Easterlin, Richard A.
Regional Income Trends, 1840-1950

Chapter 16

REGIONAL INCOME TRENDS, 1840–1950

Richard A. Easterlin

Any social change affects some groups in the population more than others, and economic development is no exception. At a point in time the opportunities that constitute the avenues of economic growth take quite specific forms, and certain groups in the population are more favorably situated for realizing these opportunities than others.

In the present chapter we examine the differential impact of economic growth on the population when subdivided by region. We wish to know whether economic growth proceeded fairly uniformly in all parts of the country or whether some areas led and others lagged, implying that the participation of different regions in the fruits of economic progress was unequal. If there were "leaders" and "laggards," were there any significant changes in the identity of the regions which assumed this role? Finally, we wish to consider the processes that give rise to regional differentials in the rate of growth and to see if we can identify these at work in United States development.

The regional classification is indicated in Figure 1. Inevitably, grouping states into larger regional aggregates leads to some distortion of reality, since there are individual cases which depart significantly from the typical regional pattern. We would find this to be so, for example, if we considered Florida separately from the rest of the South Atlantic region, or Utah or New Mexico separately from the Mountain region. But in order to bring our discussion within manageable bounds, aggregation into regions is essential.

Our time span reaches back over a century to 1840, when the level of development in the United States was much lower than today—indeed, less than one-sixth, according to a comparison of the average income of the population then and today. We consider first the historical record

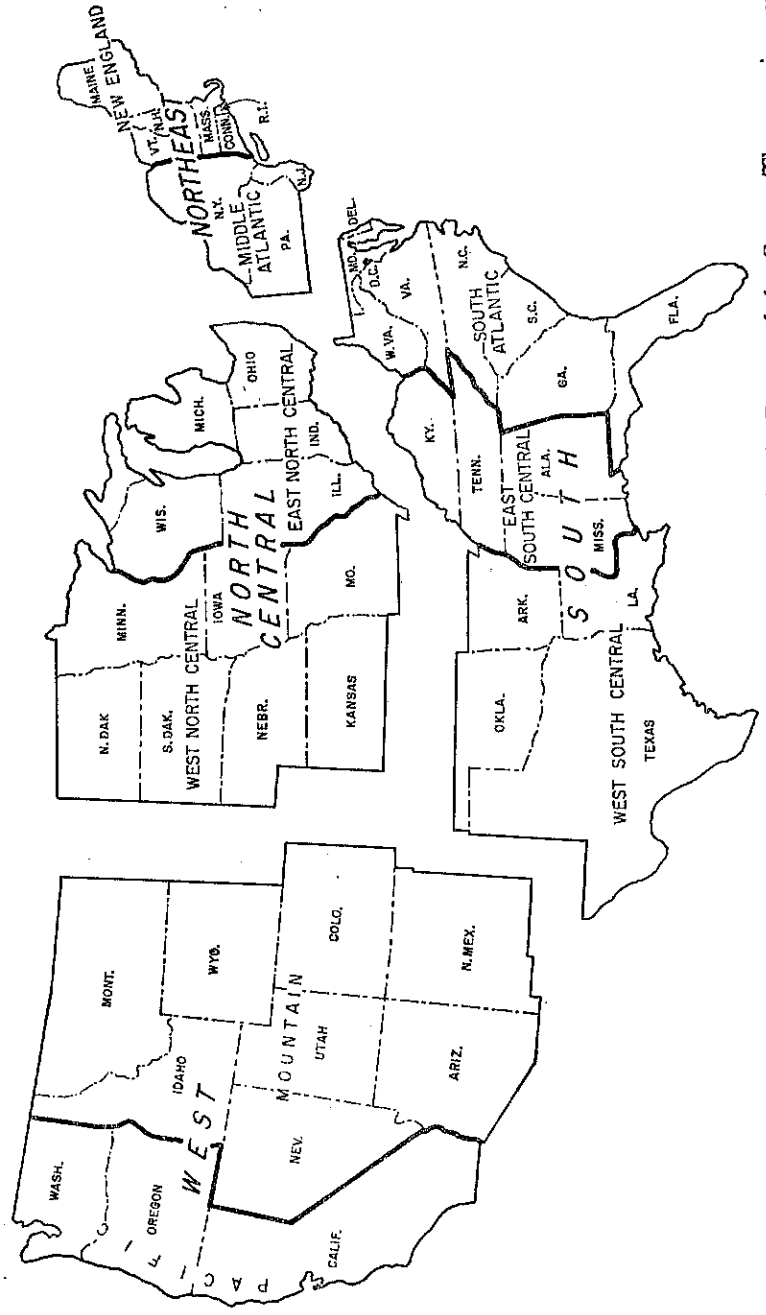

Figure 1. Regions and geographical divisions of the United States as defined by the Bureau of the Census. The groupings of states in the present study are the same as those of the census, except that Delaware and Maryland are included with the Middle Atlantic division, and the District of Columbia is excluded.

of regional growth differentials and then turn to the question of interpretation.

I

The Record

The Situation in 1840. To provide a base for consideration of subsequent trends, it is necessary first to establish the nature of regional differences in economic development in 1840. Of the many possible indicators of the degree of development of an area, per capita income, because of its comprehensiveness, is perhaps the best. Since we are interested in comparison, we work with *relative* rather than absolute per capita income. Thus each entry in Table 1 was obtained by dividing the regional per capita income figure by the national average for the indicated date. For example, the table shows that in 1840 per capita income in New England was 132 per cent of the national average; in the Middle Atlantic division, 136 per cent of the average; and so on.

The 1840 pattern is readily summarized. The principal high-income region was the Northeast where average incomes were as much as a third or more above the average. In the other two principal sections, the vast agricultural areas of the South and of the North Central region (remember, the frontier had only recently been pushed across the Mississippi), income per capita was typically substantially below the average, by from a quarter to a third. A surprising exception occurs in the case of the West South Central area, which had the highest income level of any division. This apparent anomaly is explained by the fact that the regional figure reflects very largely the situation in Louisiana (which accounted for over 75 per cent of the division's population in 1840), where both commerce and agriculture were thriving as a result of the growing flow of trade down the Mississippi and a highly prosperous sugar-cane production based on slavery.

The income averages for the Southern division include, of course, the slave population. If the slaves and their income (estimated at subsistence) are eliminated, one finds that the income of the white population in the South exceeded the national average and compared favorably with that in the Northeast.[1] For the white population alone, then, it was only in the North Central region that average income was below the national level.

Trends in Relative per Capita Income, 1840–1950. A special advantage of relative per capita income figures is that they show at a glance whether income in a particular region was growing more or less rapidly than in the country as a whole. If the regional

Table 1
Personal Income per Capita in Each Region as Percentage of United States Average, 1840–1950

Regions[a]	1840	1860	1880	1900	1920[b]	1930[b]	1940[b]	1950[b]
United States	100	100	100	100	100	100	100	100
Northeast	135	139	141	137	132	138	124	115
New England	132	143	141	134	124	129	121	109
Middle Atlantic	136	137	141	139	134	140	124	116
North Central	68	68	98	103	100	101	103	106
East North Central	67	69	102	106	108	111	112	112
West North Central	75	66	90	97	87	82	84	94
South	76	72	51	51	62	55	65	73
South Atlantic	70	65	45	45	59	56	69	74
East South Central	73	68	51	49	52	48	55	62
West South Central	144	115	60	61	72	61	70	80
West			190	163	122	115	125	114
Mountain			168	139	100	83	92	96
Pacific			204	163	135	130	138	121

[a] At each date, states included in regions are the same as those shown in Figure 1, except as follows:
Middle Atlantic:
All dates: Delaware and Maryland included.
West North Central:
1840: Minnesota, North and South Dakota, Nebraska, and Kansas excluded.
1860: North and South Dakota excluded.
South Atlantic:
All dates: Delaware, Maryland, and the District of Columbia excluded.
West South Central:
1840: Oklahoma and Texas excluded.
1860: Oklahoma excluded. Texas excluded from Table 1 only.
1880: Oklahoma excluded.
Mountain:
1860: Montana, Idaho, Wyoming, and Arizona excluded.

[b] For the last four dates the personal-income figure used in computing per capita income was an average over the period of a business cycle, as follows:
1920: average of 1919–1921
1930: average of 1927–1932
1940: average of 1937–1944
1950: average of 1948–1953

SOURCE: See Appendix.

rate of growth exceeded the national rate, relative per capita income rose; if the regional rate was less than the national rate, relative per capita income fell. Figure 2 brings out this type of comparison even more. In this chart the divisional relative per capita income figures of Table 1 have been plotted. A line that slopes upward, indicating a rise

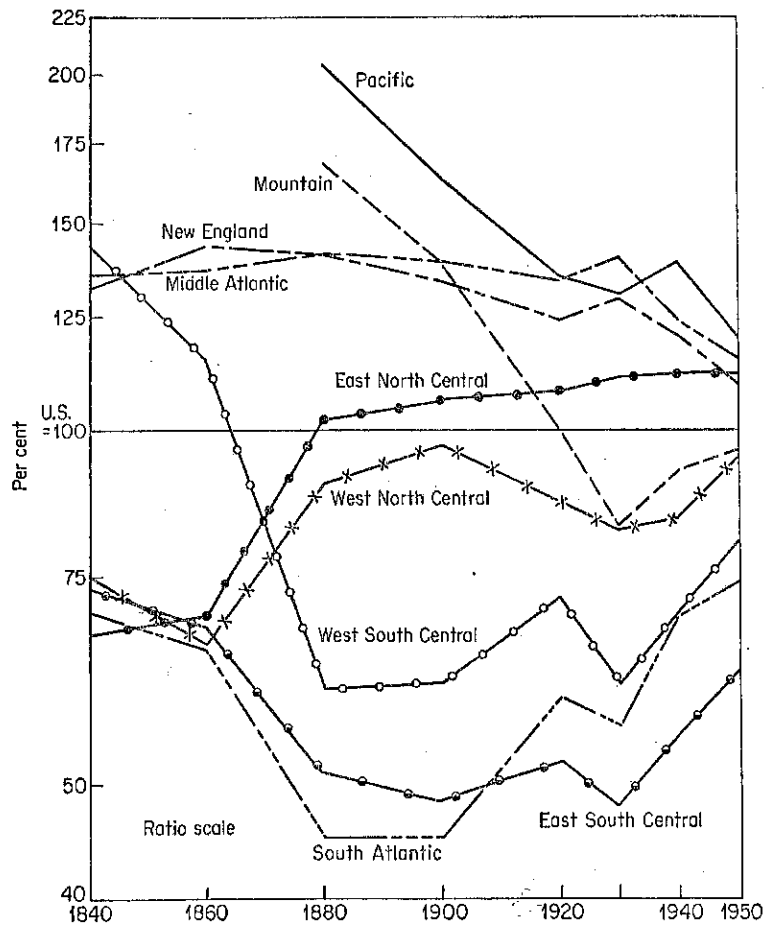

Figure 2. Personal income per capita in each region as percentage of United States average, 1840–1950.

in relative income, denotes a rate of growth faster than the average; a line that slopes downward, a rate of growth below the average. Of course the chart also enables one quickly to determine the high- and low-income regions at each date.

Let us study the table and chart to see what we can discover about regional differences in the rate of economic growth. Consider the pre-

Civil War period from 1840 to 1860 first. This was the period when industrialization was taking firm hold in the Northeast, agricultural settlement and expansion were in progress in the North Central area, and cotton production in the South's slave economy was continuing to soar in response to the seemingly ever-expanding demands of factories in Europe and the Northeast. How did these and the many other forces that were at work affect the relative growth of per capita income in the various regions?

The first point of note is that the changes in relative per capita income between 1840 and 1860 were rather small by comparison with later movements. Yet the changes that occurred are of interest. Perhaps the most significant is the difference in relative rate of growth between the Northeast and South. The two Northeastern divisions show a rising level of relative per capita income; the three Southern divisions, a declining level. As a result, the income gap between Northeast and South was greater in 1860 than in 1840. This conclusion implies a relative deterioration in the income position not only of the total Southern population but of the favored white population as well. Moreover, as we shall discuss later, it is likely that the figures understate the widening of the relative income gap. It should be emphasized, however, that our comparison deals only with *relative* income. In absolute terms, per capita income in the South probably rose between 1840 and 1860, and perhaps substantially.[2] So far as they go, then, these figures do not provide much support for the view that slavery was so inimical to continued growth in the South that the institution was doomed to early extinction merely on economic grounds.[3]

The trend for the North Central region during this period was mixed. The East North Central division, which quantitatively was the more important of the two, had a rate of income growth slightly above the national average, while the West North Central section had a rate somewhat lower. It is possible that the lower rate for the West North Central section reflects the inclusion in the 1860 estimate for the region of the new frontier states of Kansas, Nebraska, and Minnesota, and if the rate of growth had been computed only for the states of 1840, Missouri and Iowa, it might compare more favorably with the national trend. But in any event, for the significantly more populous region, the East North Central, there is a clear indication that some improvement was registered by comparison with the national average, although not to the extent attained by New England, the region with the highest rate of growth.

When we move on to 1880, the date for which we have our next observation on regional income levels, some startling changes appear. The exceedingly sharp decline in relative income level in the South is outstanding. Indeed, while the underlying absolute figures are not too reliable, they suggest that not only the relative but the absolute level of per capita income in this area declined between 1860 and 1880 and that the 1880 average may have been little better than that prevailing four decades earlier. This is certainly an impressive memorial of the economic cost to the South of the Civil War and its aftermath.

Perhaps equally striking is the addition to the regional comparison of the two new Western divisions, the Mountain and Pacific, at per capita income levels much higher than anywhere else. On the face of it, this comes as a surprise. One might have expected that these new frontier regions of the West would enter with relative income levels substantially below the average, as did the older frontier sections in the North Central region. But as one looks into the underlying situation, some good reasons appear for the much different pattern. For one thing, unlike the older frontier areas, the labor force in these regions was preponderantly engaged in nonagricultural activities, centering in large part around mining, rather than in agriculture. Indeed, in 1880 the percentage of the labor force in nonagricultural industry in the two Western divisions was not much below that in the Northeastern (see Table 7 below). Since average income from nonagricultural activities is typically much higher than in agriculture, this in itself would contribute to a higher income level, even if there were no income differences between the West and North Central regions within agriculture or within nonagricultural industry. A second important difference was the much higher ratio of workers to dependents in the West than in the North Central (or any other) region. In the West in 1880 this ratio was over 40 per cent above the national average. This difference in large part stems from the preceding one, for where mining is the major attraction instead of agriculture, migration tends to be predominantly male, rather than including whole families. This difference in the ratio of workers to dependents would clearly raise income per capita in the West relative to other regions, even if income per worker were the same everywhere, since a worker's income would have to be divided among fewer dependents. These two facts—the high proportion of the labor force in nonagricultural industry and the high ratio of workers to dependents—in themselves would have made for very high income levels in the West. But this tendency was even further reinforced by higher than average income levels in this region in both agriculture and nonagricultural industry.

Finally, in noting the more significant changes in regional income differences between 1860 and 1880, we should mention the marked improvement in relative income level in the North Central area. Both subdivisions show a very high rate of growth between 1860 and 1880 compared with the national average, and by the latter date the level in the East North

Central section had actually risen slightly above the nationwide average. These trends reflect, among other things, the progressive passing of this area from the frontier stage of agriculture to highly productive commercial exploitation—in a sense, a realization of the promise that lured so many to the area. And they reflect to some extent the beginning of major nonagricultural development, chiefly in the East North Central division.

Despite the improvement in relative income levels in the North Central section, this area was still far short of the Northeastern region, where the rate of growth between 1860 and 1880, while less than in the North Central, was still about equal to the national rate. But because of the addition of the exceptionally high income regions of the West to the ranking, the Northeastern divisions were no longer the leaders. Thus the broad outline of regional income differentials that had been established by 1880 was, from high to low, West, Northeast, North Central, South.

It is this ranking which prevailed in most major respects down to the present. Perhaps the only really important difference that the 1950 figures reveal is the noticeable deterioration in relative income standing of the Mountain region. Rather than being one of the leaders as in 1880, this region had fallen below the two Northeastern divisions and even below one of the North Central. But generally speaking, over the past seventy years, and in marked contrast to the preceding forty, the rankings of the various regions by per capita income level were remarkably stable.

This is not to say, however, that regional rates of growth of per capita income were the same during this period. On the contrary, instead of showing a horizontal trend, the lines in Figure 2 show a pronounced tendency to converge over time. This means that, on an average, the high-income areas experienced a rate of growth less than the national rate, while the low-income areas had a higher rate of growth. However, this tendency was not a smooth one from one period to the next. For example, an upward movement in the South did not get noticeably under way until 1900, and between 1920 and 1930 in most regions there was quite clearly a significant break in the trend. But the basic tendency toward convergence is unmistakable. As a result, while the order of regions by per capita income level in 1950 was much the same as 1880, the magnitude of the regional differences was much less. Indeed, if we were to look back into the underlying figures for individual states, we would find that regional income differences today are less than for any date in the past 110 years for which we have data.

Before leaving the trends since 1880, some interesting disparities in patterns within the major regions deserve mention. In the Northeast, the decline in relative income level set in earlier and was more pronounced in New England than in the Middle Atlantic division. In the North Central region, the East North Central division had a much stronger and

persistent pattern of relative income growth than the West North Central. Finally, in the South, the South Atlantic division, which had the highest average rate of growth, rather than lying below the East South Central as in 1880, was noticeably higher in 1950, although still somewhat short of the West South Central.

Absolute Income per Capita. As was emphasized, the concern in the preceding discussion was with trends in *relative* income per capita, not the absolute level of income. Because of data deficiencies we can speak with much less certainty of the latter, but one thing is sure: Over the period as a whole, absolute levels of income rose in all divisions, and the increase was substantial in every case. Even in the shorter twenty-year periods typically covered by the data, the general tendency was almost always upward, the only important exception being the decline in the South between 1860 and 1880 noted earlier. This conclusion is an exceedingly important one, for it means that all areas did gain substantially over the long run from national economic development, even if the extent of gain differed considerably from one division to the other and from one period to the next.

Some Qualifications. Quantitative series are at best imperfect historical records. We have noted in passing a few of the cautions, conceptual or statistical, to be observed in interpreting the figures. It is time to mention some of the more important remaining ones.

First, the regional income figures for 1840 and 1860 were estimated from data relating only to commodity production (and, in the case of 1840, commodity distribution), although it should be noted that this type of economic activity provided the preponderant share of income in that period, accounting roughly for six-tenths. An attempt was made on the basis of our knowledge of the relationships prevailing at later dates to adjust the regional income differences to allow for the omission of income from service activities, such as finance and real estate, personal and professional service, and government. But this adjustment did not allow for the growth in the relative importance of such activities between 1840 and 1860. Here, because of the important concentration of these activities in the Northeast, the probable result is that the figures understate to some extent the growth in per capita income in the Northeast relative to the rest of the nation between these two dates.

A second qualification is that the estimates at all dates do not allow for regional differences in the level or trend of the cost of living. Strictly speaking, therefore, they relate only to money-income differences rather than real-income differences. It is likely that the cost of living was generally somewhat lower in the South so that adjustment for this would improve the relative position of that region to some extent, although, according to calculations based on the very limited information available,

not sufficiently to alter the major patterns discussed above. Also, the cost of living in the West in the latter part of the nineteenth century was probably somewhat above the national average, and adjustment for this would lower the income advantage shown by that region. But there is reason to believe that the principal outlines of the patterns shown would remain.

The estimates do include an allowance for certain forms of income "in kind," such as food and fuel produced and consumed on farms and the services of owner-occupied dwellings. However, certain types, such as household manufactures and farm improvements, are omitted, and this would tend to have some distorting effect on the figures for the earlier dates, although from the point of view of the questions with which we are concerned, probably not a major one.

Finally, there are the usual cautions against equating income changes wholly to changes in economic well-being. For example, the estimates do not reveal differences among regions in the level or trend of the distribution of income between rich and poor. They take no account of the growth of leisure. They are not adjusted to allow for the changing monotony, frustration, and insecurity in the income-getting process. Thus while the figures are perhaps very broad indicators of regional differences in the growth of economic welfare—so far as this depends on commodities and services—excessive reliance cannot be put upon them for this purpose.

In short, the tenor of these remarks is that the estimates are probably sufficiently good to reveal the major trends in regional differences in income levels but not so good that minor differences can be considered particularly significant.

Regional Shares in Total Income. The national income has often been likened to a pie which is divided among the various members of the nation. One way of looking at this process of distribution is to consider the regional shares, for example, whether the Northeast gets a bigger cut than the South and whether its piece increased in the course of economic development.

In part, the trend in a region's share in total income depends on the trend in relative per capita income. But it depends also on the change in the region's share of national population. Thus if a given region's share in the total population remains constant, an increase in relative per capita income will raise its share of total income. Similarly, if relative per capita income is unchanged, a rise in the regional share in population will lead to an increased share in total income.

Tables 2 and 3 provide the additional information that we need to study this problem. Table 2, which shows the regional shares in the national total of income at various dates, indicates that at the present the

Table 2
Per Cent Distribution of Personal Income by Region, 1840–1950

Region[a]	1840	1860	1880	1900	1920[a]	1930[a]	1940[a]	1950[a]
United States	100[b]	100	100	100	100	100	100	100
Northeast	58	50	44	41	39	41	36	32
New England	17	14	11	10	9	9	8	7
Middle Atlantic	41	36	33	31	30	32	28	25
North Central	13	20	34	36	32	32	31	32
East North Central	12	15	23	22	22	23	23	23
West North Central	2	4	11	13	10	9	8	9
South	29	26	15	15	18	16	20	21
South Atlantic	14	9	6	5	7	6	8	9
East South Central	11	9	6	5	4	4	4	5
West South Central	4	8	4	5	7	6	7	8
West	...	4	7	8	10	11	14	15
Mountain	...	...	2	3	3	3	3	3
Pacific	...	...	4	5	7	9	11	12

[a] See footnotes *a* and *b* to Table 1.
[b] Detail may not add to total because of rounding.
SOURCE: See Appendix.

Table 3
Per Cent Distribution of Population by Region, 1840–1950

Region[a]	1840	1860	1880	1900	1920	1930	1940	1950
United States	100[b]	100	100	100	100	100	100	100
Northeast	43	36	31	30	30	30	29	28
New England	13	10	8	7	7	7	6	6
Middle Atlantic	30	26	23	22	22	23	22	22
North Central	20	29	35	35	32	32	30	30
East North Central	17	22	22	21	21	21	20	20
West North Central	2	7	12	14	12	11	10	9
South	37	33	31	30	29	29	30	29
South Atlantic	20	14	13	12	11	11	12	12
East South Central	15	13	11	10	8	8	8	8
West South Central	3	6	7	9	10	10	10	10
West	...	2	4	5	9	10	11	13
Mountain	...	...	1	2	3	3	3	3
Pacific	...	...	2	3	5	7	8	10

[a] See footnote *a* to Table 1.
[b] Detail may not add to total because of rounding.
SOURCE: See Appendix.

Northeast and North Central regions each get somewhat in excess of three-tenths of the "pie," the South gets somewhat more than two-tenths, and the West the remainder. This is in sharp contrast to the situation in 1840, when the Northeast accounted for nearly six-tenths of the total by itself, the South for almost another three-tenths, the North Central section for a little more than a tenth, and the undeveloped West for virtually nothing.

The general pattern of income redistribution—the rise in the shares of the North Central and Western regions at the expense of the Northeast and South—reflects in large part the redistribution of population, as Table 3 shows. But in particular instances the trend in relative per capita income played a significant part. Thus, even if its 1840 population share had remained constant, the income share of New England would have declined from 17 to 11 per cent by 1950, while if the 1840 population share of the North Central region had not changed, its income share would still have risen from around 13 to 22 per cent.

The trend in the income share of the South deserves special mention since, unlike the pattern for most other regions, it shows a significant reversal. In the first part of our period, to the latter part of the nineteenth century, the income share of the South drops sharply, indeed by almost one-half. But in the twentieth century and particularly since 1930 a marked recovery is apparent, despite a virtually constant proportion of the national population. Only one other area, the West North Central, shows a reversal in trend—in this case a peak in 1900 followed by subsequent decline.

II

The Underlying Factors

A Theoretical Framework. In seeking to explain the course of per capita income differences among regions, it is convenient to distinguish between static and dynamic processes. The former may be illustrated by considering the long-run tendencies that would prevail in a stationary economy, one in which product demands were unchanging, factor supplies fixed, and technology constant. In such an economy any initial differences among regions in per capita income would tend to be eliminated by movements of productive factors and goods. Labor would tend to move to higher-wage areas until wage levels were equalized. Even in the absence of labor mobility, capital flows would enhance the redistribution of industry arising from differences in factor prices and thus strengthen the tendency toward elimination of such differences. Finally, whether resource flows were possible or not, free trade among regions would work in the same direction, since product prices would tend to be equalized and through this factor prices, too.[4] This is not to suggest that regional income levels would necessarily become equal. Certain areas might hold a monopoly on particular productive factors, or the amount of property owned per capita might be exceptionally high. Moreover, in the short run, the resource or product movements might be accompanied by changes that would temporarily widen income differences. Thus the opening of trade might affect adversely certain industries in a particular area, and out-migration might cause a decline in the proportion of workers to dependents in the population. But the essential point is that, given sufficient time for adjustment, the basic tendency of the static processes would be toward convergence of income levels.[5]

When one adds dynamic considerations to the picture, however, the conclusion becomes less certain. For the basic characteristic of a developing economy is that product demands, factor supplies, and technology are not fixed. Rather, new goods and new techniques are constantly being developed, consumption patterns are shifting, certain natural resources are being used up while others are discovered or developed, the structure of transfer costs is being modified, rates of natural population increase are changing, and so on. All these tend to alter the geographic structure of costs and prices and thus the investment opportunities in different parts of the economy. In consequence, relative factor demands and supplies in the various areas and, as a result, relative income levels are constantly changing. But free economic forces are not the only factors at work. As we shall see, war has exerted a significant effect. Then, of course, there is the possible influence of government, which may intervene to affect the relative cost structure or, more directly, actually to bring about a redistribution of income from one area to another.

Thus the actual course of regional income levels is the outcome of a complex of factors, exerting differing influences at various times, and it is not surprising that the historical record shows no smooth and unvarying trends. A satisfactory explanation calls for unraveling the relative weight of each of the factors over time, a task beyond the scope of our present discussion. However, it may be possible for us to form a preliminary notion of some of the forces that were particularly important.

1840–1880. Let us break our period into two phases: one of diverging income levels, 1840 to 1880, and one of converging levels, 1880 to 1950. With regard to the former, it is clear that whatever the net influence of economic forces may have been, it was dwarfed by the impact of the Civil War and its aftermath. As shown in Table 1 and Figure 2, the divergence of income levels between 1840 and 1880 is a reflection of the

striking deterioration in relative standing of the three Southern divisions, a deterioration very largely concentrated in the interval including the Civil War.[6]

Agriculture was the sector of the Southern economy most severely hit by the war. Between 1840 and 1880 income per worker in agriculture dropped from 91 to 63 per cent of the national level, while in nonagricultural industry the decline was only from 94 to 84 per cent. Table 4, which indicates the per capita level of various inputs and outputs in Southern agriculture in 1870 and 1880 expressed as a percentage of the 1860 value, provides further details and also permits more precise

Table 4
Selected Inputs and Outputs per Capita in Southern Agriculture, 1870 and 1880 as Per Cent of 1860

Inputs and outputs	1860	1870	1880
Inputs:			
Total land in farms, acres per capita	100	77	70
Improved land in farms, acres per capita	100	82	85
Number of horses on farms per capita	100	78	82
Number of mules and asses on farms per capita	100	72	85
Crops:			
Wheat, bushels per capita	100	70	75
Corn, bushels per capita	100	62	69
Sweet potatoes, bushels per capita	100	43	50
Cotton, bales per capita	100	51	72
Tobacco, pounds per capita	100	52	67
Livestock:			
Number of swine per capita	100	57	61
Milch cows per capita	100	73	74
Meat cattle other than milch cows and working oxen per capita	100	76	73

SOURCE: See Appendix.

timing of the South's sharp decline.[7] According to the table, in 1880 the per capita level of land and certain livestock inputs in the South was only 85 per cent or less of the 1860 level, and for a number of crop and livestock outputs the level was considerably below 75 per cent. Outside the South, however, the 1880 value for most of these items (leaving aside, of course, those largely or wholly peculiar to the South) was typically above, and often substantially above, the 1860 level. Table 4 also makes clear that most, if not all, of the deterioration was concentrated in the Civil War decade; in only two instances is the 1880 value below that of 1870. Typically, agricultural performance improved between 1870 and 1880, but it was far from recovering to the prewar level.

Not all the deterioration, of course, is to be attributed to the destruction of physical capital during the war, although this was undoubtedly important. There was also the problem of disorganization arising from abolition of the slave system and the consequent need to work out new arrangements that would assure a stable and continuous labor supply. Eventually a solution was reached, chiefly in the form of the share-cropping system, but this was a time-consuming process, and in the interim productive operations were severely handicapped.[8]

It is tempting to speculate on the probable course of income in the South had the war been averted. It seems unlikely that much striking deterioration would have occurred, for physical destruction of capital could have been avoided. On the other hand, there was some decline in the South's relative position even prior to the Civil War. Clearly, much would depend on one's assessment of the possibility of a reasonably smooth transition from the slave system to a successor.

1880–1950. The period from 1880 to 1950 provides a somewhat better opportunity to observe the play of economic forces on relative income levels in a developing economy. But even here we should not forget the influence of war (such as the effect of the two World Wars in creating an exceptional labor demand and consequently breaking down some of the social barriers to nonwhite mobility) or governmental action, as in the case of the agricultural price-support program. In the present discussion, however, we concentrate on the major long-term economic changes taking place.

Tables 5 and 6 summarize the pattern of resource mobility during the period. Table 5 is designed to bring out the direction and impact of labor mobility; Table 6, that of capital mobility. The divisions are ranked in terms of the average level of relative per capita income during the period.[9] It can be seen from column 2 of Table 5 that the high-income divisions were typically areas of net in-migration of labor, and the low income, areas of net out-migration. Column 3 of Table 5 shows the rate of natural growth of the male population of working age, that is, of young persons reaching working age less deductions due to mortality and older persons passing beyond working age. Clearly the rate of growth was relatively high in the low-income regions. In the absence of migration, this would have caused a relatively high rate of growth of labor supply in the low-income regions and made for divergence of income levels, other things being equal. However, when the influence of migration on labor-supply growth is considered (column 4), one finds this tendency eliminated and, if anything, somewhat reversed. For example, as a result of migration, the rate of growth of the male population of working age in the highest-income division, the Pacific, shifts from lowest to highest in the country, while in the lowest-income

Table 5
Average Value of Relative Per Capita Income and Average Decade Rate of Net In-migration, Natural Increase, and Total Increase of Males, Ages 15–64, by Region, 1880–1950

Division	Personal income per capita, per cent of United States average	Males, ages 15–64, per cent per decade[a]		
		Rate of net in-migration	Rate of natural increase	Rate of total increase[b]
	(1)	(2)	(3)	(4)
Pacific	153	30	2	33
Middle Atlantic	134	7	9	16
New England	128	6	6	12
Mountain	119	15	9	24
East North Central	108	4	11	15
West North Central	90	−1	12	12
West South Central	66	4	19	22
South Atlantic	56	−4	21	17
East South Central	52	−7	19	12
Average:				
Highest four	134	15	7	21
Lowest four	66	−2	18	16

[a] The base for the decade rates is the mid-decade population of males ages 15–64 in the region.
[b] Detail may not add to total because of rounding.
SOURCE: See Appendix.

Table 6
Average Decade Rate of Net Capital Imports for Nonagricultural Industry and of Hypothetical and Actual Increase in Nonagricultural Capital Stock, by Region, 1880–1920

Region	Rate of net capital imports	Rate of increase in capital stock, per cent per decade[b]	
		Hypothetical[a]	Actual
	(1)	(2)	(3)
West	5	43	48
East	−8	38	30
North Central	7	28	35
South	9	30	39

[a] Assumes domestic savings of each region are invested entirely within region.
[b] The base for the rates is the mid-period stock of nonagricultural capital in the region.
SOURCE: See Appendix.

division, the East South Central, an opposite shift from next to highest to lowest takes place. Moreover, averaging over such a long period tends to obscure the basic relationships, and a study of the data for individual subperiods serves on the whole further to strengthen this conclusion. It appears, then, that the influence of labor mobility was not only in the direction that economic analysis would suggest but that its magnitude was such as actually to produce some tendency toward convergence of regional income levels.

Table 6 provides similar information on capital mobility. The underlying estimates are less reliable than those for labor, are based on nonagricultural industry only, and are for only the four major regions for the period 1880 to 1920. Because of the limitation to four regions, the interregional flow of capital is understated. Nevertheless, some important features are apparent. If we leave aside the West for a moment, it appears that capital flowed on balance from the high-income East to the North Central and Southern regions. Moreover, if one takes the entries in columns 2 and 3 as substantially independent, the effect of the flow was to alter noticeably the relative rates of capital growth in the regions. In the absence of capital flows, capital invested in the East would have grown faster than in the South or North Central regions (column 2). But when allowance is made for the movement that occurred, the rate of growth is highest in the South and lowest in the East (column 3). It is noteworthy, however, that the West, the highest-income region of all, was a capital importer during this period and experienced the highest rate of capital investment of all. The investment opportunities of the West thus provided strong competition with those elsewhere, and the role that capital mobility could play in equalizing income levels through facilitating the redistribution of industry was reduced.

In addition to factor mobility, there is evidence also of the influence of "product mobility," that is, free trade among regions, in contributing to convergence of regional income levels. While no convenient summary measure is available, one may note as an example the shift of resources to labor-intensive textile and furniture production in the South and the countermovement in the Northeast. In parts of the high-labor-cost West, the shift of production toward certain types of land-intensive agriculture is to some extent another case in point. Shifts such as these arise from the opportunity that free trade provides for entrepreneurs to capitalize on regional differentials in relative factor costs and have the effect of raising the relative demand for labor in the low-income region while lowering it in the high.

Thus the adjustment processes—via shifts of resources between regions or from one line of production to another within regions—which economic analysis suggests would be set in motion by an initial disparity

in regional incomes, appear to have operated during the period with which we are concerned. But, as noted earlier, in a developing economy such processes are only a part of the story. For dynamic changes, in demands, technology, and resource supplies, are at work as well. Did these factors tend to benefit the low-income regions more than the high and thus reinforce the tendency toward convergence arising from static processes? Unfortunately, we have no ready answer to this, for little work has been done to analyze systematically the regional impact of dynamic factors. We can, however, consider a few illustrative cases and perhaps in this way derive some idea of the manner in which these forces work. Below we take examples of differing demand elasticities, changes in technology, resource exhaustion and discovery, and transport developments.

Table 7
Percentage of Labor Force in Nonagricultural Industry in Each Region, 1880 and 1950

Division	1880	1950
Pacific	69	93
Middle Atlantic	75	97
New England	78	97
Mountain	73	83
East North Central	49	92
West North Central	39	76
West South Central	25	82
South Atlantic	26	82
East South Central	23	74

SOURCE: See Appendix.

As incomes grow, the demand for nonfood products typically rises faster than that for food, and this creates a pressure for a redistribution of resources from agricultural to nonagricultural industries. This redistribution of resources is a source of income growth in a particular area, since earnings in nonagricultural industry typically exceed those in agriculture; indeed, it is this income differential that induces the redistribution of resources. In 1880 the proportion of labor force in nonagricultural industry was much greater in the high-income areas than in the low (Table 7). In the ensuing decades, this gap was closed considerably, and this convergence among regions in the proportion of the labor force outside agriculture contributed to convergence of regional incomes. It must be remembered, of course, that a wide variety of factors were at work influencing the industrial structure of various regions and that the categories "agriculture" and "nonagricultural industry" are not homogeneous from one region to another. Nevertheless, it would seem that the differing income elasticity of demand for food and nonfood products, through its tendency to make for convergence of regional industrial structures as income grows, should be counted as one of the factors responsible for the convergence of regional incomes.

An illustration of the impact of technological change on regional development is provided by the changes in technology of iron and steel production during the nineteenth century. Initially the location of coal deposits played a dominant part in the location of iron production. However, as technological advances decreased in the importance of the coal input relative to iron ore, the location of the industry tended to shift more toward the ore deposits. This was an important factor in the more rapid growth of iron and steel and associated fabricating industries in the East North Central region than Middle Atlantic after 1880.[10]

Possibly even more spectacular than technological change in the production of existing products has been the development of entirely new products. Outstanding examples are the introduction of the automobile, which especially benefited the East North Central division; the airplane, which was of particular advantage to the Pacific; the development of electrical manufactures, which was especially favorable to the Northeast and East North Central areas; and synthetic textiles and petrochemicals, which particularly benefited the South.

An example of resource exhaustion is provided by the forests of the Northeast and East North Central areas. By the end of the nineteenth century, these were relatively depleted, and as a result production shifted to the South and West. On the side of additions to resources there are developments such as the discovery of oil in the Southwest and West and copper in the Mountain region.

From the point of view of regional development, perhaps the most important change in the transportation system after 1880 was the further extension of the railway network. From 1880 to 1920, when the peak was reached, railway mileage in the United States as a whole increased by almost 175 per cent. Regional differences were marked. For the South the growth exceeded 300 per cent, and for the West, 400 per cent, while in the North Central and Northeast, it was less than 125 per cent. Such differences obviously spelled important differences in the development possibilities of the regions.

These are only a few of the dynamic changes that influenced regional income levels in the period since 1880, and any conclusion as to their net effect would obviously be premature. However, it should be noted that in the cases that we have discussed the changes often benefited high-income regions as frequently, if not more frequently, than low.

So far as this small sample goes, therefore, there is little indication that dynamic factors made systematically for convergence of regional income levels. An exception, possibly an important one, is the difference in the income elasticity of demand for agricultural versus nonagricultural products.

III

Summary

On a subject as complex as differential regional income trends, the conclusions reached in a brief survey such as this are more in the nature of hypotheses than firm findings of fact. With this caution in mind, what can we say of regional income differences during American development since 1840? In terms of direction of difference there has been on the whole considerable stability. The Northeast has consistently been a high-income area; the South, with the exception of the West South Central division prior to the Civil War, a low-income area (unless the slaves are omitted in 1840 and 1860); the West, with the exception of the Mountain division in recent decades, a high-income area. The North Central area, and particularly the East North Central, shows perhaps the greatest relative improvement, rising from an income level roughly corresponding to that in the South in 1840 to a position among the leaders in 1950.

While the direction of differences has been fairly consistent, the magnitude of differences changed markedly. Between 1840 and 1880 there was a marked widening in average regional income differences; since then there has been on the whole a tendency toward convergence, although the movement has not been uniform over time. The devastation and disorganization in the South, particularly in agriculture, accompanying and following the Civil War appear to have been of primary importance in accounting for the marked divergence between 1840 and 1880, although there is some suggestion of a widening of regional income differences even in the twenty years prior to 1860. Product and resource mobility appears to have played a part in the convergence since 1880, as has the differing income elasticity of demand for agricultural and nonagricultural products. The role of dynamic factors such as technological change, resource discovery and exhaustion, and transportation developments is difficult to unravel, although in the small number of cases considered here there was little indication that these factors tended systematically to favor the low-income regions. Today regional income differences are probably less than at any time in the past century.

APPENDIX

SOURCES FOR TABLES

Tables 1 to 3. The underlying population data for 1840 to 1920 are given in U.S. Bureau of the Census, *1950 Census of Population, Volume I: Number of Inhabitants* (1952), Table 6, pp. 1–8 and 1-9. For the cycle averages centered on 1930, 1940, and 1950, the data are from [14],* Table 3, pp. 144–145, except for the 1927 and 1928 data, which are from U.S. Bureau of the Census, *Current Population Reports*, Series P-25, no. 139, p. 4.

The 1840 income data are from [3] ("Interregional Differences"); the 1880, 1900, and 1920 data, from [9], Table Y-1, p. 753; and the cycle averages centered on 1930, 1940, and 1950, calculated from [14], pp. 38, 140–141. The 1860 estimate was derived for the present study as follows: National estimates of value added for 1840 and 1860 for three major sectors—agriculture, mining, and manufacturing—are given in a recent study by Robert E. Gallman, "Commodity Output in the United States, 1839–1899," Conference on Research in Income and Wealth, National Bureau of Economic Research, Inc., New York. For each date, the national total for each sector was distributed by region as follows: In the case of agriculture the income originating from each crop (Gallman, Table A-6) was distributed in proportion to the regional shares in the production of the crop; the income originating from each type of livestock (*ibid.*), in proportion to the shares in the total inventory of that type. For manufacturing, Gallman's total for all manufacturing (*ibid.*, Table A-21) was distributed according to the regional shares in census value added for manufacturing as a whole. For mining, the income originating from each principal product (*ibid.*, Table A-8) was distributed on the basis of the regional shares in the value of production for that product. For each date the regional shares in each agricultural and mining product and in manufacturing value added were obtained from the industrial census returns. The regional totals for agriculture, mining, and manufacturing at each date were then summed, and an index constructed from the totals which was used to extrapolate to 1860 the more comprehensive 1840 estimate cited above.

Table 4. The basic data on agriculture are from U.S. Bureau of the Census *Compendium of the Tenth Census (June 1, 1880)*, Pt. I, pp. 654–681. The source for the population data is the same as that given above for Table 1. Texas is included and Oklahoma omitted from the figures.

Table 5. Column 1: The figure for each region is an average of the entries for 1880 onward in Table 1 of the text, with the addition of estimates for 1890 and 1910, each derived as a simple average of the figures for the two adjoining dates. Columns 2 to 4: The basic data are from [9], vol. I, Table P-1, and underlying unpublished estimates; the calculation of the rates is described in vol. II.

Table 6. The basic data are from [9], vol. I, pp. 729–733. The procedure used in deriving the rates is described in vol. II, except that for the present paper an additional preliminary step was added to permit averaging of the rates for individual periods; viz., the basic estimates on capital owned and located in each region at each date were converted to constant prices, using R. W. Goldsmith's national wealth deflator for structures and equipment (International Association for Research in Income and Wealth, *Income and Wealth, Series II*, p. 324), carried back before 1900 on the basis of Kuznets's deflator (*ibid.*).

* Numbers in brackets refer to numbered listings in Selected References at the end of the chapter.

Table 7. The basic data are from [9], vol. I, Tables L-4 and L-5. Forestry and ishing were included with agriculture in 1880 but not in 1950.

FOOTNOTES

1. Richard A. Easterlin, "Interregional Difference in Per Capita Income, Population, and Total Income, United States, 1840–1950," Conference on Research in Income and Wealth, National Bureau of Economic Research, Inc., New York.

2. Gallman's estimates of real commodity output per capita (which is probably the closest approximation to total income per capita) show an increase of about 33 per cent for the nation as a whole between 1839 and 1859 (see the study cited in the sources for Tables 1 to 3). If one makes the fairly generous assumption that the 1860 estimate of relative income level for the South is exaggerated by 10 per cent, so that the "true" per capita income relative would be 66, this would still leave the South with an estimated increase of absolute per capita income of almost 15 per cent by 1859, assuming no differential rise in the Southern price level.

3. An explicit test of this proposition, yielding the same conclusion, is given in Alfred H. Conrad and John R. Meyer, "The Economics of Slavery in the Ante Bellum South," *Journal of Political Economy*, vol. 46, no. 2 (April, 1958).

4. See, for example, Svend Laursen, "Production Functions and the Theory of International Trade," *American Economic Review*, vol. 42, no. 4 (September, 1952).

5. A case could be conceived in which in both the high- and low-income areas increasing returns to scale continuously prevailed for all industries or for the economy as a whole. If this were so, resource flows would tend to widen income differences. But such a case is highly unrealistic.

6. Our definition of the South differs slightly from the states included in the Confederacy (Kentucky and West Virginia were not members) but not enough to affect the analysis.

7. It would have been preferable to express the items on a "per worker" rather than "per capita" basis, but no estimate is available of the agricultural labor force in 1860. It is unlikely, however, that this involves any serious distortion of the figures. In 1840 the ratio of agricultural labor force to total population in the South was 29 per cent; in 1870 and 1880, 25 and 26 per cent, respectively.

8. See B. I. Wiley, "Salient Changes in Southern Agriculture since the Civil War," and Oscar Zeichner, "The Transition from Slave to Free Agricultural Labor in the Southern States," in Joseph T. Lambie and Richard V. Clemence, *Economic Change in America* (Harrisburg, 1954).

9. A ranking in terms of labor income per worker would be the same.

10. See Walter Isard, "Some Locational Factors in the Iron and Steel Industry since the Early Nineteenth Century," in Lambie and Clemence, *op. cit.*

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