this may be said to characterise general public schooling and serves the purpose of not biasing the analysis towards public intervention. Under these assumptions public education will crowd out private education; however, crowding out is in general less than complete. Educational inputs will therefore in net terms increase. The reason is that more public education releases an income effect for the young, which in turn lowers their marginal utility of consumption and thus the opportunity costs of private education.

Suboptimal educational choices are in this setting caused by social barriers. There are no differences in abilities or capital market imperfections or the like impeding education. This suggests a possibility that the pool of abilities in the population is not

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[64] Hence, there is no up-front financing requirement to start education, and hence the capital market plays no role.
[65] Note that the educational decision is entirely driven by economic conditions. The choice sets are the same for all youth, but the "productivity" of their educational efforts differs due to social factors.

efficiently used. Is it possible that public intervention in a setting with social barriers for education can be Pareto improving? In Andersen (2015) it is shown that public intervention can be Pareto-improving. The condition is that public education increases total consumption possibilities in society. If this is the case, the gainers are able to compensate the losers. On pure efficiency grounds there may thus be an argument for public intervention. Social barriers are a market failure on par with capital market imperfections.

In Figure 5.6 the effect of an increase in public education is illustrated. The figure shows the effects on efficiency measured by aggregate living standards (consumption) and equity by its distribution for various levels of public education.[66] It is seen that the relation is hump-shaped. Starting from the laissez-faire situation, an increase in public consumption increases aggregate living standards and reduces inequality, but at some point living standards start declining while inequality keeps declining. The hump shape is interesting since it shows that public intervention over some interval does not raise a conflict between efficiency and equity. Keeping increasing public intervention would imply that a turning point is reached, and a conflict or trade-off arises. The curve is flat around the top-point, implying that some reduction in inequality is possible without a large change in average consumption. Note also that if social preferences are increasing in living standards and equality, it is optimal to be on the segment of the locus which displays a trade-off.

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[66] For details on the specific model assumptions, see Andersen (2015).

Figure 5.6   Income-equality locus – public investments in education
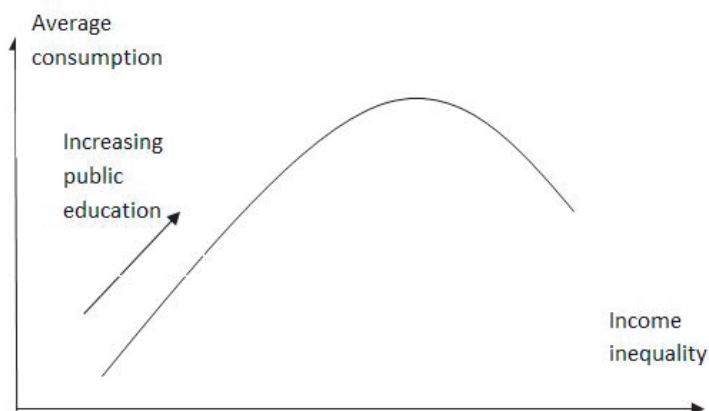
Note: Inequality measured as 100 minus the Gini-coefficient. Results from simulations reported in Andersen (2015).

Inequality in consumption creates a motive for redistribution. Skilled (old) will have higher income than unskilled (old). Consider a transfer scheme which provides income support to the unskilled old and which is financed by a tax on the skilled. This passive scheme is compared to an active scheme providing education to the young, and also financed by a tax on the skilled (old). The two forms of redistribution affect education differently. The active scheme increases education, while the passive scheme reduces education. On impact the passive scheme benefits the unskilled old, but over time it implies that the number of unskilled increases. The passive scheme distorts educational choices by lowering the gain from education. Oppositely, the active scheme does not on impact benefit the unskilled, but it reduces the share of unskilled over time.[67] These different dynamic implications are illustrated in Figure 5.7, which considers three different policy scenarios all starting from an initial situation without any public intervention (laissez-faire): passive redistribution, active redistribution and passive and active redistribution. It is seen that the share of skilled develops differently. Active redistribution has a

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[67] The present case assumes constant wages. If wages are endogenous, there is the additional effect that more skilled will tend to reduce the wages of skilled and increase the wages for unskilled, and therefore further reduce wage inequality.

tail wind by increasing the share of skilled, which further increases the number of skilled and reduces taxes, while passive transfer works in the opposite direction.

Figure 5.7   Dynamic adjustment of the share of skilled, active vs. passive redistribution
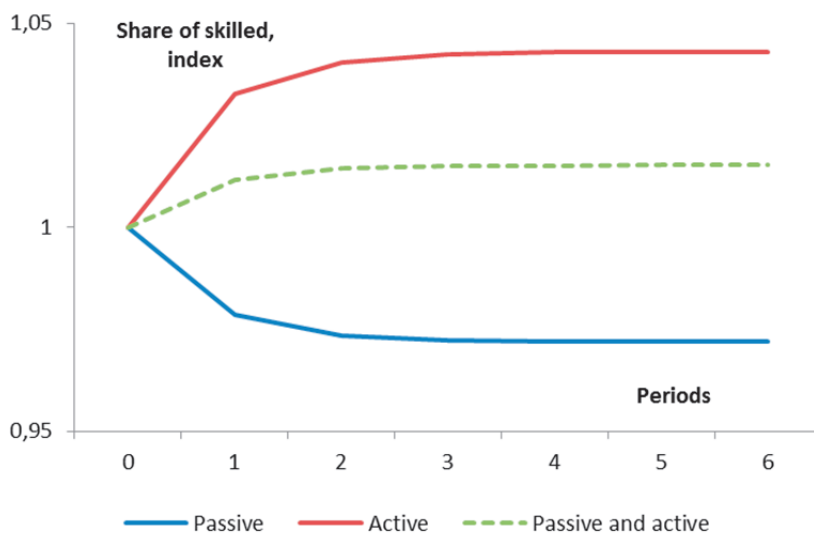
Note: Results from simulation reported in Andersen (2015).

If market forces increase wage dispersion, there is both a stronger incentive to educate but also a potentially greater need for passive redistribution. How should optimal policies respond to such a change? Clearly this depends on the social welfare function. To work out the response, the following assumes a utilitarian social welfare function and considers welfare in steady state. This particular social welfare function can be contested, but it is widely used in the literature, and hence it is a useful starting point from which to discuss how policies may respond to changes in market conditions. Both active and passive redistribution may expand when wage dispersion widens, and in this sense the public sector takes on a more pro-active role. Several effects are at play. First, private incentives to education increase since the wage gains become larger. Second, for the same reason the social gain to public education increases. Since private choices are suboptimal, optimal public education increases. Finally, the widening wage dispersion

increases the gain from passive redistribution. Specifically the marginal utility for the skilled declines (they get a higher wage and thus consumption) relative to the marginal utility for the unskilled, and this increases the gains from passive redistribution. Figure 5.5 illustrates the adjustment of transfers, public education and taxes under the optimal policy to widening wage dispersion between skilled and unskilled.

Figure 5.8   **Optimal policy responses to widening wage dispersion**
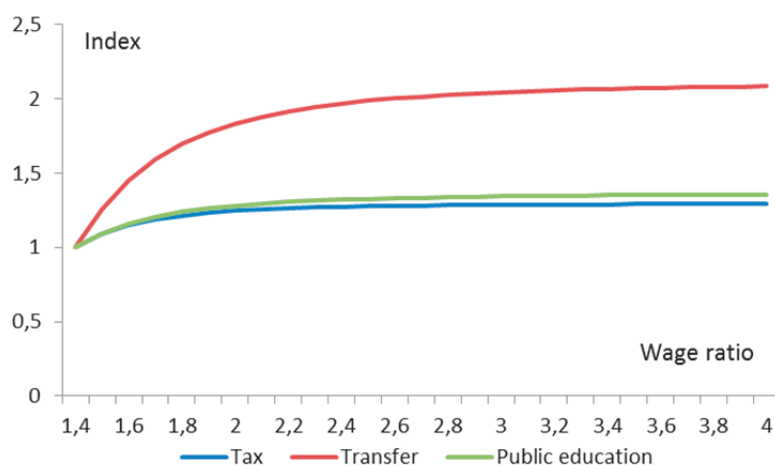
Note: Policies compared to optimal policies for low wage dispersion, i.e. index = 1 corresponds to policies for wage dispersion = 1.4. Wage dispersion is given as the ratio of wages for skilled to unskilled. Results from a simulation reported in Andersen (2015).

Finally, although the planner engages in more passive and active redistribution it is seen from Figure 5.9 that the net effect is an increase in inequality. Hence, the optimal policy response does not fully neutralize the effect on inequality from widening wage dispersion since that is costly. This leads to two general observations. First, neither active nor passive redistribution is costless; hence the larger need has to be weighed against the larger costs. Secondly, the precise response obviously depends on the social welfare function and how it trades-off efficiency against equity. However, with an unchanged social welfare function more inequality is inevitable, even despite the optimal policy response.

Figure 5.9   Widening wage dispersion and inequality - the role of policy
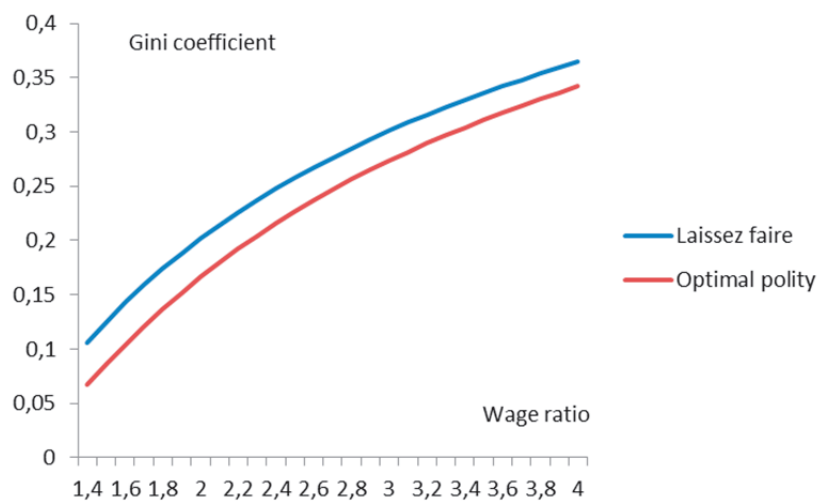
6 Risk sharing and economic performance

Turn next to the social safety net, the second pillar of the Nordic welfare model. Clearly it serves distributional objectives, but in the present context the question is which role it plays for economic performance. The possible negative incentive effects of the social safety net have been extensively analysed, but are there ways to mitigate those, and could insurance arrangements have positive effects on performance?

6.1 Social insurance

The discussion of social insurance has a strong focus on the adverse incentive effects of such insurance, in particular in the labour market leading to reduced labour supply, less job search, higher reservation wages etc. However, for a complete assessment it is important to take two interrelated points into account.

First, social insurance becomes of relevance due to market failures. Incomplete markets offer insufficient scope for risk diversification, and this can in various ways affect economic behaviour. This brings us outside the realm of the first welfare theorem, according to which competitive markets ensure a Pareto-efficient allocation which cannot be improved in the sense that some can be made better-off without others becoming worse off.[68] In this situation public intervention may be motivated purely on efficiency grounds if it can repair on some of the consequences of

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[68] Requires a complete set of contingent markets, cf. the Arrow-Debreu-model.

market failures and incompleteness. If so, public intervention does not necessarily involve a trade-off between efficiency and equity.

Second, important implicit or social insurance is implied by welfare arrangements. Welfare policies are redistributive deriving from society attending for the sick, those unable to work, those unable to find work etc. and financing these by taxes levied on those who are healthy, able to work and having a job. Such redistributive schemes also serve an insurance function. The redistribution interpretation of welfare arrangements refers to an ex-post situation; that is, when we know e.g. who are sick and healthy, we know who will receive from and who will contribute to the system. However, if there ex ante is some risk involved in determining the position one will have at a later point in time, the welfare scheme performs an insurance function. A given individual does not know whether he/she will become ill, but will know that if it happens, there is access to a public health care system and some income support etc.. Likewise if the ability to work is lost, there is a social safety net etc. Even tax payments include an insurance element since more taxes are paid if income turns out to be high, and less if it turns out to be low (the so-called Domar-Musgrave effect). Hence, seen from an ex-ante perspective, welfare arrangements provide insurance in relation to various possible social circumstances which may arise. It is an implication that it is not possible to make a sharp separation between redistribution and insurance.[69]

There are two main reasons why social insurance may accomplish something in terms of risk sharing which private markets cannot. One is the possibility of encompassing the entire population, which eliminates possible adverse selection problems well-known to be harmful to private insurance markets, see Rothschild and Stiglitz (1976). Another is the possibility of risk sharing across time and thus generations via the public budget. Or

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[69] Hoynes and Luttmer (2010) consider the redistribution and insurance effects of taxes for the US. They focus on the effects on consumption, and thus do not consider the effects of taxes on incentives. They distinguish the role taxes have in redistributing based on ex ante perceived differences and its role in providing insurance due to ex post arising differences. They find that both effects are quantitatively important and that their relative roles depend on the income level; that is, the insurance value increases and the redistribution value decreases with income. They find that there are net-gains from the scheme at all income levels.

to phrase it differently, the public sector can also diversify aggregate shocks affecting all at a given point in time, something which is inherently difficult (and in some cases impossible) for private insurance markets.

The literature on the economics of the welfare state has in recent years increasingly recognized that many welfare arrangements have an insurance element (see e.g. Barr (2001), Sandmo (1998), Sinn (1995, 1996)). That is, public provisions, whether they are income transfers or services, are contingent on various circumstances which can arise in life, and therefore the schemes have an insurance element besides other possible effects. In the same vein Agell (2002) and Moene and Wallerstein (2001) point to insurance via labour market institutions.[70]

Crucial for the present discussion, social insurance may have effects beyond the obvious direct positive welfare effect when private markets offer incomplete insurance and individuals are risk averse. Social insurance may have a positive effect on economic performance, including levels of employment and production as well as productivity growth. Risk may be an impediment to adjustment, work, job search or investment in human capital, and it follows that insurance may be conducive to economic performance. Such behavioural responses released by the insurance effects of social insurance are important because they may be counteracting the distortions arising from the schemes.[71]

6.2   Social insurance, efficiency and risk

To explain how social insurance can affect both efficiency and equity, it is easiest to return to the standard labour supply problem already discussed in Section 3.1. In the standard case, labour market outcomes are deterministic. Consider a situation where all agents ex ante are alike, but they face wage risks. Real wage risk can arise from risks associated with prices, productivity, length of work etc. Their labour may thus earn a low or high wage, but this is not

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[70] See also e.g. Varian (1970) and Thomas (1995) on taxes, Eaton and Rosen (1980) on education, and Acemoglu and Shimer (1999, 2000) on unemployment insurance.
[71] By distortion effects are here understood the effects on incentives arising in a deterministic setting where there by definition is no issue of risk diversification.

known with full certainty when deciding on how much to work, and there is no private insurance market in which the risk averse agents can diversify this risk. Agents will supply labour without knowing what the actual real wage and thus consumption will be, and risk averse agents will in this setting choose a socially inefficient low labour supply. The reason is that while the cost of work is deterministic (disutility from work or opportunity costs of foregone home production), the return to market activities is risky. In this setting inequality arises ex-post since some turn out to obtain high wages, and others low wages.

Introduce next a basic tax-transfer scheme; that is, a scheme where a proportional tax on market income finances a lump-sum transfer to all participants (see e.g. Sinn (1995) or Andersen (2013)). In an ex-post sense this scheme is clearly redistributive since agents with high market income (above average) will be net contributors, and agents with low market income (below average) will be net receivers. In an ex ante sense the scheme reduces the risk associated with income, and this may make risk averse agents choose to supply more labour to the market. Hence, changing the tax rate has an insurance effect on top of the traditional incentive effect.

The insurance effects runs in general counter to the incentive effects. This is illustrated in Figure 6.1 for the standard labour supply problem taking into account wage risk.[72] The solid line shows in the deterministic case how labour supply depends on the tax rate, while the dotted line shows how it depends on the tax rate in the case of risk. First, note that without any social insurance and thus a zero tax, labour supply is lower under risk than in the absence of risk. Risk aversion has a dampening effect on labour supply. Second, this reduction in labour supply holds for any tax rate since the insurance arrangement cannot eliminate risk, only diversify it. Finally and importantly, in the presence of risk an increase in the tax rate, and thus the extent of insurance, will make labour supply relatively inelastic until the tax rate reaches a sufficiently high level. In the absence of risk the increase in the tax leads to a reduction in labour supply capturing the incentive effect.

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[72] Showing a calibration (US data) of the basic textbook labour supply model under standard preferences adopted in the literature but in the presence of wage risk.

The reason for the inelastic response in the presence of risk is the counter-balancing insurance and distortion effects of taxation.[73] A higher tax has a negative incentive effect and a positive insurance effect, and in the case illustrated the two roughly balance until the tax becomes sufficiently high, in which case the incentive effect dominates. The presence of the insurance effect thus creates a situation similar to the well-known fact that substitution effects are countered by income effects in textbook models of labour supply, cf. Section 3.

Figure 6.1   Labour supply and taxes – the role of risk and insurance
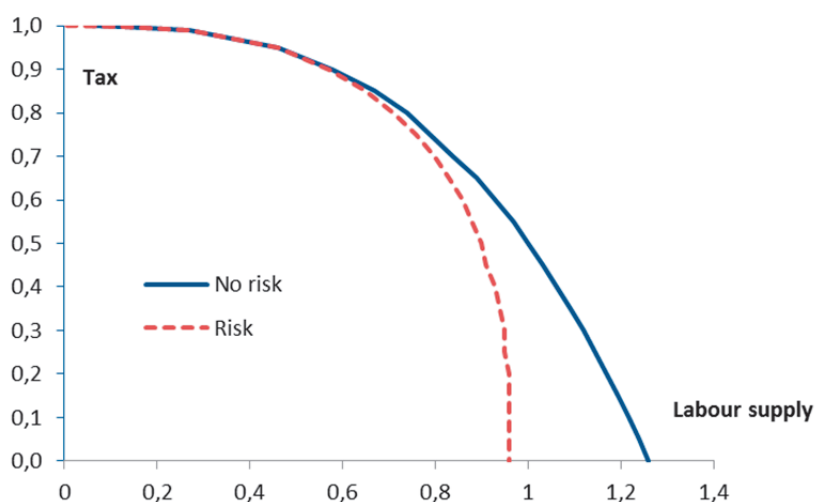
Source: Andersen (2013).

The findings illustrated in Figure 6.1 point out that by disregarding the insurance effect of public intervention, the effects of taxation on labour supply and thus economic performance may be wrongly assessed.[74] Most discussions of tax distortions are conducted in deterministic settings, and this may bias the results.

A further important implication of implicit insurance is that the relation between efficiency and equity need not be monotone, see

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[73] With high risk or strong risk aversion the labour supply function may even be backward bending.
[74] This has the important empirical implication that low estimated labour supply elasticities may arise do to a failure to separate between the disincentive and insurance effects of taxes.

e.g. Sinn (1995) and Andersen (2013). This is illustrated in Figure 6.2 where the upward sloping part (starting from a situation without the social insurance scheme) arises because the insurance effect dominates the negative incentive effect; that is, an expansion of the social insurance scheme leads not only to more equity ex post (more insurance ex ante) but also to more efficiency by overcoming a market failure.[75] At some point, a further expansion would have the incentive effect to dominate the insurance effect, and a trade-off arises in the sense that more equity is achieved at the costs of more efficiency.

Figure 6.2 **Relationship between efficiency and equity in the presence of insurance effects**[76]
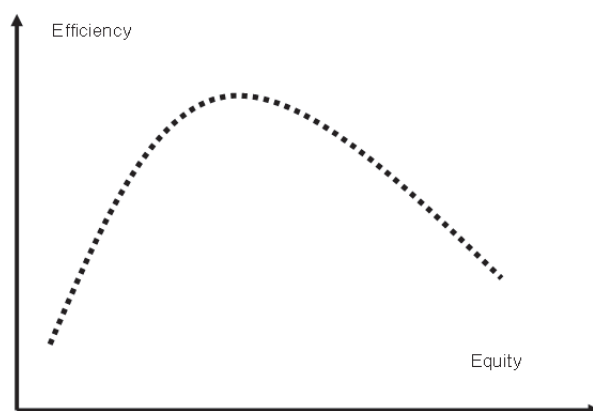
The findings captured by Figure 6.2 have several important implications. First, two countries with different public involvement may display the same level of efficiency measured by e.g. average income but different levels of equity. This may contribute to explain the findings reported in Figure 2.1 showing that the Nordic countries have achieved about the same level of average income but

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[75] It may be questioned whether the above arguments depend critically on an assumption that social insurance can accomplish something which private insurance cannot. Clearly, if such insurance dominance is present, it leaves a clear-cut case for the potential beneficial effects of social insurance. However, even if such dominance is not clear cut, it should be noted that if there is a political desire to redistribute, it does also imply some insurance, and this does in turn reduce the costs of redistribution (see e.g. Boadway et al. (2006)).

[76] In Andersen (2013) it is shown how such a hump-shaped relation may arise due to the effects of unemployment insurance.

with much less inequality than e.g. the US. Second, while it is theoretically possible that the relation between efficiency and equity may display some upward sloping part, it is a possible more important point that insurance effects tend to counteract the standard incentive effects, which implies that the slope of the efficiency-equity locus may be rather small (a flat trade-off). Finally, even though the relation between efficiency and equity has a positive sloped part as illustrated in Figure 6.2, a policy aiming for both efficiency and equity should position the economy on the downward sloping part. The reasoning is simple, since being on the upward sloping part means that both efficiency and equity can be improved, and it is not optimal to be in such a position. Having chosen a position on the negative sloped part of the locus, we have that a marginal policy change involves a trade-off between efficiency and equity, but it is the case that policy overall has contributed to enhance both efficiency and equity.

6.3   Automatic stabilizers

At the macro level the extent of social insurance is captured by the so-called automatic budget-effects or automatic stabilizers. This is a summary concept for the automatic response of public sector revenues and expenditures to a change in the level of economic activity in the economy (the business cycle situation). These responses arise precisely because revenues and expenditures (primarily unemployment benefits) are contingent on e.g. income, unemployment etc. A recession will therefore be associated with a deteriorating public budget position and vice versa. In this way social insurance cushions individual incomes and the consequences of changes in the economic situation are diversified across time and thus generations. On average across the business cycle the budget effects should be averaging out, but some smoothing or insurance has been achieved.

Figure 6.3   Size of public sector and automatic stabilizers
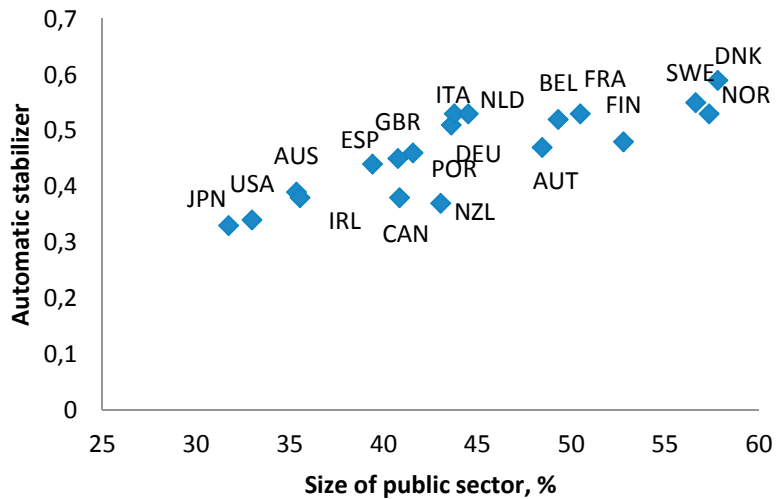
Note: Public sector size measured by the gross tax burden in % of GDP, 2005, and automatic stabilizers as the automatic budget response, i.e. change in budget position relative to GDP to a 1 percentage point change in GDP.

Source: Internet: http:// www.oecd-ilbrary.org and Girouard and André (2005).

There are five important facts about automatic stabilizers worth noting:

- the size/strength of automatic stabilizers is closely related to the extent of welfare arrangements, cf. Figure 6.3, i.e. countries with more extended tax financed welfare states tend to have large automatic stabilizers;

- automatic stabilizers cushion individual disposable income, and therefore serve an insurance function which has a direct positive welfare effect for risk-averse agents. Private alternatives for this type of insurance are highly imperfect and incomplete; see e.g. Dynarski et al. (1997); Gruber (1997); Knieser and Ziliak (2002) and Browning and Crossley (2001)).

- automatic stabilizers contribute to stabilization of the aggregate economy via its stabilizing effect on disposable income and hence private consumption and aggregate demand (Van der Noord, 2000);

- automatic stabilizers mute the consequences of economic crises on income inequality (Dolls et al., 2010);

- automatic stabilizers are rule-based, inducing an automatic response to a change in the business cycle situation. Hence, they do not require up-to-date information on the state of the economy, and they do not require any discretionary actions to work.

The properties of automatic stabilizers at both the level of individuals (insurance) and society (aggregate stability, distribution) have attracted renewed interest. In the wake of the Great Recession, it has been argued widely that automatic stabilizers are too weak and that they need to be strengthened. However, the size of automatic stabilizers is not a direct result of macro-design, but rather a by-product of policy choices in relation to tax, social and labour market policies. The automatic stabilizers are the net outcome of these choices, and therefore they vary substantially across countries, cf. Figure 6.3. Moreover, since policy reforms in recent years have had a strong focus on incentive effects without much concern for the implications for insurance, it may be a consequence that automatic stabilizers have been weakened.[77] Somewhat paradoxically, automatic stabilizers have been praised at the aggregate level, but disregarded at the micro level in relation to structural reforms. In the case of Sweden reduction of taxes and the real value of social transfers have in recent years contributed to a reduction in the automatic stabilizers.[78]

For automatic stabilizers to work, it is important that public finances are in a position to absorb the implied budget changes. A precondition for well-functioning automatic stabilizers is a prudent fiscal policy ensuring consolidation in good times, to create the absorption capacity in bad times. It is a necessary condition for the

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[77] Using OECD estimates of automatic stabilizers (see van der Noord (2000) and Girouard and André (2005)), the average size across OECD countries is unchanged between 2000 and 2005. However, there seems to be a systematic pattern since countries with initial weak automatic stabilizers have tended to get stronger automatic stabilizers, whereas they have been muted for countries with initial strong automatic stabilizers.

[78] According to estimates by Konjunkturinstitutet (2013) the budget sensitivity has been reduced from about 0.8 over the period 1996-2006 to about 0.4 over the period 2007-2012.

public sector to provide a buffer function muting the consequences of business cycle fluctuations for private actors. It is also an important corollary that if a situation with low employment becomes persistent, then the budgetary consequences will be dire; cf. Figure 3.7 showing how the budget is affected by variations in employment.

Persistence – failure to adjust

It has been argued that the short-run stabilization ensured by automatic stabilizers comes at the costs of a reduced adjustment capability, which in turn produces more persistence in business cycle fluctuations; that is, they become more long-lived.

Ljungqvist and Sargent (1998) describe a generous welfare state as a "time bomb" in the sense that it may operate efficiently in tranquil times, but be vulnerable to turbulence which easily translates into persistent unemployment.[79] The latter is caused by weakened job search activities and higher reservation wages due to a generous social safety net. In particular, shocks tend to depreciate skills and thus require workers to accept a wage cut to find a new job, but unemployment benefits depending on past wages tend to create inertia in the adjustment of reservation wages. As a consequence, the safety net hinders the process of restructuring the economy. It is also asserted that a generous tax financed social safety net reduces mobility across jobs (Ljungqvist and Sargent, 1995). This may contribute to reduce frictional unemployment, but induce higher structural unemployment in a situation with turbulence.

A different explanation of persistence has been advanced by pointing to the role of norms in counteracting the incentive effects of a generous social safety net (see e.g. Lindbeck (1995) and Lindbeck et al (2003)). A strong norm to be self-supporting counters the economic incentives created by a generous scheme.

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[79] A possibility of multiple equilibria also arises when taking into account the financing of the safety net. Similarly, if incentive problems are countered by costly monitoring, the effectiveness of such monitoring is higher at low levels of unemployment reinforcing this situation, and oppositely in a situation with high unemployment (Ljungqvist and Sargent, 1995).

Allowing for the norm to be endogenous and depending (possibly with a lag) positively on the number of individuals being self-supporting imply that a generous social safety net can be maintained if the employment rate is high. However, if employment falls due to e.g. a severe business cycle downturn, norms may be eroded, and the welfare state is caught in a situation with persistent non-employment and fiscal problems.

However, evidence does not support that business cycle fluctuations are more persistent in the Nordic countries with stronger automatic stabilizers, see e.g. Andersen (2012). The evidence thus point to important effects of automatic stabilizers both at the individual level and for macroeconomic stability.

6.4   Common pool problems

Any type of insurance – private or social – suffer from potential problems due to moral hazard and adverse selection. The problems basically arise due to lack of information about individual characteristics or behaviour[80] which is a source of market failures in private insurance markets which in some cases leave an argument for public or social insurance. However, both problems are also important for social insurance, and are therefore important in policy design.

The selection problem is that insurance may attract particular groups e.g. with a high probability of an event occurring, while those with low probabilities opt out. Consequently it may be difficult to establish an arrangement diversifying risks. For social insurance selection is not possible for insurance arrangements running via the tax side since it mandatory[81] (enforced pooling equilibrium). However, for use of other arrangements there may be selection effects. As an example social transfers may be more attractive to individuals with a strong preference for leisure.

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[80] In the case of moral hazard the insurer may perceive the behavioural consequences, but it is difficult (costly) to condition the insurance contract on behavioural variables since they are difficult to monitor and thus to verify.

[81] Strictly speaking there is an exit option in the form of migration. This is of importance for the scope of social insurance, but it is beyond the scope of this paper to discuss this aspect in detail.

Moral hazard problems arise when insurance makes individuals change behaviour either by not taking sufficient action to prevent a given event happening or affecting the consequences if the event happens, e.g. insufficient job search, neglecting advice on life style etc. Moral hazard problems arise for both private and social insurance, in the latter case they are often termed tax distortions. It is worth observing that the debate often stresses the incentive problems arising under social insurance without noting that the same problems would in principle arise if the insurance is organized in a private market. The moral hazard problem arises due to a common pool problem and is in this sense generic. This does not, however, imply that one should not take moral hazard problems seriously, but only that the incentive problems arising under social insurance should be evaluated under realistic assumption of the alternatives.

Policy designs are important for the incentive problems arising from insurance. Such design issues are reflected in actual policy schemes. Much attention has been attached to the generosity of the transfer levels in extended welfare states like the Nordic, and they are sometimes portrayed as paying people for not working (Rogerson, 2007) or as making work unnecessary (Esping-Andersen, 1990). This effectively amounts to assuming that there is a basic income or demo grant, implying an unconditional minimum income for everybody. This is a poor characterization of social insurance in the Nordic countries, which includes numerous conditionalities; that is, although eligibility is universal in the sense that all have a formal right, there are conditions to be fulfilled to qualify for the transfers. These conditions apply both to the situation in which the person or family finds itself (selection), but also to behavioural variables like active job search, participation in education programmes etc. (moral hazard). The gateway into more permanent types of support like disability pension is narrowed by screening of medical conditions, external monitoring etc.

Obviously, this does not completely eliminate all incentive problems, but it does point to important design issues, which are crucial in striking a balance between insurance and incentives. As an example, it may be worth to highlight two important dimensions of social insurance in the Nordic countries. First, as in most countries, the basic social transfer (social assistance) is means

tested on a family basis. Second, there are crucial workfare elements in the design of social insurance; that is, the right or entitlement to a transfer is accompanied by a duty or requirement to participate in certain activities to receive the transfer. Such conditionalities serve to reduce both moral hazard and adverse selection problems.

These conditionalities include various elements ranging from control/enforcement of job search and availability criteria to enhancement of qualifications to improve job finding rates.[82] To see the implications of these conditionalities consider the limiting case of a participation requirement for receiving unemployment benefits. Assume for the sake of argument that programme participation does not affect qualifications but only serves as an availability test. Participation in such a programme increases the opportunity costs of receiving benefits, which reduces both adverse selection problems and the moral hazard problem in individual search activities by lowering the net gains from claiming benefits. As an illustration of how the trade-off between employment (efficiency) and inequality (equity) can be affected by such conditionalities consider a simple search model of the labour market (Andersen and Svarer, 2014). In this setting unemployment benefits distort search incentives, and if benefits are financed by general taxation, there is a standard common pool or moral hazard problem. Higher benefits (replacement rates) will lower the gain from working and lead to less search and thus reduce employment. Including a workfare element into the scheme implies higher opportunity costs from claiming benefits, which makes unemployed search more for the basic reason that employment becomes more attractive for given benefit levels. Therefore such conditionalities serve to maintain incentives in the labour market and thus support high employment rates despite a high level of income insurance (replacement rate). Job search incentives can thus be strengthened either by a benefit cut or by strengthening of workfare elements. This is illustrated in Figure 6.4 showing combinations of the replacement rate and the workfare requirement (measured in terms of the time requirement relative to

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[82] Kolm and Tonin (2014) show that an earned income tax works in much the same way to boost employment, and it may also strengthen educational incentives.

normal working hours) delivering the same employment rate (see Andersen and Svarer (2013)).[83]

Figure 6.4   **The role of the replacement rate and workfare conditionalities in a basic search framework**
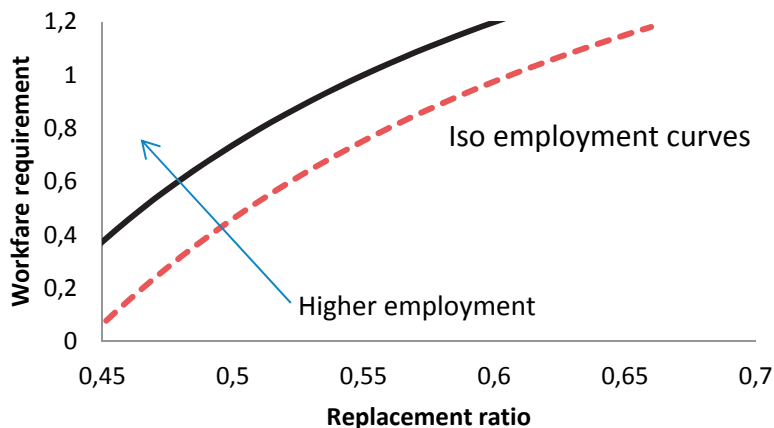
Note: Workfare requirement is measured as the time requirement relative to normal working hours. The figure is based on model and simulations in Andersen and Svarer (2014).

The important point of this example is that incentives can be strengthened without necessarily deteriorating the level of support offered by the social safety net.[84] Economic deprivation is not necessary to create incentives! This can also be interpreted in the sense that there is a complementarity between replacement rates and workfare requirements, or that the total package matters. From a policy perspective the important lesson is that incentives in the

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[83] In the model the benefit scheme is associated with possible participation in a workfare programme. The programme has two dimensions, the likelihood or share or unemployed being asked to participate in the programme (the extensive margin) and the work requirement (the intensive margin). The intensive margin is measured as the time requirement relative to normal working hours, see Andersen and Svarer (2014).

[84] Scandinavian countries are characterised by centralized labour markets and a strong tradition for seeking cooperative solutions (tripartite settlements). In relation to the common pool property of the welfare state this is particularly important. Union leaders will not formulate an agenda where they ask for tax increases to finance a more extended welfare state and at the same time ask for wage increases to compensate for the implied tax increases. In short, centralized wage setters take the effect of their actions on the public budget into account (the common pool problem is internalized) (see e.g. Summers et al. (1993)). The labour market institutions are also important for wage setting and employment, see e.g. Barth and Moene (2013).

labour market can be maintained without retrenchment of the social safety net, cf. Section 2.

The point is not to deny the incentive problems arising from an extended social safety net. There are many examples of policy designs which have caused large drops in employment rates (including the early retirement scheme in Denmark, and sickness pay in Sweden). The point is that the solution to these problems is not necessarily retrenchment of the social safety net, but design changes which via conditionalities and screening mechanisms reduce the incentive problems. Thereby incentives can be maintained without increasing income disparities.

Designing active labour market policies involves a number of concerns. Such activities are costly (direct costs of active labour market policies amount to 1.3 percent of GDP in Sweden and 2.1 percent in Denmark in 2012)[85], and the shift in the trade-off between incentives and insurance is thus not obtained for free. Two aspects are particularly important, namely timing and programme types. Frontloading of workfare requirements will strengthen incentives the most, but it will also be very costly, and it would entail a large deadweight loss from programme participation for many who in any case would find a job after a short unemployment spell. This is particularly so in a labour market with a high incidence of short-term unemployment spells. Hence, workfare requirement should be imposed after some duration of an unemployment spell. The group of unemployed is heterogeneous, spanning from some who have the qualifications and experience making them readily employable to some who lack these characteristics (e.g. due to long-term unemployment) and therefore find it very difficult to get a job. For the former group, help with job search may be sufficient, while for the latter more specific programmes may be needed to specifically address the constraints lowering their job finding rate. In some cases, it may be easy to identify these constraints (e.g. if the unemployed lacks specific skills), while in others it may be more difficult and also depend on market conditions (qualifications become obsolete due to structural changes). In the latter case, avoidance of deadweight

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[85] Data from OECD, the measure is total public expenditures on active labour market policies. The OECD (unweighted) average is about 0,6 % of GDP.

losses gives an argument for making workfare programmes duration dependent.

6.5　Flexibility and adjustment in the labour market

Social insurance may have structural effects of importance for flexibility and adjustment, in particular in the labour market. Discussions on various aspects of social insurance or institutional set-up often take a partial perspective focusing on only one aspect, disregarding system wide implications or policy complementarities. This may be misleading.

Risk in the labour market in the form of wage and employment variations is an indisputable fact. Various institutional arrangements have implications for risk sharing and diversification, but they do not make risk disappear. It is thus important to pay explicit attention to the complementarity/substitution between different institutional arrangements. A crucial question in the labour market is how to share risk between employers and employees. The precise sharing is reflected in the contract between the two parties. If workers are going to bear more risk, it may affect their labour supply or the wage (cf. above), and similarly if the risk rests on employers, they may want more flexible hiring rules or lower labour costs.

Two alternative risk sharing arrangements are unemployment insurance and employment protection legislation. The former insures against income loss in case of job loss, the latter protects those holding a job from becoming jobless. There is thus a fundamental difference in terms of insuring incomes or jobs.

Unemployment insurance is by definition a collective risk sharing device.[86] A primary advantage is the pooling of risk, which can be an advantage for both employers and employees. The downside is the moral hazard problems which can arise both with employers (temporary lay-offs) and employees (job search, reservation wages).

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[86] In both Sweden and Denmark the system has voluntary membership (contribution based, but tax subsidized), which raises adverse selection issues. Do individuals with low risk aversion or low perceived unemployment risk staying outside the system?

Employment protection makes job loss less likely for those holding a job. It also implies less job turnover, which may be conducive to on-the-job training and investments, but it reduces worker reallocation across firms and sectors. Moreover, it may create a dual labour market (temporary and permanent contracts) where insiders are well protected but outsiders are in a difficult position (especially labour market entry for youth).

The institutional set-up also has a political side. Technological progress and globalization are associated with general welfare gains. However, the process has both winners and losers. To reap the gains it is important that resources can be reallocated between uses. If there are impediments, the adjustment process will run less smoothly and the gains will be smaller. It is well established that general productivity gains are associated with structural changes, cf. below. The aggregate gains may in this way cause individual costs and this may induce opposition against such adjustment. This opposition may show up as less political support for e.g. globalization or contractual arrangements which protect individuals from carrying the costs associated with the changes.

Various institutional set-ups thus have different implications for risk sharing (Blanchard and Tirole, 2010). There is some empirical evidence pointing to a substitution between unemployment insurance and employment protection legislation (EPL); i.e. countries with more generous unemployment insurance have less strict EPL, and vice versa, see Buti et al. (1998) and Boeri et al. (2003).

The reasoning above may suggest that a collective risk sharing arrangement via social insurance is more conducive to labour market flexibility, labour reallocation and productivity. There are two sources of empirical evidence on this.

Part of the empirical literature assessing the incentive effects of unemployment insurance has also questioned the effect this may have on job match quality. The basic point is that while more generous unemployment insurance tends to lengthen the duration of unemployment spells, it may also improve the quality of job matches. With heterogeneity in the labour market it takes time and costs to locate a good match. Longer benefit duration may thus work in the direction of improving job match quality either in terms of higher wages or job stability. Obviously, serious

measurement and identification issues are involved in empirical attempts to assess job match quality. There is evidence showing that a more generous unemployment insurance scheme is associated with high job match quality (see e.g. Centeno and Novo (2006) and Tatsiramos (2009)), although there are also studies pointing to absence or even a negative effect (see e.g. Degen and Lalive (2013) and van Ours and Vodopivec (2008))

Another branch of the literature has considered the role of worker reallocation and employment protection legislation. The evidence shows the following (for a survey see Martin and Scarpetta (2012)):

– Labour reallocation is associated with productivity gains. Reallocation of labour across firms and sectors is associated with productivity gains, see e.g. Parrotta og Pozzoli (2012).

– Gross job flows depend on labour market policies and institutions. Both cross-country studies and country-specific studies find empirical evidence that strict EPL is associated with lower job flows, and that unemployment generosity is associated with higher gross flows (see e.g. Martins and Scarpetta (2012) and Andersen (2012)).

– The direct effect of EPL on productivity is less clear. Cross-country studies do not find evidence in support of any effects, but country-studies find some effect, see the survey in Martin and Scarpetta (2012).

In assessment of various institutions it is thus important to take into account what the alternatives will be. A recent literature levy a critique on traditional analyses for having a too one-sided focus on identifying the optimal institutional setting[87], see e.g. Nuun and Trefler (2013). There is no specific institutional setting which is optimal. The reason is that various institutional arrangements have

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[87] Acemoglu et al. (2013) argue that the Scandinavian countries hold a particular situation in an asymmetric global equilibrium, where some countries have more inequality to induce entrepreneurship and innovation and thus driving productivity. Other countries will free-ride on technological developments and have less inequality. Although income is lower, welfare is higher for those "follower"-countries. Since the global equilibrium is asymmetric, it is not possible for all countries to be followers. Empirical evidence is not overwhelming in support of this hypothesis. The Nordic countries have large public investments in education and R&D, and it is not clear that they are free-riders.

pros and cons, which may be a source of comparative advantage. Countries with flexible employment protection legislation and generous unemployment insurance may have a comparative advantage in industries with substantial short-term variation in demand and thus production, while countries with more strict employment protection legislation and less generous unemployment insurance may have a comparative advantage in production of commodities with less variability. As an example of this Cuñat and Melitz (2012) find in a cross-country study empirical support that countries with more flexible labour markets have a higher degree of specialization in sectors more frequently exposed to sector-specific shocks. This may be interpreted in the sense that the nature of shocks or needs for adjustment to some extent is endogenous, meaning that countries specialize in the activities for which their particular institutional setting has a comparative advantage. This type of research is still in its infancy, but it is highly suggestive of why different institutional settings (welfare regimes) survive.

7   Conclusions

The hallmark of the Nordic model is that it delivers a high living standard and a fairly equal distribution of income. This encapsulates the overarching objectives of the model. The specific means by which to achieve them differ across time and the Nordic countries.

Despite a large public sector and thus tax burdens, income is high and employment rates are high. In economic jargon, the efficiency costs of achieving egalitarian outcomes have been muted.

The design of welfare arrangements is important in this respect. While taxes seen in isolation do distort incentives, the overall effects cannot be seen independently of what taxes are financing. In the Nordic countries expenditures are front-loaded over the life-cycle (of larger importance for young and old), and they have a large share of so-called active or productive expenditures both of which serve to support employment and production. The social safety net cushions various types of events and shocks which can happen through life, but can be conducive to adjustment and flexibility. The design of transfers with strong employment conditionalities (workfare) is important in balancing concerns for distribution and insurance with incentives.

The Nordic model is not crisis free, and deep economic crises are part of the history of the Nordic countries. Despite the turbulence, the model has proven resilient and stands out in international comparisons as an example of how to reconcile social objectives with a well-functioning economy. Accordingly, the Nordic countries rank in the top in most international league tables comparing country performance.

Part of this is a strong legacy ingrained in institutions and policies constituting a social and political capital also making it possible to implement far reaching reforms in due time to ensure

the viability of the model. A prime example of this is reforms of pension systems so as to address the ageing problem. The recurrent reforms also point to a dynamic interpretation of the Nordic model; the specific policy instruments employed at a given point in time do not define the model, but the overall package and objectives do.

In a forward-looking perspective the Nordic countries face a number of challenges. Most of these are global, but the quest is to find solutions in accordance with the principles of the Nordic model. It is beyond this paper to discuss these challenges, but a few remarks are in order. Ageing is an important example of a global challenge, and some adjustments inevitably have to be made. While politically important (and difficult), it is not requiring fundamental changes in the model. The specific policy response can be discussed, but reforms of pension systems (including retirement ages) to address the problems can not in any meaningful way be categorised as retrenchment of the welfare state. If people live longer, some adjustment has to be made.

Globalization is not a new phenomenon for the Nordic countries, and the constraint to remain competitive is deeply ingrained in policies. Globalization in combination with technological changes affects labour markets, inducing changes in the structure of labour demand. In particular the skill bias reducing the demand for low skilled labour is important from a distributional perspective. This brings the importance of the level and distribution of human capital to the fore as important not only for overall income or wealth but also for its distribution. Globalization also puts tax financing under pressure via tax base mobility and potentially larger distortionary effects of taxes due to easier scope to relocate employment and production. This may require changes in the tax structure. It is worth reminding that there is some scope since the Nordic countries raise a relatively small share of tax revenue from e.g. property taxation. Increased migration flows (including migrant workers) is an implication of globalization which potentially challenges the universality principle by introducing selection mechanisms if immigrants tend on average to be net-beneficiaries and emigrants to be net contributors. This may raise questions on entitlement conditions to welfare arrangements.

Finally, the welfare state is continuously facing new needs and demands. Society is changing, and it is accordingly to be expected that welfare arrangements are changed. An important point relates to welfare services where it is a premise that they are of contemporary standard meeting the needs of most people. Increasing private consumption may lead to more demand for leisure (reducing tax based) and increase demand for services (Wagner's law) at the same time as advances in life sciences make new and better treatments possible. On top of this some services may become relatively more expensive since productivity increases are small. This applies to activities intensive in human interaction. All of this leads to an upward pressure on the provision of welfare services. Ongoing debates on how to finance, organize and produce welfare services are thus to be expected.

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Appendix

A: National accounting conventions

It is well known that public sector activities are included in national account assessments of value added based on the input costs of production. The fundamental problem is that there by definition are no market values (prives) by which to assess outputs, and therefore they are imputed from the cost side. National account conventions have implications both for level and growth comparisons across countries.[88]

Level comparisons

Across time and countries there are substantial differences in the allocation of activities between market and non-market activities. For non-market activities these may either be household or public sector activities (e.g. child and old age care). Since an important difference in welfare models across countries is the part of activities taken over by the public sector, and since public sector activities are included in GDP measures while household activities are not, this may lead to an upward lift in GDP measures for countries with a large public sector. Something Sinn (2006) termed "Scandinawizer swindle" or accounting trick.

To assess the importance of this, the following makes a simple correction[89] of GDP measures by deducting public sector activities

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[88] Usually countries are compared based on GDP per capita. It could be argued that GNI is a better measure, but for most countries the difference is small, see www.OECD-ilibrary.org.
[89] This is based on the national account relation: $Y=C+A$, where Y is GDP, C corrected GDP and A the activities included in GDP which we want to make a correction for. Hence, $C=Y(1-A/Y)$ and using GDP figures and values for A/Y, the corrected GDP measure follows.

like child and old age care which in some countries are mainly household activities and in others mainly public sector activities. The corrected GDP measure thus neutralizes whether these activities are within households or in the public sector. The result of such a correction can be read of Figure A-1. The corrections vary from 5–6 percent of GDP for Sweden and Denmark to 0.8 percent for Italy. The correction is of quantitative importance but does not change the ranking of countries in a significant way.

Figure A.1   GDP and GDP corrected for publicly provided personal welfare services
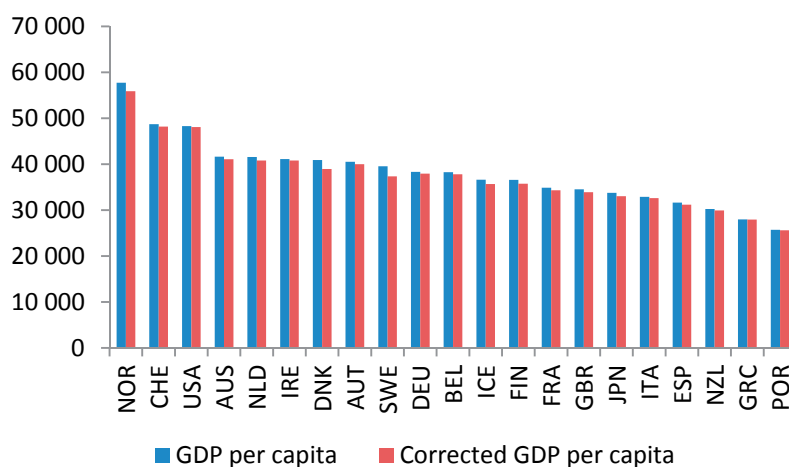
Note: GDP is corrected for old-age, incapacity and child care. Data applies to 2010. Gross domestic product per capita, current prices and current PPPs.

Source: Own calculations based on OECD data.

Note that there may be other differences between household and public sector activities including quality difference, equal opportunity aspects etc. There are other problems in comparing GDP levels across countries. Gordon (2006) argues that while the GDP gap per capita between USA and Europe is about 30 percent, it is reduced to 17 percent when account is taken of excess energy use, prison population, metropolitan dispersion, and an inefficient medical care system. For a general discussion of GDP measures, see Stiglitz et al. (2009).

Growth comparisons

National account conventions have implications for measured growth rates. Let total output (Y) be decomposed into private output (Y_p) and public output (Y_g), i.e. $Y = Y_p + Y_g$ The output growth can be written

$$\frac{dY}{Y} = v\frac{dY_p}{Y_p} + (1-v)\frac{dY_g}{Y_g}$$

where $v = \frac{Y_p}{Y}$, the output share of the private sector. Since output in the public sector is imputed from the input side, it follows that measured productivity level is unity and productivity growth thus zero. Assume that true productivity growth in the public sector is g>0 while the recorded growth is zero, then

$$\left.\frac{dY}{Y}\right|_{Recorded} = v\frac{dY_p}{Y_p} < v\frac{dY_p}{Y_p} + (1-v)\frac{dY_g}{Y_g} = \left.\frac{dY}{Y}\right|_{Actual}$$

i.e. real growth as recorded in national accounts underestimates actual growth. Clear, other things being equal, this reduces output growth in countries with large public sectors.

The European Commission has decided (Commission resolution of 17 December 2002, Official Journal of the European Union 20.12.2002) on a new approach whereby output-indicators should be used to assess public production. This implies that productivity growth in the public sector is not zero by assumption. In an application of this method, it is found for Denmark that average productivity growth has been 0.8 percent over the years 2005–2012; see Statistics Denmark (2014). Accordingly, GDP growth rates have been assessed too low. This approach has not yet been applied for Sweden.

B: Gross and net measures

There are a number of important caveats to be taken into account when making cross-country comparisons of welfare state activities. The most important is whether we are comparing public sector provisions or the total provisions for social expenditures in various

countries, and whether gross or net numbers are compared, see Adema, Fron and Ladaique (2011). As shown below the cross-country comparisons are very sensitive to these issues.

Table A-1 shows in the first *row gross public expenditures* on social purposes – the type of number often used for international comparisons. There are large differences in gross public social expenditures, e.g. Denmark with expenditures at about 30 percent of GDP, 27.2 percent in Sweden, while the US is only at 19 percent of GDP.

A very important aspect to take into account in cross-country comparisons is the tax treatment of social expenditures. This implies that there can be a huge difference between gross and net expenditures if e.g. transfers are paid as gross income from which both direct and indirect taxes should be paid. Since the tax treatment of transfers differs across countries, this may be a serious factor influencing cross-country comparisons. In addition expenditures to social purposes may arise as so-called tax expenditures, that is, if tax deductions are used instead of cash-transfers. Therefore tax revenue will be smaller than otherwise, and these expenditures should therefore also be included. Table 1 shows a correction for all these items in the row termed net *current social expenditures*. As seen, this narrows the differences considerably. The expenditure for Denmark and Sweden is 23.4 percent and 22.5 percent, respectively, and it is 20.1 percent for the USA.

A further aspect to take into account is mandatory social expenditures; i.e. coverage is determined politically, but financing is private. In the row *net public mandated social expenditures* these items are taken into account (does not include mandatory pension contributions). This correction does not have a large impact.

Finally, the role of private provision differs across countries, and the role is particularly large in the Anglo-Saxon countries. The final row giving *total social expenditures* includes such private expenditures. This increases expenditure shares and implies more variation across countries. Interestingly, measured in this way the US has a higher total expenditure level than the Nordic countries. There is thus a tendency to a negative correlation between social and private provision; i.e. in the countries where the public sector

plays a large role the private provisions play a less important role, and vice versa.

Table A.1   Gross and net social expenditures, OECD countries, 2011

	DNK	FIN	NOR	SWE	UK	USA	OECD
Gross public social expenditure	30.1	28.3	21.8	27.2	22.7	19.0	21.5
Net current public social expenditure	23.4	22.6	18.1	22.5	21.4	20.1	19.1
Net public mandated social expenditure	23.5	22.6	18.8	22.7	22.1	20.4	19.4
Net total social expenditure	26.1	23.4	19.3	24.6	26.1	28.8	21.1

Note: Social expenditures relative to GDP market prices. Note for Norway this includes petroleum activities.
Source: OECD Social Expenditure Database (SOCX).

Finally, note that these numbers do not say anything about the distributional profile of these expenditures but only consider average expenditures in the respective countries. As argued above, public provisions of welfare services are redistributive, see Figure 3.4.

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