

## **Inequality and Employment**

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### ***Abstract.***

*“Natural rate theory” has dominated interpretations of economic trends and policy prescriptions over many decades. European-type welfare state institutions were claimed to cause a compressed wage distribution that distorts otherwise well functioning labor markets. Trans-Atlantic patterns seemed to support the “natural rate theory”: high and rising unemployment with ‘low inequality’ in Europe contrasted with the ‘great American job machine’ with a much wider wage distribution. Interpreting high and rising wage dispersion in the US as market response to technological change and/or globalization the way to move seems to be clear: shrink welfare state institutions, allow for rising inequality and employment in Europe will rise. ‘Natural rate theory’ got almost universally accepted directing the attention to labor market institutions and discarding macroeconomic differences as potential causes for diverging transatlantic employment trends.*

*This paper first discusses the relation between skill structure and wage distributions, it then investigates the claim that inequality creates incentives that facilitate human capital formation. The ‘big tradeoff’ between efficiency and inequality is discussed it is argued that redistribution –especially when improving access to educational services- lays the ground for human capital investment rather than impeding it. Learning causes learning and better education results in more flexible labor force generating a dynamic economy. Finally, the relation between redistribution and employment analyzed.*

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### **1. Introduction**

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## 1. Introduction

‘The ideas of economists and political philosophers, both when they are right and when they are wrong, are more powerful than is commonly understood. Indeed the world is ruled by little else,’ wrote John Maynard Keynes, three-quarters of a century ago (Keynes, 1936, 383).

### 1.1 Natural Rate Theory

Almost all highly industrialized countries experienced rising wage and income inequality over the last two or three decades (OECD 2011) which is often described as an unavoidable response to changing economic conditions –i.e., complementary of skills and technological change (skill biased technological change, sbtc), a changing industry structure, globalization etc. Any impact on employment was thought to depend on the flexibility of the price (wage) system. The higher the flexibility of wages, the better the repercussions for employment but inflexible wages –identified as the inability to respond to changing market conditions- would lead to unemployment, the ‘big tradeoff’ (Okun 1975) between efficient allocation of resources and inequality or the ‘two sides of a coin’ argument. Countries with ‘flexible’ wage setting systems, low employment protection, limited welfare state institutions, low influence of unions etc. will experience rising wage dispersion while countries with a less flexible wage structure with developed welfare state institutions would experience unemployment. Going against the market forces was claimed to be costly. The choice apparently was between two evils<sup>1</sup>: higher inequality or higher unemployment.

This interpretation was based on ‘natural rate theory’, which predicts that the distortion of markets through institutional arrangements determines a unique level of equilibrium unemployment to which economies will always return (the Phelps-Friedman version) or at which they will remain (the ‘rational’ expectations Lucas version).<sup>2</sup> Defining unemployment as ‘natural’, as determined by optimization within a given institutional arrangement Milton Friedman (1968) argued that expansionary fiscal and/or monetary policy can (at best) reduce unemployment below the “natural rate” in the short run; but that in the long run, it can only cause inflation. The economy will always return to the ‘natural rate of unemployment’, which in turn would depend on the incentive structure. Economic agents will discover that

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<sup>1</sup> For some economists inequality is not an evil but a virtue (see below)

<sup>2</sup> Staiger, Stock and Watson (1997) argue that estimates of the NAIRU in the US are extremely unstable.

Keynesian-type macroeconomic policy only affects nominal values but that once the ‘money veil’ has been lifted the economy returns to its former equilibrium.

The development of economic policy guided by ‘natural rate theory’ since the 1970s provides dramatic confirmation of Keynes’ statement<sup>3</sup>. Unemployment was no longer a waste of (human) resources but rather the result of an optimization process in a given institutional setting, a structural problem. Macroeconomic reasoning for transatlantic differences in employment trends were neglected (Solow 2008) or even declared as intellectually flawed (see Krugman 2009). Transatlantic differences in employment and inequality seemed to fit this theoretical reasoning quite well. The ‘great American job machine’ produced substantial employment growth but generated higher and rising inequality whereas in Europe characterized by more compressed wage structures<sup>4</sup> employment stagnated and unemployment rose with every recession. Identify the US with unfettered labor markets and Europe with over regulated labor markets and the way to move forward seems clear: deregulate European labor markets, allow for more inequality and employment in Europe will rise.

‘Theoretical rigor’ and ‘micro-foundations’ – often meaning sticking to the perfect market model and other assumptions- were claimed by ‘natural rate theorists’<sup>5</sup>. Actually the evidence in favor of the theory dwarfed its political impact. Less regulated labor markets, more inequality but enormous employment growth in the US were regarded as sufficient evidence to propose the deregulation of European welfare state institutions which were claimed to start up a ‘Great European Job Machine’ (see Freeman 2005 on the plausibility of this claim made by IMF). Deductions from an idealized theoretical model became general guidelines for economic policy. The benchmark for evaluating real-world institutions was the perfect market: the frictionless and timeless artificial economy, where no severe disturbances occur and in which only the equilibrium is analyzed. ‘Natural rate theory’ and ‘rational expectations’ were the yardsticks used to evaluate economic policy. Markets always performed optimally if not disturbed by public policy. The public sector should therefore be

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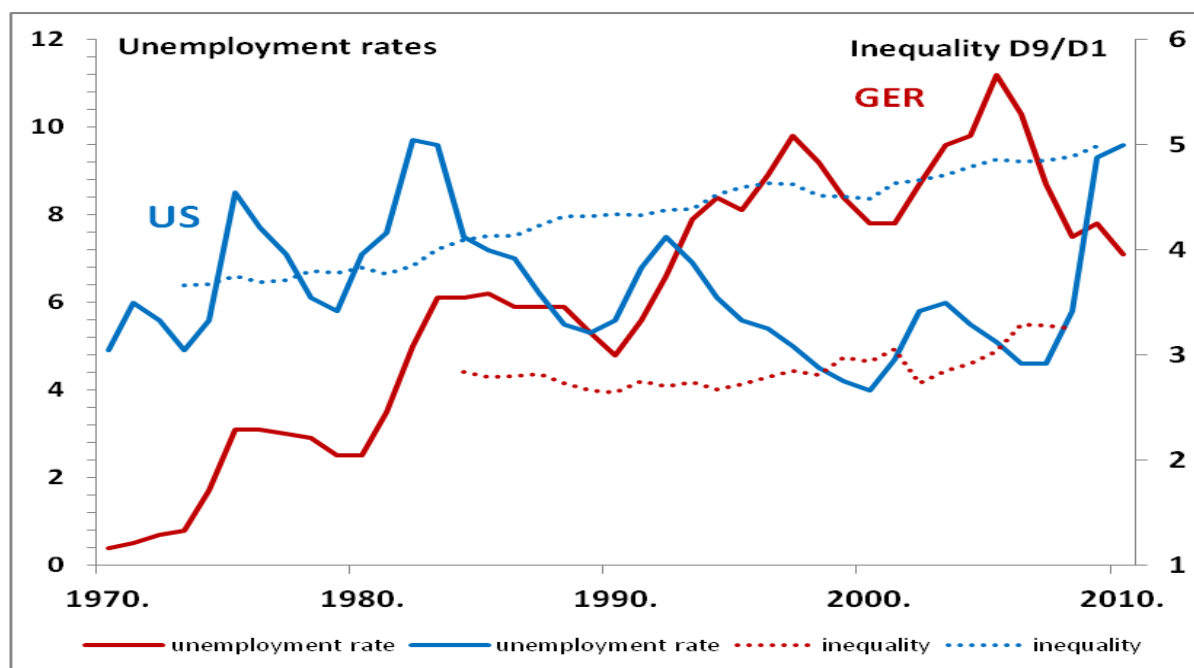
<sup>3</sup> According to James Tobin (1995) Milton Friedman’s 1967 address to the American Economic Association was the most influential paper ever published in a professional economic journal with a severe impact on politicians and central bankers. Unfortunately, he wrote.

<sup>4</sup> Schettkat/Sun (2009) argue that the major institutional difference between the US and Germany affecting employment trends is the freedom the Bundesbank gained in the after Bretton-Woods era of floating exchange rates. The Bundesbank used the new freedom to tackle inflation (peaking at around 7 % in Germany). Fears of inflationary pressure led the Bundesbank to slow economic expansions, but to let recessions go. Germany’s potential was almost permanently underused.

<sup>5</sup> see John Kay (2012)

restricted to a minimum. Consequently, the top marginal income-tax rates fell by 20%pts in the OECD-average from 1980 to the mid 2000s (OECD 2012). The OECD's Jobs Study (1994) was designed according to 'natural rate theory', which diffused even into the thinking of social democratic politicians (New Labour, German social democrats).

**Figure 1.1: Unemployment and inequality trends in the US and Germany 1970-2010.**



Source: based on OECD data, inequality is measured by D9/D1 ratios.

## 1.2 Empirical Research: Dents in the Widely Accepted Story

Empirical research often failed to identify institutional changes as responsible for the major differences in transatlantic employment trends. Cross-country studies produced doubts on the 'institutional rigidity story' (Glyn/Howell/Schmitt 2006, Howell/Baker/Glyn/Schmitt 2007, Schettkat 2005, 2008)<sup>6</sup>. Flow and duration analysis of unemployment and vacancies in the US and Germany showed tremendous mobility suggesting that Germany was suffering from aggregate demand deficiency rather than labor market rigidity (Schettkat, 1992). Institutional change in Germany from the 1980s to the 2000s fails to explain the rise in unemployment.

<sup>6</sup> Heckman, Lyunge and Ragan (2006) fiercely criticize the revised OECD view, arguing that the analysis of aggregate is flawed, and that the unemployment rate is not the right measure because corporatist countries hide unemployment in active labor market programs, early retirement, etc.

Reforming institutions should have lowered rather than increased unemployment in Germany in that period (Carlin/ Soskice, 2008). As the OECD (2004) states, micro-econometric studies focusing on wage compression in Europe (the main argument used to explain high European unemployment) fail to establish evidence that wage compression caused labor market problems (the OECD cites Nickell/Bell 1996, Card/Kramarz/Lemieux 1996, Krueger/Pischke 1997, Freeman/Schettkat 2000). But the OECD concluded that, ‘nevertheless’ rising wage inequality in the US was the market response to demand shifting away from less skilled labor (skill-biased technical change) and also the right cure for Europe. In Europe, minimum wages (statutory, negotiated or implied by social assistance and unemployment benefits) and generous unemployment benefits prevented wage inequality from rising, but the result was the unemployment of this group. The less skilled, so the argument went, were excluded from jobs, being priced out of the market by enforced and excessively high minimum wages, by a compression of the wage distribution at the lower end.

The proposition that labor market institutions caused unfavorable labor market trends in Europe was also challenged by Prescott (2003). He wrote that his initial view was that labor market institutions cause the different trends in employment and unemployment in the US and Europe, but after analyzing the tax rates on the two sides of the Atlantic he found that these explain the entire difference. Within the OECD, it did not go un-noticed that certain countries with drastically different institutions performed equally well with respect to unemployment and participation rates, and better with respect to inequality (see Freeman 2005). The 2004 revision of the Jobs Study was therefore much more cautious and modest in its conclusions, and admitted that different institutional arrangements might lead to similar outcomes (OECD 2004).

This paper proceeds as follows. The next section briefly discusses the relation between skill structure and wage distributions and possible employment effects. The third section investigates the claim that inequality creates incentives that facilitate human capital formation. The fourth section investigates evidence for the ‘big tradeoff’ between efficiency and inequality and argues that redistribution –especially when improving access to educational services- lays the ground for human capital investment rather than impeding it. Learning causes learning and better education results in more flexible labor force generating a dynamic economy. Finally, section 5, investigates the relation between redistribution and employment and concludes.

## 2. International Differences in Wage Distributions

That wages reflect marginal products is arguably one of the most accepted assumptions in economics. High-wage workers simply contribute a lot whereas low wages imply small contributions. There is no conflict: high-wage workers do not adversely impact the income of low-wage workers. High wages are earned; an increase of income at the top of the pay-scale even with constant wages at the lower end should be appreciated it is a Pareto efficient situation is claimed (Feldstein 1999). Why not improve the situation of some if others do not have to suffer a reduction? However, that gains at one end of the pay-scale do not coincide with losses at the other end of the pay-scale does not necessarily hint to Pareto efficiency.

Table 2.1 shows with few exceptions that the very top of the income ladder captured a rising share of total pre tax income. For the United States, Picketty and Saez (2001) documented income inequality in the long term. Dew-Becker and Gordon (2005, 2008) found that not only that the upper 10 per cent of the wage distribution received 50 per cent of the income growth, but also that within this privileged group the top 1 per cent captured half of that increase. At the lower end, the 20 per cent of the wage distribution with the lowest incomes received 2 per cent of the income growth. The authors argue that too much emphasis was put on demand and supply issues to explain the widening wage dispersion in the United States. The increasing wage pressure at the lower end was probably due to declining unionization and shrinking minimum wages, whereas at the upper end of the distribution peer-group behavior raised the incomes of CEOs and financial managers. (Dew-Becker/Gordon 2008, for similar trends in Germany: Bach/Corneo/Steiner 2007). Table 2.1 illustrates that the income-shares of the top 1% rose almost everywhere. Saez (2012, webpage) shows that in the 2009/2010 recovery, the top 1% received a real income increase of 11.6% but the bottom 99% stagnated. Although the top 1% share do not necessarily influence the D9/D1 ratios, high shares occur mainly in countries that have a wider income distribution. It seems questionable, however, whether these incomes are substantially influenced by labor supply or effort. In addition, labor supply (effort supply) curves may be backward bending at some level of income.<sup>7</sup>

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<sup>7</sup> Feldstein (1999) argues that high incomes of investment bankers and lawyers are related to very long working hours, i.e. the labor supply curve is forward bending.

**Fig 2.1: Share of income and change in the share, top 1%, wage distribution**

	USA	GBR	CAN	DEU	CHE	IRL	PRT	ITA	JPN	NZL	AUS	FRA	ESP	FIN	BEL	DNK	NOR	SWE	NLD
	share of income top 1%[%]																		
2007	18.3	14.3	13.3	11.1	10.5	10.3	9.8	9.5	9.2	9.0	8.9	8.9	8.8	8.6	7.7	7.4	7.1	6.9	5.7
1990	13.0	9.8	9.2	10.9	9.7	6.6	7.2	7.8	8.1	8.2	6.3	8.2	8.4	4.6	6.3	5.1	4.4	4.4	5.6
change	5.3	4.5	4.13	0.2	0.79	3.66	2.59	1.72	1.15	0.79	2.56	0.67	0.44	4	1.44	2.31	2.73	2.52	0.14
	D9/D1																		
1990	4.3	3.4		2.6		4.1		2.2	3.2	2.4	2.8	3.3	3.8	2.5	2.3	2.2		2.0	2.8

Source: OECD data.

Inequality may not reflect a Pareto optimal distribution but it may rather reflect market failure. With imperfect capital markets (Stiglitz/Weiss 1981) inequality will reproduce inequality (see below) creating a class structure, which may get structural with increasing polarization of the income distribution.<sup>8</sup> With imperfect labor markets firms may use wage setting power. Even among advocates of inequality (Welch 1999) it is argued that society's self-interest should not allow extreme poverty among sections of the population because they may cause crime, violence, and riots. Beneficial policies may be blocked in overly unequal societies either at the high end (e.g., securing privileges) or the low end in fear of insecurity (e.g., resistance to technological change). Alan Krueger (2003) also mentions access to political elites and stronger influence on the formulation of the policies. Finally, people care about their relative income position, the major explanation for resistance against nominal wage reduction for Keynes (1936) confirmed by recent research.

Following the pioneering work of Jacob Mincer (1954) economists analyze wages from the supply side, using 'human capital' variables (formal training (usually measured by years of education (inputs) or some metric of skills (output), and informal training usually measured by experience) as independent variables in regressions of (log) wages. 'Human capital' variables are thought to be proxies for productivity. Assuming that education and experience perfectly measure productivity and that wages reflect the marginal product, international differences in wage distributions could be either due to differences in the distribution of skills

<sup>8</sup> Often used arguments to play down inequality are that low income (very low income) is transitory, that low-wage workers live in households with several incomes, that they have other undeclared incomes etc. (see e.g., Feldstein 1999)



and/or due to differences in the rewards of skills. If these measures are imperfect there will be an unexplained residual (unmeasured ability probably).

Skill structure vs. institutional effects was the major issue in the efforts to explain international differences in wage distributions. One analysis is summarized in Table 2.2. Based on a standardized data set for the US and Germany (Freeman/Schettkat 2001) it turns out that neither the educational distribution nor the coefficients of schooling explain much of deviation of wages.

**Table 2.2: Components of the standard deviation of ln wages, US and Germany**

	<b>USA</b>	<b>Germany</b>
<b>1 Standard deviation of ln(wage)</b>	.466	.335
<b>2 Standard deviation of residual [ln(wage) regressed on years of schooling]</b>	.390	.283
<b>3 b, coefficient of schooling (standard error)</b>	.1087 (.0008)	.0740 (.0006)
<b>4 Predicted standard deviation of ln(wage) if coefficients for schooling (b) from the other country, initial residuals used</b>	.426	.387
<b>5 Predicted standard deviation of ln(wage) if distribution of schooling from the other country, initial residuals used</b>	.471	.332

Source: computations based on CGAS, Sample size for US 47068 cells; for Germany 42764 cells, workers 20-64 years (Comparative German American Sample), 1995, Freeman/Schettkat 2001.

When estimating Mincer-type wage regressions, education and experience often explain around 20 to 30% of the variance only. This may be due to different reasons: education (skills) and experience are imperfectly measured and/or ability (productivity) depends on unobserved characteristics.<sup>9</sup> Then the unexplained variance may just be reflecting unobserved ability and therefore wages may still reflect the marginal product.<sup>10</sup> The market works. If this assertion is correct, a compressed wage structure –e.g., with legal minimum wages,

<sup>9</sup> Krueger and Summers (1989) mention that giving much weight to unobservables, one needs to assume that these are not correlated with the observables.

<sup>10</sup> Card (1996) found that the dispersion of compensation of pilots after the deregulation of the US airline industry increased substantially.

entitlements to transfers etc.- will cut off employment.<sup>11</sup> Policy interventions, that compress the wage structure will lead to unemployment. A compressed wage structure deviating from the distribution of productivity is in this view costly, as it will exclude less productive workers from employment.<sup>12</sup> Labor market behavior deduced from theoretical assumptions produced a strong prior on the wage compression at the low end of the wage scale. Consequently the most celebrated hypothesis for unemployment in Germany (in Europe) was an overly compressed wage structure at the low-wage end. A typical example is Prasad, who claimed in a 2004 IMF paper that Germany's major problem is a compressed wage structure, although inequality was rising since the mid 1990s! (Schettkat 2006, Dustmann/Lundsteck/Schönberg 2009). Microeconomic comparison between the lower end of the US and German wage structure showed higher dispersion of the D5/D1-measure in the Germany than in the US (Möller 2005). But the widening wage distribution in Germany since the 1990s remained unnoticed or was ignored.

The strong theoretical prior might explain the vociferous arguments by the heads of the leading economic research institutes against any potential legal minimum wage in Germany (Sinn et al. 2008). However, if the relation between pay and marginal product is not that strong, if firms have at least some discretion to determine wages (Manning 2003), the effects of minimum wage laws are not as clear as in the textbook model, but that puts a dent in the theory. Therefore, Card and Krueger's (1995) finding that a rise in the legal minimum wage of almost 20% in New Jersey did not cause employment losses resulted in much intense and still continuing discussions even after over 20 years. But a low-end wage barrier influenced wage distributions substantially.

### **3. Does Wage Inequality Facilitate Human Capital Formation?**

The Ely lecture "In Defense of Inequality"<sup>13</sup> by Finis Welch (1999) is arguably the most emphatic paper, in arguing that rising wage dispersion in the US opened investments opportunities for new entrants into the labor force. Rising returns to education<sup>14</sup> should be an incentive to invest in human capital. High wage dispersion between education or skill groups

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<sup>11</sup> There is little reasoning whether institutional arrangements may also affect the expansion of wage to 'indefinite'.

<sup>12</sup> Conversely, it is argued that the integration of the unemployed requires a widening of the wage distribution.

<sup>13</sup> Becker and Murphy 2007, Feldstein (1999) argue along similar lines.

<sup>14</sup> Returns to education are usually based on years of education rather than on the actual costs.

may enhance human capital investments, but within educational groups high wage dispersion raises ex ante the risk of human capital investments, i.e., it may be a disincentive (Agell, 1999). Welch (1999) decomposed the total variance of (log) wages into variation across educational groups, variation across experience levels given education and variation within education-experience cells (see Table 3.1). He shows that the total variance increased in the US from 1970 to about 1995 and that the variance of experience within educational groups rose in the 1970s but then remained constant. The variance across educational groups rose until the 1990s. Welch took the increase in educational attainment among younger cohorts as evidence that the incentives of the ‘college wage gap’ worked.<sup>15</sup>

Table 3.1 displays the variance decomposition based on Welch’s data. Clearly the share in the overall variation attributed to education increased but only about a quarter of the variance is explained by education, two thirds is variation within education-experience cells (the residual). I.e., two thirds of the wage variation remains unexplained. Welch regards a world where the residual variance is small as a boring world. In the extreme one would only make one decision –the human capital investment decision- and then the wage path would be determined by experience. He frames his argument as if the position within the education-experience cells is based on individual choice or ability. However, what if the wage position in the educational group does not depend on individual decisions but is rather stochastic? Being at the right place at the right time may lead to a wage premium. Then the wage premium related to education can only be calculated with great risk. And risk is costly (Aggell 1999).<sup>16</sup>

Is high and rising wage inequality needed to stimulate human capital investment? Few people would regard education as a pure investment and international comparative studies all identify the US as a country with exceptional high variation in earnings, for good or for bad. Richard Freeman in a paper with Dan Devroye (Devroye/ Freeman 2001) uses skills as measured in the International Adult Literacy Survey (OECD 1997) -an output variable- rather than education -an input variable- to investigate the US wage distribution. They found higher wage

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<sup>15</sup> Although the supply of higher skilled labor increased, the ‘college wage premium’ can nevertheless increase if demand increases even faster (see: Katz/Murphy 1992). Card/ DiNardo (2002) investigate the plausibility of skill biased technological change and conclude that institutional changes like the declining influence of unions and the decline in the legal minimum wage are more plausible cause for rising wage inequality in the US.

<sup>16</sup> The Threat of unemployment can be a disciplinary device and may also be an incentive to invest in human capital (Aggell 1999).

dispersion within narrowly defined skill groups (10 percentage points skill groups on a scale from 0 to 500 points) in the US than in the entire Swedish economy.<sup>17</sup>

**Table 3.1: Variance decomposition, log-wages in the US, based on Welch data**

year	Overall	education	experience	education-experience cells
<b>Variance log-wages</b>				
<b>1970</b>	0.22	0.03	0.02	0.16
<b>1980</b>	0.35	0.05	0.04	0.26
<b>1990</b>	0.46	0.10	0.03	0.31
<b>1997</b>	0.46	0.12	0.03	0.29
<b>distribution [percent]</b>				
<b>1970</b>	100	14	10	76
<b>1980</b>	100	13	11	76
<b>1990</b>	100	23	7	70
<b>1997</b>	100	26	7	66
<b>1970 = 100</b>				
<b>1970</b>	100	100	100	100
<b>1980</b>	159	150	171	163
<b>1990</b>	209	333	157	194
<b>1997</b>	209	383	152	181

Source: compilation from Welch (1999), rounding errors

If rising college wage premiums are incentives to which individuals respond by investment in human capital, what then happened in the Scandinavian countries where educational attainment increased substantially but wage differentials were small? Sweden has the highest median scores among the participating countries in the IALS and the most narrow skill distribution but access to and the success of education in Sweden (as in other Scandinavian countries) depends much less on the parents' socio-economic status (see below). Aside from the fact that schooling decisions are certainly driven by other than pure economic variables - although they are important - the equation 'rising inequality = rising educational attainment' is based on an idealized world of equal opportunity without capital constraints influencing investment decisions. Actually capital markets are imperfect, one cannot capitalize human capital and the social status of the family (parents) seems to be a strong influence. For example, sorting students by their performance in the 8<sup>th</sup> grade, the share of students who

<sup>17</sup> Devroye/Freeman mention that in the US wage may be that ex ante equal for 'identical' persons, but that contracts make future earnings depending on the success of the company not in the control of the individual. I.e., Americans conclude risky contracts. The author argue, that such a possibility is different from luck. Thurow (1975) argues that on-the-job training is causing heterogeneity in wages.

completed a bachelor degree is strongly influenced by the family income (see Table 3.2). In the US, among the students who score high marks in math in the 8<sup>th</sup> grade but who are from a low-income family only about 30% completed a bachelor degree. The same number as low-scoring students from high-income families!

**Table 3.2: Educational outcomes and socioeconomic status**

Math performance in the 8 <sup>th</sup> grade	Family income position		
	Low	Medium	High
	<b>% completes bachelor degree</b>		
<b>Low</b>	3	8	<b>29</b>
<b>Medium</b>	7	21	47
<b>High</b>	<b>30</b>	51	74

Source: Fox/ Connolly/ Snyder (2005).

#### 4. Inequality and Public Services

The ‘Big Tradeoff’ (Okun 1975) between efficiency and equity was established on the grounds that taxing high incomes creates a disincentive to work or effort at the upper end of pay-scale whereas transfers have a similar effect at the lower end of the pay-scale. In addition the ‘leaky bucket’ of administrative costs lowers efficiency further. The ‘bucket may be especially leaky’ if high incomes are related to effort (or talent to be developed). But the argument loses plausibility if the rise in inequality is concentrated among the ‘super stars’. However, economic policy was guided by theories claiming that reducing taxes for high-income earners will generate social benefits because the income elite will raise their efforts, which will result in higher growth benefiting the lower end of the wage distribution too (trickle down). Put money to the top and it will eventually trickle down. The argument went together with the claim that inefficient public service provision is inefficient and is directed to reduce public activity and shifting it to the private sector. If the private sector is more efficient, tasks should be performed there. But it is not always the public sector that is less efficient (e.g., providing a standard pension system). Measures of inequality are usually based on monetary incomes before or after taxes. However, there is a substantial amount of indirect income, services in kind, which can have extremely different effects on inequality. Following

work of the ‘Luxembourg income study group and others, the OECD new estimates extended incomes including in-kind benefits from public services.

Benefits from public services affect low-income household much more than high-income households and they reduce inequality. Comparing the cash income (after tax) distribution with the distribution of extended income (cash income plus public in-kind services) inequality is reduced by 20 to 30% depending on the measure used (see OECD 2011). Even if in-kind benefits are equally distributed across the income groups, they will be of a much higher share in extended income in the lower income groups. The income of the bottom quintile is raised by about 75% in the OECD average, whereas the income of the fifth quintile increases only by about 14% (Table 4.1). The effect of educational services and of early childhood education and care (ECEC) shows a similar pattern: the income of the bottom quintile is raised substantially if the in-kind services are included. However, cutting back on public services will then affect the lower end of the income distribution much stronger than the top. This will have severe long-term consequences especially if educational services are affected.

**Table 4.1: Income-increasing effect of in-kind benefits from public services by quintile, OECD-27 average, 2007**

	Q1	Q2	Q3	Q4	Q5	Total
<b>Public in-kind benefits relative to income</b>						
<b>Total</b>	<b>75.8%</b>	<b>46.4%</b>	<b>33.5%</b>	<b>24.3%</b>	<b>13.7%</b>	<b>28.8%</b>
<b>Education</b>	30.6%	18.5%	14.2%	10.4%	5.6%	11.8%
<b>ECEC</b>	40.7%	24.9%	16.9%	12.4%	7.4%	15.2%
<b>Distribution of ECEC in-kind benefits over quintiles</b>						
<b>OECD'21</b>	19.8%	22.2%	22.8%	18.7%	16.4%	100.0%

Source: compilation based on OECD ..... Table 8.1,

Public expenditures –in kind services- seem to have a strong impact on inequality indicators reducing Gini coefficients by around 20% (OECD 2011: 317 Table 8.2). For the OECD21 (not including the ‘new’ OECD countries) the percentage expenditures on in-kind services in GDP is 13.4% compared to cash transfers, accounting for 13.2 percent of GDP. Educational services account for 5.1%. Consequently the relation between changes in public service provision and the reduction in inequality appears to be quite strong. Countries that reduced

public service provision experienced an increase in inequality and vice versa (see OECD 2011: Fig8.11). Restricting public services to the minimum will harm efforts to equalize opportunities and may reduce the growth potential (Dauderstädt 2012).

#### **4.2 Inequality and Opportunity: Intergenerational Mobility**

The strength of the relationship between the income and the educational position of two consecutive generations may serve as an indicator for the equality of opportunity. Equality of opportunity would imply a loose relation, a low elasticity of the socio-economic status of consecutive generations. Naturally, in all countries the influence of parents on their children's educational and income achievement is strong. But the strength of the relation varies and may substantially be affected by public policy. In a strictly privately financed educational system, the link between the parents' income position and educational attainment of their children will be strong. The more unequal the income distribution in the parents' generation, the more unequal will be educational attainment and income in the children's generation. Although taxes may discourage work, higher educational attainment encourages work. Therefore, the impact of taxes on work is not as clear-cut even if a discouragement effect of taxation is assumed. Table 4.2 shows that public expenditures on education increase extended income in the lower part of the income distribution substantially.

If investments in education depend on private resources or if public education is locally financed, low intergenerational income mobility may reinforce inequality. Income heterogeneity in neighborhoods will lead to segregation (Schelling 1978) into wealthy and less wealthy areas reinforcing intergenerational income stability. Therefore, not only the parents-children ties but also the repercussions in society affect human capital investments and income positions. Inequality creates inequality. Neighborhood effect will not only arise because of differences in the access to resources but also social interaction and role models may be missing in less wealthy neighborhoods with low educational resources (Durlauf 1992).

James Heckman and his coauthor Pedro Carneiro, (2003, page 91) argue that preschool education is especially beneficial because returns are much higher than the costs. Early childhood education may break or at least loosen the link between parents' socio-economic

status and educational attainment of their children. Learning causes learning. Roughly equally distributed across the income quintiles (bottom row in Table 4.1), the effects of publicly provided educational services relative to income are substantially higher at the lower end of the pay-scale (Table 4.1). I.e., lower income groups rely substantially more on public provided services than the higher income groups. Naturally public services for young children affect young families most. Their extended income rises from 4% in the US over 8% in Germany up to 24% in Sweden. However, the Swedish value is extreme even among the Scandinavian countries where the values are around 10% (Norway) to about 16% in Denmark (OECD 2011).

Intergenerational income elasticity is often measured by the (log) relative income position of the children to the relative income position of the parents. That is, if the children's income relative to the mean income is high and parents had a similar income position, the elasticity is high, if the parents had instead a low income position, the elasticity is low.<sup>18</sup> As results presented in Table 4.1 show the US appears to have not only high inequality but also high intergenerational income elasticity, whereas the countries with the lowest inequality have much lower intergenerational income elasticity (i.e., higher mobility).

Combining estimates of intergenerational income elasticity with inequality measures of countries produces the data displayed in Table 4.2 (upper panel). Higher income inequality seems to be related to higher intergenerational income elasticity, i.e. lower intergenerational income mobility.<sup>19</sup> The great opportunity of higher inequality does not show up in the data. Also estimates of private returns to education indicate a negative correlation to measures of income inequality. Again, not the result advocates of greater inequality predicted (Table 4.2 lower panel).

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<sup>18</sup>  $\ln(Y_{ci}/Y_{c.}) = a + b \ln(Y_{pi}/Y_{p.}) + u$

where  $Y_{ci}/Y_{c.}$  = relative income of children,  $Y_{pi}/Y_{p.}$  = relative income of parents, coefficient  $b$  = elasticity.

<sup>19</sup> Björklund/ Jäntti (2009: 502) indicate that estimates of intergenerational income elasticity have large confidence intervals making a ranking of countries with respect to intergenerational mobility difficult.



**Table 4.2: Intergenerational mobility of earning and income inequality.**

Intergenerational earning elasticity	Gini coefficients of income inequality			
	20-25	25-30	30-35	35-40
.1-.2	DNK	FIN NOR	CAN AUS	
.2-.3	SWE			
.3-.4		GER	ESP	
.4-.5		FRA	GBR ITA	USA

Intergenerational earning elasticity	Private returns to education			
	2-6	6-10	10-14	14-18
.1-.2	DNK	AUS CAN	NOR	FIN
.2-.3		SWE		
.3-.4		GER ESP		
.4-.5		FRA ITA	USA GBR	

Source: OECD 2010.

## 5. Redistribution vs. Employment?

Higher individual returns to education may positively influence the individual's decision to invest in human capital, c.p. But opportunities to enroll in education are severely influenced by family backgrounds, institutional frameworks, by access to educational services and other socio-economic variables such as neighborhoods, role models, attitudes etc. However, the residual dominates wage regressions, which may be due to unobserved ability. If so, equating wages with marginal products still holds but has to rely on unobserved variables. Any (long-term) persistence of wage distributions or lasting changes in the wage structure can then be interpreted as reflecting the marginal products. This strand of the literature concludes that 'natural rate theory' holds or that economist should at least stick to the theory until contradictory empirical evidence gets overwhelming. We do not have a better theory? Critics of the 'natural rate theory' argue that wages and marginal products are not (always) equal but that there are at least some degrees of freedom in wage-setting. Furthermore, for unobserved

ability to determine the large residual in wage regressions, unobserved ability need to be uncorrelated with observed characteristics<sup>20</sup>.

Equating wages with individual marginal products<sup>21</sup> -with the individuals contributions to the economy- often leads proponents of the ‘natural rate theory’ to interpret rising incomes of the very top earners to be Pareto efficient. They only get what they deserve, what they contribute. Reducing their incomes –directly or through taxes- will frustrate efforts, the pie will shrink and nobody is better off. Assume a world without power and influence and there we are. Raising taxes will then have adverse effects, but there may be (at least) two effects related to redistribution. Taxes may discourage labor supply<sup>22</sup> but taxes can enable (more) equal access to education, more equality in opportunities, which seems to affect participation in labor markets positively. Furthermore, in a dynamic economy, educational services may be especially important: To function in a complex society requires a minimum level of education, better education may enhance technological advancement, it may facilitate adaptation to rapidly changing environments.<sup>23</sup> Education may create positive spillovers, i.e. individuals’ investment in human capital would be sub-optimal especially if households face credit constraints, as they of course do. Overcoming these impediments is not only social but also economically beneficial. Moreover, individual’s productivity derived from education will depend on the educational level of society. Broad access to public education would be socially very beneficial, probably most if preschool education is enhanced.

Empirical evidence is never perfect and aggregate analysis using countries as units may average out substantial variation, hiding many important differences within countries. Naturally, country studies rely on few observations and they are certainly not the last proof, but they may serve very well as plausibility checks. The data presented in Figure 5.1 is not perfect, we compare a long time horizons (20 years), we use national aggregates hiding a lot of the variation, and we have only a few data points.<sup>24</sup> But if redistribution has the proclaimed dominating negative effects on employment, one would expect to see this relation in cross-

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<sup>20</sup> Krueger/ Summers (1988) in their paper on ‘inter-industry wage differentials’ observe that even workers dismissed from low-paying industries receive a wage premium when moving to a higher paying industry.

<sup>21</sup> Of course, in economies relying on the division of labor, at least the working team but also society heavily influences a person’s productivity.

<sup>22</sup> The neoclassical labor supply model is theoretically in-determined: the labor supply function may be forward- or backward-bending depending on the strength of the substitution and the income effect. The latter is in the theory always negative –higher unearned incomes reduce labor supply. Thus the model immanent conclusion is that transfers reduce labor supply.

<sup>23</sup> A social security net may also improvement the acceptance of technological change.

<sup>24</sup> We picked the years 1985 and 2005, which seem to be at roughly similar stages of the business cycle. But that may be debatable.

section of countries. Countries with a high degree of redistribution should in tendency show lower relative employment and higher unemployment.

Figure 5.1 displays relevant labor market outcomes as measured by employment-population rates, hours worked per head of population (15-65 years), and unemployment rates on the vertical and a measure of redistribution on the horizontal. Hours worked per of population may be preferred over employment-population rates because hours may substantially influence employment figures, as in the case of the Netherlands. The disincentive to work should be highest were redistribution is strongest. As a measure for redistribution we use the ratio of the Gini coefficient<sup>25</sup> before taxes divided by the Gini coefficient after taxes.<sup>26</sup> The measure displays high values whenever redistribution is strong. According to conventional reasoning a high degree of redistribution should discourage high wage labor supply (because some income is taxed away) but also low wage labor supply (because transfers are available with little or no work). The relationship between employment-population rates and the redistribution measure is in 1985 and in 2005 essentially flat, although. If anything, it is in 1985 upward sloping, i.e. higher redistribution coincides with higher employment to population rates. When using differences in employment to population rates a slightly negative (although insignificant) slope occurs, i.e., but this is strongly influenced by the Netherlands. From 1985 to 2005 the Netherlands experienced a slight increase of 4% in the Gini coefficient for disposable income (after taxes), but the Gini before taxes (market income) declined by 10%. I.e., more equality in pre-tax incomes led to a decline in the redistribution. A more equal distribution of incomes before tax in the Netherlands, however, is due to a substantial rise in female labor force participation largely driven by increased educational attainment.

Neither in 1985 nor in 2005 we detect any important relation between the measure of redistribution and the labor market indicators. If changes between 1985 and 2005 in the redistribution measure and in the labor market variables are used, the relation does not change. We cannot detect a relation. Similarly if measures of inequality (Ginis or decile

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<sup>25</sup> Gini coefficients are usually referring to family or household income (before or after taxation), i.e. Ginis (usually) do not reflect the distribution of wages. Decile ratios of (gross) wages are therefore be a more direct indicators for the inequality in the labor market.

<sup>26</sup> The redistribution measure was constructed from the Ginis before and after taxation:  $rdm = \text{Gini before taxation} / \text{Gini after taxation}$ . Values above 1 indicate less inequality after taxation, values below 1 would indicate more inequality after taxation, although empirically not observed. Changes over time computed as  $rdm_t - rdm_{t-1}$  indicate a decline in redistribution when negative, and a strengthening in of redistribution when positive.

ratios) are used the relation hypothesized by 'natural rate theory' cannot be detected. There may be multiple equilibrium, i.e. different degrees of inequality seem to be compatible with similar employment and or unemployment outcomes. There is not only one model every country as to follow but there are degrees of freedom leaving room for difference in institutional arrangements with harming labor markets.

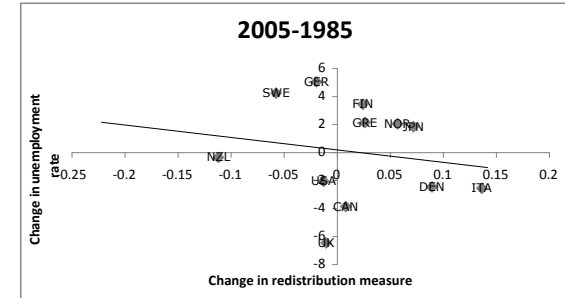
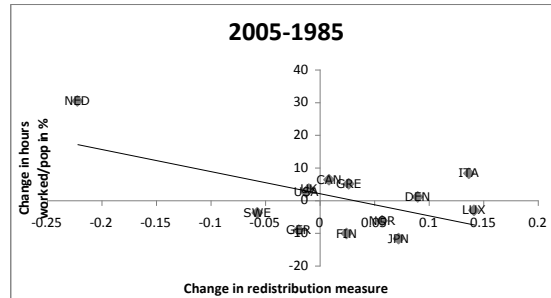
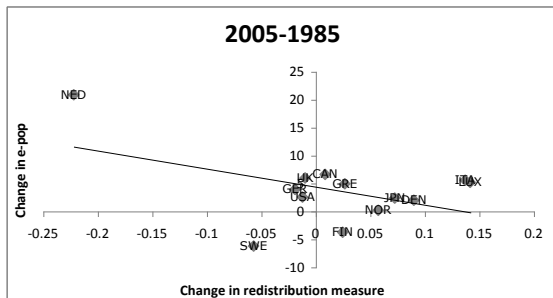
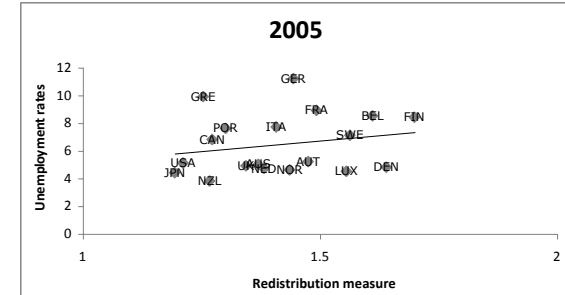
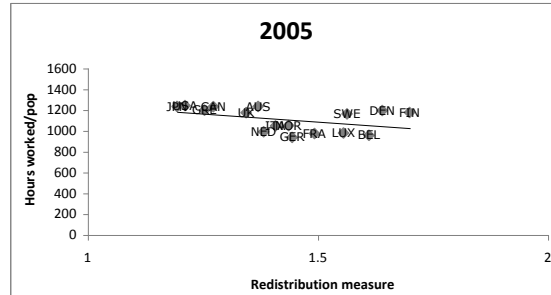
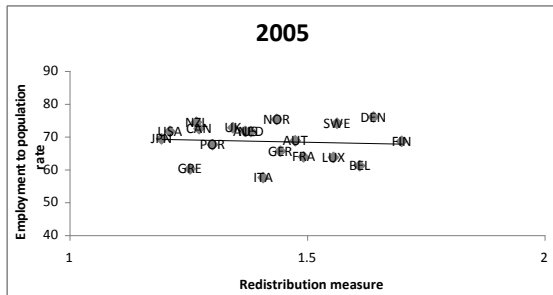
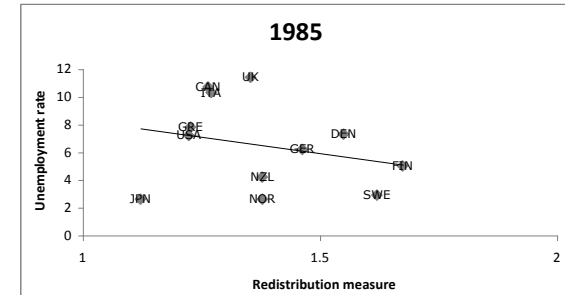
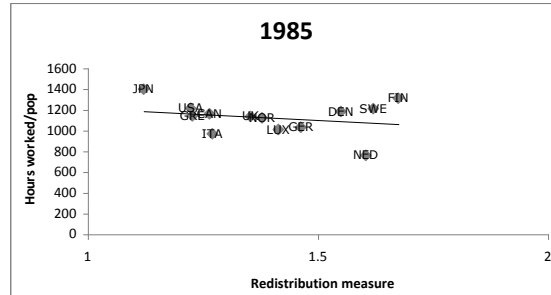
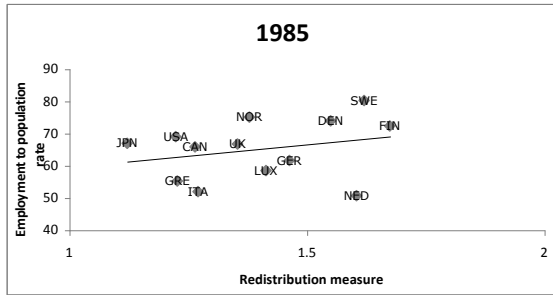
Proponents of positive effects of inequality emphasize individual incentives to invest in human capital and to work. But if higher equality (achieved in the market or by redistribution) leads more equal opportunities, a higher enrollment in education, the assumed negative impact on incentives may be well compensated or overcompensated by a higher rate of technological progress. If the able children from less wealthy households are 'credit constraints' (see Table 3.2), breaking the lock-in by public education, will be socially but also economically beneficial.

Figure 5.1: Labor market indicators and redistribution, (OECD countries, 1985, 2005)

Employment to population rates

Hours worked / population (15-65)

Unemployment rates



Source: computation bases on OECD database.

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