

# **Convergence, Divergence and the Kuznets-curve**

by

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## Introduction

The study of economic growth has again become a major area of interest for both applied and theoretical economics. This paper relates some of these developments to the empirical study of economic growth with focus on Europe. Our main concern is with the distribution of income over time, not only between countries but also between regions within countries. Finally we discuss the link between income levels and the distribution of income of individuals as depicted by the Kuznets-curve, cf. Kuznets (1955). The recent empirical convergence literature cf. Abramovitz (1986) and Baumol (1986), suggested that incomes of the richest countries in the world seem to converge while this is not the case for the world as a whole. Barro (1991) and many subsequent studies based on an explicitly neoclassical growth model, have shown that if one controls for differences in factor accumulation, countries seem to converge at the same rate but to different steady state levels of income. Thus conditional convergence is taking place. However, the distribution of income levels between regions in steady state is not made explicit in most of these latter studies.

In this paper we first illustrate the changes in the dispersion of income between most of those countries in Europe which today are members of the European Union. We use long historical time-series of GDP per capita relying on Maddison (1995) in order to show that there have been periods of convergence as well as divergence in incomes among these countries. Thus care should be used when interpreting estimated growth equations that only use a subset of observations that excludes periods of divergence. This conclusion echoes the argument by De Long (1988) with respect to the subset of countries chosen for empirical growth studies, that the exclusion of countries for which data series are not sufficiently long will bias the conclusion towards support for the convergence hypothesis.

The next section defines some measures of convergence and refers theoretical arguments recently put forward to explain differences in the level and growth of regional incomes. Then we present some empirical evidence on mainly European national and regional convergence. These results are then compared with the personal distribution of income in relation to the level of income which are related through the so-called Kuznets curve.

## Theories of convergence

The hypothesis of convergence of GDP per capita among countries or regions has been intensively tested in recent years. This hypothesis exists in three versions:

- Absolute convergence. Regions converge to one another in the long run irrespectively of their initial conditions. This is often called absolute beta-convergence and implies that poor countries grow faster than rich countries and that the growth rate of real per capita GDP is negatively related to the initial level of real per capita GDP. If we have beta-convergence, the dispersion of regional GDP per capita will tend to decrease, in which case we have so-called sigma-convergence. However, one can have beta-convergence without observing sigma-convergence.
- Conditional convergence. Regions with similar structural characteristics converge independently of initial conditions. This is the prediction of the traditional neoclassical growth model. If one controls for factors which characterize the steady state growth path of GDP per cap-

ita, one should still find that the growth rate is negatively related to initial income. However, one may not observe absolute convergence and still have conditional convergence.

- Club convergence. Regions with similar structural characteristics converge only if their initial conditions are similar as well. In this case neither absolute nor conditional convergence are observed.

As shown by Mankiw (1995) and many others, the neoclassical model of economic growth leads to a steady-state growth rate that is independent of initial conditions and where the growth rate (per person) depends only on the rate of growth of technology. If technology is a public good, then in steady-state, all countries should experience the same per capita growth. However, the steady-state level of income per capita depends on several structural characteristics that are not normally assumed to be equal between regions. Conditioned on these characteristics, the neoclassical model predicts convergence. The hypothesis of conditional convergence is often supported by empirical evidence which find that initial income is negatively related to growth also after controlling for other explanatory variables. However, this result is not only supportive of the neoclassical model. Also models based on technology diffusion are in accordance with this empirical evidence. This fact is stressed by many, also Barro and Sala-i-Martin (1995). To discriminate between rival hypotheses one must either look for other empirical evidence or use other criteria such as how reasonable is it according to common sense to assume that technology is a public good. However, the hypothesis of conditional convergence is rejected by many studies, cf. Bernard and Durlauf (1995) and studies cited therein.

Club convergence on the other hand, implies that although certain structural features of economies are similar, they will not converge due to initial factors. Or, stated somewhat differently, history matters in a crucial way. The possibility of club convergence is ruled out by assumption in the standard neoclassical model because agents are assumed to be homogeneous. If, however, agents are allowed to be heterogeneous, the dynamical system of the neoclassical growth model could lead to multiple steady-state equilibria in spite of diminishing returns to capital. This possibility is usually discussed within a model with different factor endowments between individuals (a most reasonable hypothesis in my view) so that we have different saving ratios out of wage income and capital income. The one sector model with overlapping generations is one example of extensions of the neoclassical model that can produce multiple equilibria, see Galor (1996) for discussion. Durlauf and Johnson (1995) present empirical evidence in favour of multiple steady-states using cross-section data.

Allowing for heterogeneous agents is reasonable if one wants to discuss the effects of human capital for economic growth. This leads one to consider income distribution effects. Galor and Zeira (1993) examine private education decisions in a simple overlapping generations model where initial wealth differs between individuals. They find that countries with unequal wealth distribution will accumulate less human capital and will have lower growth than in countries where the middle class is relatively large. Garcia-Penalosa (1995) shows that in countries where education costs are relatively low compared to average wealth (which is typically the case in rich countries) an increase in inequality lowers growth because fewer people can afford higher education. Thus countries that are similar in their structural characteristics as well as initial per capita output, but differ in their initial distribution of income, can converge to different steady-state equilibria. This hypothesis has been supported by a number of recent empirical

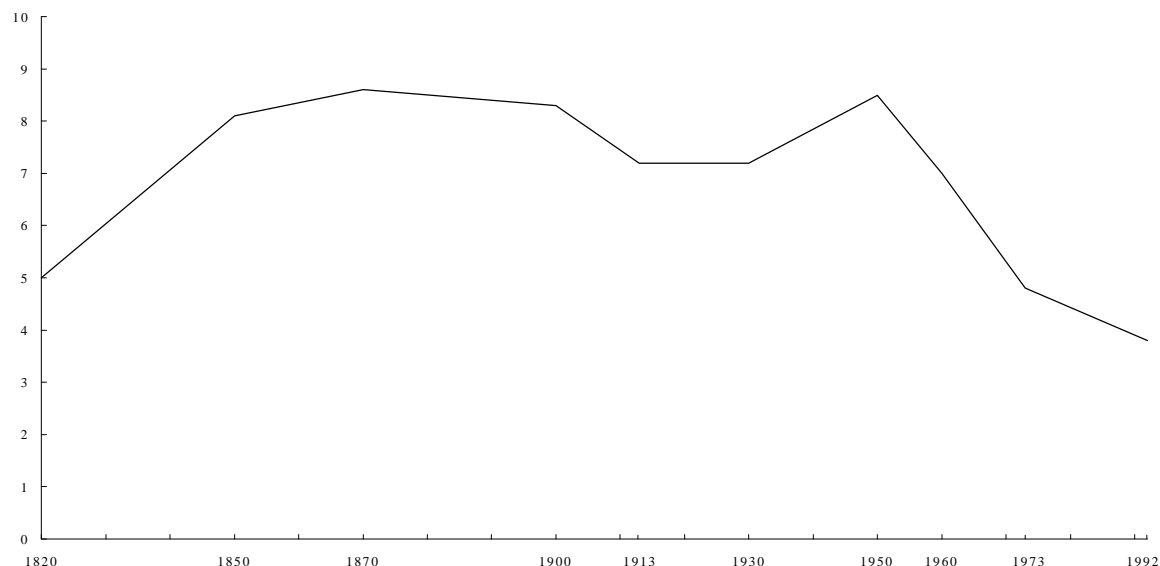
studies such as Alesina and Rodrik (1994), Persson and Tebellini (1994) and a study based on data for Norwegian counties, see Aaberge et al. (1996).

## Growth in Europe - a long-run perspective

Using national data for GDP per capita, there is a substantial amount of evidence showing that some convergence between countries has taken place in Europe during this century, see Ver-spagen (1995). However, there are only few studies of how the very wide dispersion of per capita income between regions and countries in Europe came about in the first place. What factors caused per capita income to diverge between countries/regions in Europe until somewhere around 1850, before they started to converge?

In Landes (1969) the title of chapter 4 is «Closing the Gap» and the opening sentence of that chapter reads: «The period from 1850 to 1873 was Continental industry's coming-of-age.» This suggests that before 1850 there was divergence in incomes between European countries. The GDP per capita figures in table 1-3. of Maddison (1995), indicate that there indeed was divergence in Europe between 1820 and 1850. The countries with per capita income significantly above the average in 1820 (Netherlands, UK and to some extent Belgium) increased their relative income further compared to many other countries (Finland, Germany, Italy, Ireland, Spain and Sweden) that fell behind. If we move further backward in history and rely on the figures in Maddison (1982) there was considerable convergence between France, Netherlands and UK from 1700 to 1820. Figure 1. shows the standard-deviation of GDP per capita for all EU-members except Greece and Portugal from 1820 - 1992. The significant increase in the dispersion in European incomes between 1820 and 1850 is very striking.

**Figure 1. Coefficient of variation for GDP per capita in West-European (EU) countries. 1820-1992**



In a number of recent studies Williamson and colleagues (cf. Williamson (1995), Williamson (1996), O'Rourke and Williamson (1996) and O'Rourke (1996)) have compared post-World War II convergence with similar developments in the late 19th century. Using their evidence

along with the figures from Maddison (1995), the following epochs of European economic growth can be distinguished:

1820 - 1850: Divergence  
1850 - 1913: Convergence  
1913 - 1945: Divergence  
1945 - 1990: Convergence

According to Williamson (1995) the periods of convergence were ones with overall fast growth and globalization while the period between the World Wars was characterized by low growth and de-globalization. Most importantly, globalization was the critical factor in contributing to convergence in the form of mass migration and trade. It is worth noticing that it was not capital deepening per se that caused convergence according to Williamson as is the case in the traditional neoclassical model, but rather factor mobility. This view is not supported by Barro and Sala-i-Martin (1995) in their concluding section on convergence: «The evidence here is not definitive, but suggests that migration plays only a minor role in the convergence story.» (p. 413)

The globalization that took place in the second half of the 19th century manifested itself in many ways. First international trade increased. This was due both to policies (Europe moved towards free trade following the Cobden-Chevalier treaty in 1860) and technological change as railways and steamships lowered transportation costs. However, again according to the figures in Maddison (1995), the growth rate in world exports was higher during 1820-1870 (4.2 percent annually) than between 1870-1913 (3.4 percent). Thus it is not obvious that the period of divergence (1820-1850) was one of low growth in exports.

Second there was a lot of factor mobility. Emigration from Europe to countries in the New World was particularly important in Ireland, Britain, Scandinavia and Italy. International labour mobility produced large shocks to the labour force in many countries and contributed significantly to the convergence in many of the countries that were involved according to O'Rourke (1996) and O'Rourke and Williamson (1996). The lack of emigration from the Iberian peninsula caused this region to diverge according to these authors. There were also large capital flows within Europe and between Europe and other regions. For a country like Norway, large inflows of capital from Europe (Britain in particular) financed the «take off» of the Norwegian resource based industrial sector.

Moving on to the period between the two world wars, the volume of world exports did not recover from its previous peak in 1913 and was actually lower in 1929 (when trade peaked between the wars) than in 1913. This happened in spite of continued large reductions in transport costs but coincided with the reimposition of trade barriers. Thus divergence and low export growth went together during the inter-war period. This is also the case after World War II when world trade increased dramatically by historical standards (7.0 percent annual growth on average between 1950 and 1973) and there was at least convergence of incomes between most European countries. During this post-war period it is well known that tariffs were reduced and transportation costs were reduced further.

Does the view that globalization promotes growth and convergence fit well with recent evidence? First of all the process of convergence in incomes seems to have come to a stand still

and even some divergence has occurred. This is not so apparent between European countries as it is on a global level. As we shall see below, also at the regional level in Europe, convergence has stopped and in terms of personal income distribution there are signs of more inequality. While I think it is fairly uncontroversial to state that capital markets have been substantially liberalized during the 1980s both globally and within the OECD-area, labour markets have gradually become less open. However, within the EU restrictions on both labour and capital mobility have been largely eliminated. The possibility of non-Europeans to enter into Europe has been made more difficult than before. Markets for services have gradually been liberalized while many commodity markets have become slightly less open during the 1970s and 1980s due to an increase in non-trade-barriers. In Europe the establishment of the internal market has significantly reduced non-tariff barriers but it may not have lasted long enough for the effects on GDP to be visible.

All in all, my view is that convergence in GDP per capita among the present members of the EU seems to have slowed down after 1973 and could even have stopped. This conclusion is also supported by looking at regional data for Europe. It is perhaps in this light the reduction of regional inequality is formulated as an explicit goal of EU policy in the 1987 Single European Act. One argument in line with Krugman and Venables (1995), is that market integration might involve divergence initially, followed by convergence later, due to the interactions of economies of scale, transportation costs and their effect on industry location and relative wages.

Looking beyond the European experience, the global long-term picture is one of divergence in GDP per capita, cf. Maddison (1995). This is due to several well known factors. Nearly all African and Latin American countries have been growing slowly during the 20th century. In Asia the growth experience is very different with some countries hardly growing at all (Burma, Bangladesh, India and Pakistan) while others have been growing very fast by any standard (Taiwan, South Korea and Japan). The lack of convergence in incomes is however, underestimated by looking only at those countries for which we have more or less reliable GDP-figures. We know that many countries which still today are extremely poor and can barely feed their population (Mozambique and Ethiopia to name just two obvious examples), cannot possibly have grown at all the last century. Going a bit further, one may guesstimate a minimum sustainable level of GDP per capita that a country can have and use this as an indicator of the maximum growth rate any country might have had during this century. Based on the figures in Maddison (1995) a level of 300 USD (in 1990 international dollars) can serve as an approximation to this minimum level. Using this figure as a level of GDP per capita for those countries where no figures are available for 1820, the US had 4 times this level in that year as opposed to 8 times in 1850, 14 times in 1900, 32 times in 1950 and 72 times that level in 1992 (which in fact is the observed ratio between Ethiopia and the US that year). Narrowing down the analysis of convergence to the present «advanced» countries is obviously not a sensible way to limit one's sample, a point made forcefully by De Long (1988).

It is by now generally accepted that absolute convergence in GDP per capita has not taken place at a global level. Indeed, it is well worth pointing out that also among countries within Europe, there are fairly long periods of time where divergence in GDP per capita has occurred. Thus even for countries which are quite homogenous and where one could expect the assumption of similar structural characteristics to be reasonable as defined by the traditional neoclassical growth model, divergence could very well be observed.

## The regional distribution of income in Europe

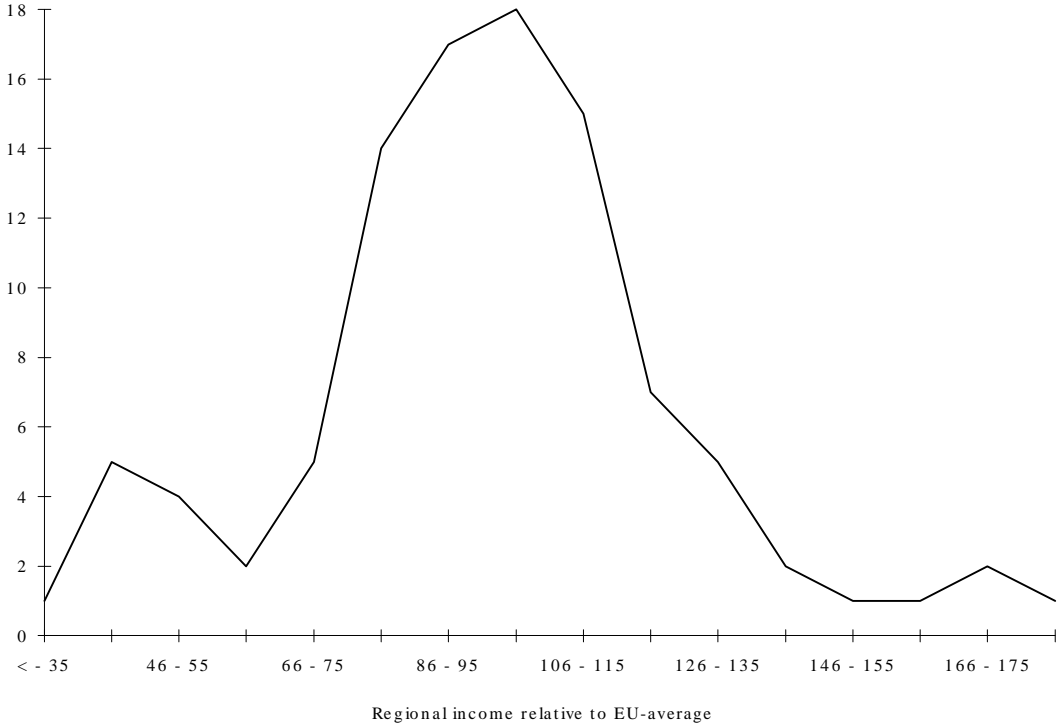
There is by now a number of empirical studies of economic growth and convergence among regions in Europe. This section tries to summarize some of the more recent studies rather than providing yet another study. We will present information that tries to answer the following questions:

1. How much variation in GDP per capita is there among regions in Europe and how can this distribution be characterized?
2. Is the dispersion in GDP per capita in Europe declining, or do we observe convergence?
3. If we observe convergence, is it a steady process?
4. How does the European process of regional convergence compare with other international evidence?

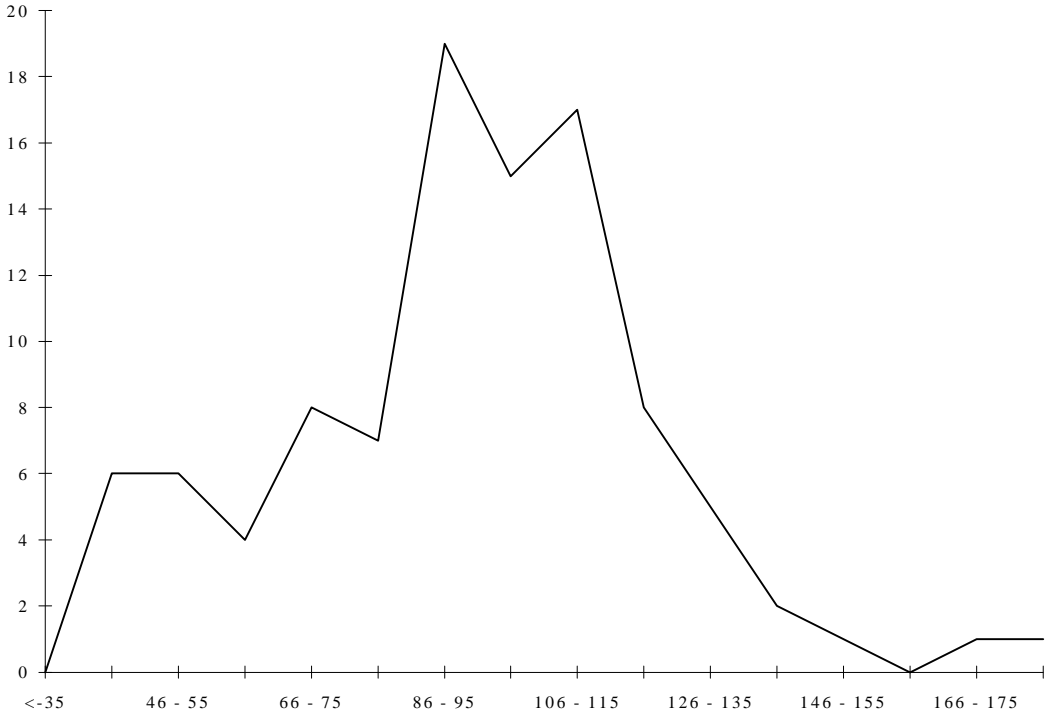
In answering the first question, I shall rely on figures for GDP per capita for NUTS II-regions and in purchasing power standards (PPS) based on EUROSTAT (1994). For 1980 these figures show that a number of regions had only 40% of EU12-average income while a number of regions had income 40% higher than the average (also after excluding rich regions such as Groningen due to gas, Hamburg and Brussels due to the difference between residents and workers). The ratio between the poorest and the richest region was roughly 1:4. In 1991, the inclusion of the new German Länder increased the dispersion further, but also after excluding this group of regions the dispersion was more or less the same as in 1980 if not wider. I shall return to measures of dispersion below.

What is perhaps more interesting than this max-min distance, is the form of the density distribution of GDP per capita. As is apparent from figure 2 and 3 the cross-regional distributions of GDP per capita are far from being normal. Two conclusions can be drawn from this feature of the data. First the distribution is not well characterized using only mean and standard deviation as is the case with the normal distribution. One of the popular measures of convergence, the so-called «sigma-convergence» which is based on the standard deviation, does not have the intuitive interpretation in this case as opposed to when distributions are normal. Second, the shape of the distribution lends some support to the idea of convergence clubs which is put forward in the literature. This hypothesis states that regions could converge to different income levels, cf. Quah (1996a). My results when it comes to the density distribution differ somewhat from those of Quah (1996b) because he excludes Greece and Portugal from his sample. The regions of these two countries are essential for establishing the shape (lower end) of the distributions in figures 2 and 3.

**Figure 2. Regional GDP per capita 1991 (PPS) in EU12, Frequencies in per cent (Excluding new German Länder and French Dept. D'Outre-mer)**



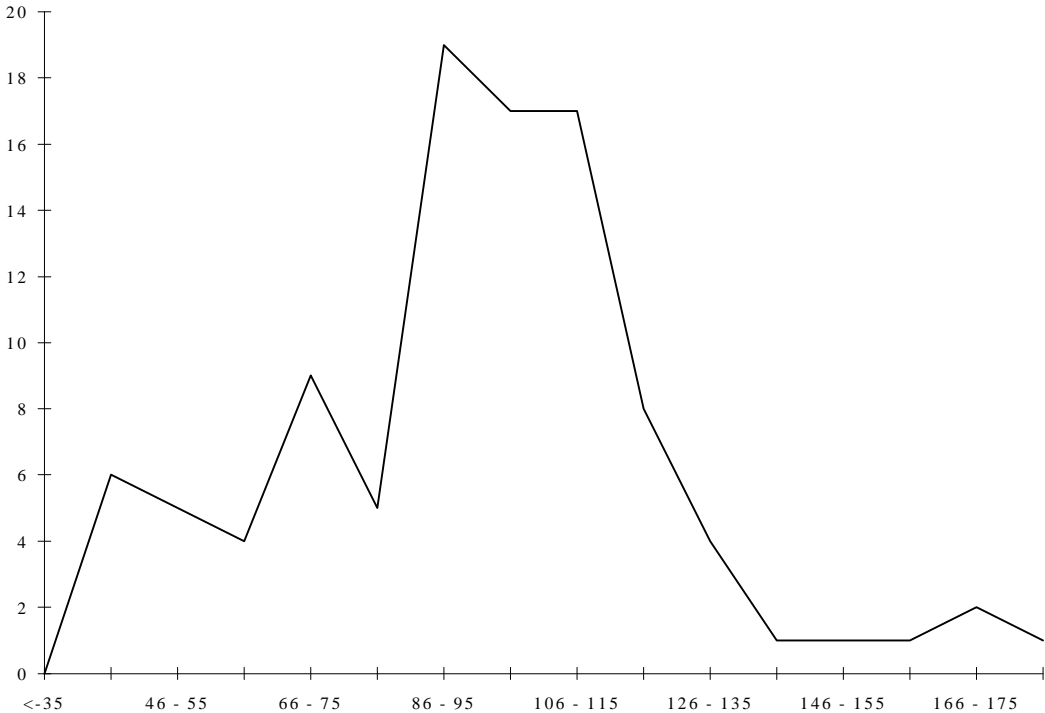
**Figure 3. Regional GDP per capita 1980 (PPS) in EU12, Frequencies in per cent**



An alternative interpretation of the data in figures 2 and 3 would be to say that many European regions seem to converge to their own steady state, which is different from that of other regions in Europe. This would be the case if we have conditional convergence. Given certain regional characteristics with respect to the saving ratio, population growth, depreciation rate etc., the kind of distribution we see in these figures is what we will observe in steady state. Obviously this will tell us nothing about whether the poor are catching up with the rich, cf. Quah (1996a).

One might object to the relevance of studying the distributions in figures 2 and 3 by saying that these are mere «snap-shots» of the regional income distribution in a single year. Idiosyncratic shocks to income could cancel out if aggregated over several years. From a policy perspective it may not be a problem with large economic differences between regions in any one year if they were only temporary. One could perhaps say that if there was a lot of income mobility between regions, large differences could indicate that the European economies were dynamic. Friedman has expressed this view in more general terms in *Capitalism and Freedom*, cf. Friedman (1962). If this were the case differences in average income over several years should be much smaller. However, looking at figure 4 which shows the distribution of average relative income for the same regions in both 1980 and 1991, one can clearly see that this is not the case in our sample of 145 identical regions in the EU. The average distribution is not more concentrated around the mean than the 1980-distribution, it is actually very similar. Thus those regions that were poor in 1980, were also poor in 1991, suggesting that there was very little income mobility between regions in Europe during the 1980s.

**Figure 4. Regional GDP per capita (PPS) in EU12 (average of 1980 and 1991) Frequencies in per cent**



Let us now turn to questions 2 and 3 on the process of convergence among European regions. An interesting way to describe the regional dynamics in Europe from 1980 to 1991 is to study whether or not low (high) income regions are moving towards (away from) the average EU income. Table 1 takes the initial (1980) relative level of income as the starting point and shows how many countries that have converged towards or diverged from the mean by 1991.

**Table 1. Number of EU regions converging or diverging during 1980-1991**

Relative income in 1980	Converging	Diverging	Sum
Below average	35	50	85
Above average	35	20	55
Sum	70	70	140

Of the total number of regions (5 regions had stable relative income and are not included in the table) there are just as many converging as diverging. Just over half of all movements are small in the sense that the relative change in income is equal to or less than 5% of the initial relative income.

The conclusion from this exercise is that nothing much has happened to the distribution of relative incomes in EU12 during 1980 to 1991. At least there is no evidence of systematic convergence. This conclusion is in line with Fagerberg and Verspagen (1996) who conclude with reference to the recent development that «.. the post-war trend towards convergence in levels of productivity and income levels across Europe may have come to an end.»(p.9) Also there is still substantial differences in regional per capita GDP in EU12.

Neven and Gouyette (1995) used a somewhat shorter «window» (1980-1989) and found that there is a tendency for convergence even during the 1980s as a whole but that the degree of convergence varies over time and between Southern and Northern regions of Europe with less convergence in the South. They also found that the process of convergence tended to slow down in the later part of the eighties when controlling for differences in industrial structure when estimating beta-convergence. Defining convergence as a Markov process, they conclude that poor and rich regions tend to be quite stable over time and that the mobility is low at the lower end of the income spectrum, indicating that the poorest regions in Europe are likely to stay poor. This is in line with the results of table 1 although that table is a much more coarse way of describing the transitions that have taken place during the 1980s.

Canova and Marcet (1995) also provide support for the conclusions above using both regional data for 1980-92 and country data for a longer period. Their study is mainly concerned with the estimation of the rate of convergence. They use time series for GDP-growth for each geographical unit (region or country) as opposed to the use of average growth rates for longer periods. This enables them to estimate steady state growth for each unit separately and find that regions do converge to their own (unconditional) steady state. Their conclusion was that the 1980s was a decade where heterogeneities across countries became more marked and that poor regions cannot expect to become as well off as rich regions unless some structural

changes occur. They also found that in spite of some tendency towards convergence, the steady state levels of per capita income would show large inequalities.

Barro and Sala-i-Martin (1995), section 11.4, discuss convergence across European regions since 1950. Their data show clear signs of convergence for the period as a whole but also signs of convergence coming gradually to an end by 1980 in line with the data presented above. They also present data for the dispersion of regional GDP per capita within the largest European countries which also show convergence, but again with a tendency for convergence to come to a halt in the 1980s.

For some of the Nordic countries there exist regional income data based on income statistics for tax purposes. These data are not directly comparable to GDP-figures but still measure most of GDP from the income side. An interesting aspect of these data is that they are available for smaller geographical regions than NUTS II and also contain data for individual households or taxpayers. We can thus study the individual income distribution within the region, between the regions and within the country. Persson (1995) studies 24 Swedish counties for the period 1906-1990 using real per capita income net of government transfers. According to his figures the regional dispersion (measured by the standard deviation of log real per capita income) was fairly constant between the two world wars, started to decrease in the late 1930s and decreased a lot until 1950. There was a further decrease in the 1960s but no decrease at all in the 1980s. A very similar story also applies to Denmark according to Dilling-Hansen et al. (1994). They use income statistics as Persson for 12 Danish counties for the period 1935-1990. It is quite remarkable how similar the results are compared to the Swedish, with a substantial convergence in income from the mid 1930s to 1950, followed by a decade of stability, then some further reduction in regional dispersion during the 1960s and 1970s and finally stability from 1980 to 1990.

These results for European countries resemble those for US states and Japanese prefectures. Barro and Sala-i-Martin (1995) present data for US states and Japanese prefectures showing the same pattern as in Europe. There is little convergence (if any) between World War I and II, rapid convergence from 1940 to 1950 (and also to 1960 in the US), while there is no convergence in the 1980s (there is even divergence in the US). Thus as an answer to the fourth question raised above, regional dynamics in Europe show many common features with regional development in the US and Japan. The regional data seems to have some of the same features as the national data discussed earlier.

The obvious question that arises from these empirical studies is, what are the economic factors that produce similar regional results within different countries? First it seems that these factors cannot mainly be country-specific since they apply to many (most?) OECD countries. Barro and Sala-i-Martin (1995) suggest (as a joke?) that «The rise in dispersion was reversed at the end of the 1980s (apparently as soon as Mr. Reagan was no longer President), and dispersion fell through 1992.» (p.393). Taken seriously however, this could suggest that there were certain policies («Reaganomics») adopted by many countries that produced increased regional dispersion. Thus the results are country-specific but related to similar policies in most OECD-countries. The second conclusion is that convergence is not a stable process. In fact it seems to be much more erratic than what follows from a typical capital deepening process that is the driving force in the neoclassical growth model, cf. the discussion referred to earlier.

## **Economic growth and income distribution - the Kuznets curve**

Kuznets (1955) introduced the famous «inverted-U» shape relationship between inequality and income which states that the distribution of income first becomes more unequal as income increases before inequality decreases with income. This relationship received much attention in the development debate in the 1970s and was adopted by the World Bank in order to predict trends in inequality. If we use the concepts introduced by modern growth theory as presented earlier, individual incomes within a country should first diverge and then converge as the country becomes richer if the Kuznets-curve is valid. Looking at data for 60 countries Ahluwalia (1976) shows that this cross-section of countries seems to support the Kuznets-curve. However, this finding has been criticised by Anand and Kanbur (1993) who find that the inverse U-curve is not inverse at all, ie. the exact opposite of the Kuznets-curve.

How does the Kuznets-curve fit with the phases of absolute divergence and convergence presented earlier? To answer this, one really needs time-series on income distribution for many countries and over long periods of time. Such data are not readily available but exist for some countries. A summary of some of these data are given by Lindert and Williamson (1985). Their conclusion is that it is only the falling part of curve which seems robust while increasing inequality at early stages of economic development or from low levels of income, is not supported by data. An alternative has been to use figures on wage differentials between different groups of skilled and unskilled labour. In Brenner et al. (1991) a number of studies on various country experiences are collected and they by and large support the divergence story of the period 1820-50 followed by a long period of convergence. Data for 1854-1913 in Williamson (1996) also supports the general trend of lower wage dispersion during this period, but with large ups and downs within this time-span. The divergence period between the two world wars in terms of per capita GDP, are not born out in data on income and wage inequalities.

Data on income inequality and wage dispersion for the period 1950-1980 generally show decreasing inequalities in most OECD-countries. However, since 1980 (the exact year varies between countries) inequality seems to be increasing. This is so for both incomes in general and wages. Thus the long-run trend toward less inequality seems to have been broken. For a recent summary of these developments cf. Gottschalk and Smeedling (1997). This change may coincide with at least a tendency for the process of convergence to have halted as discussed earlier. It is of course much too early to conclude that a diverging phase has started, but the data on dispersions of income on many levels of aggregation at least show that convergence is not taking place. Looking back at history this should not come as a surprise and attempts to explain the relationship between economic development and the distribution of income clearly indicate that no close correlation should be expected.

Several factors have been suggested in order to explain the Kuznets curve. The movement of the labour force from agriculture and rural areas to the more modern urban and industrial sectors implies an increase in incomes for those who move but at the same time a more unequal distribution of total incomes. As more and more people move to urban areas the low paid rural jobs become relatively less important and inequality then decreases. The relevance of this explanation put forward by Kuznets (1955) depends on the levels and changes in the inter-sectoral income differential, inter-sectoral inequality differential and finally the proportion of the labour force that moves between sectors. We should however, note that there is nothing in

the reasoning behind the inverse U-shape of the Kuznets curve that prevents it to be turned on its head so that we could observe a U-shaped curve.

The recent development towards higher dispersion of earnings in many OECD-countries is related to the relatively strong demand for skilled labour (due to capital-skill complementarity) and a more sluggish supply response, while at the same time trade and globalization more generally reduce demand for unskilled workers in these countries. This change in relative demand could also be a consequence of a change in the division of labour on a world scale without much migration of unskilled labour.

Migration between countries and perhaps also continents is more difficult today than a century ago due to stricter immigration controls and the adjustment of the skills of the labour force is a process that takes long time. It is therefore possible that we will experience a period lasting some decades where the average level of income is increasing while the distribution of income is more unequal than during the 1960s or 1970s. If this should happen the Kuznets curve will become a Kuznets curl!

## **Conclusions - or why are we interested in regional growth?**

The convergence-controversy can be analyzed from two perspectives. Some see it as part of an empirical project concerned with testing economic theory. Does the neoclassical model of economic growth fit the facts or should it be rejected in favour of say endogenous growth theory or theories of technology diffusion? This is partly the line of reasoning taken by Barro and Sala-i-Martin (1995) and Mankiw (1995). The other way of approaching the debate is from the perspective of economic policy. If equality in some form is important for politicians, it is of course important for them to know whether a market economy will bring about convergence between regions of the country or the world for that matter. The politicians are probably also interested in knowing what policies will promote convergence in incomes.

On the other hand, the analysis of convergence has so far been only marginally preoccupied with the distribution of individual incomes. Based on most empirical growth studies, human capital is regarded as a very important factor in explaining economic growth (and conditional convergence). If however, policies are geared towards promoting education, and wages for skilled labour for some reason increase relative to the wages of the unskilled, a process of growth and convergence between countries could well be characterized by increasing individual inequality. Indeed, rising individual inequalities is generally what seems to be the case in OECD the last decade or so. Thus policies to promote growth by increasing human capital that might produce regional convergence, could at the same time lead to more inequality at the individual level. That might pose policy-makers with new dilemmas. Thus, an integration of the analysis of regional and individual distribution of income is warranted.

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