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THE EXTENT OF THE LABOR MARKET IN THE UNITED STATES, 1850-1914

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ABSTRACT

Between the middle of the nineteenth century and the beginning of World War I improvements in transportation and communication encouraged increasing interregional and international economic integration. This paper traces and analyzes the progress of increasing labor market integration in the United States during this period of "globalization." It argues that although the falling cost and increasing speed of transportation and communication in this period initiated a substantial expansion of labor market boundaries, the pattern of increasing integration was strikingly uneven. By the end of the nineteenth century, labor markets in the northern United States were part of a tightly integrated regional labor market that was in turn closely linked with labor markets in northern Europe. But this regional and international integration coincided with the persistent failure of integration between northern and southern labor markets within the United States. The importance of this finding is two-fold. First, it suggests that the forces shaping the determination of wages, the evolution of wage structure, and the growth of unions cannot be understood at either a purely local, or a purely national level. Second, it shows that the process of market integration was complex, depending on the interaction between historically determined market institutions and falling transportation and communication costs.

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Between 1870 and 1915 more than 25 million immigrants entered the United States. At the same time millions of Americans were on the move from east to west, and from rural to urban places. These massive population movements are one manifestation of a broader movement toward increasing economic integration within and between nations that was stimulated by improvements in transportation and communication during the late nineteenth and early twentieth centuries.[1] Although a number of recent studies have explored the impact of increasing labor market integration on the pattern of interregional and international variation in wages and earnings at this time, there is still no comprehensive account of how the geographic scope of American labor markets changed in the decades between the Civil War and World War I.[2] Establishing the relative impact of local, regional, and international events in determining market conditions is essential for understanding such historical questions as the rate of growth of wages, the evolution of wage structure, the shorter hours movements, and the spread of organized labor. "The extent of the market is," as Donald McCloskey (1995, p. 4) has recently observed, "the central descriptive question in economic history."

Previous research on labor market integration in the late nineteenth and early twentieth centuries has focussed on examination of specific data sources. None of these

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[1] The importance of increasing international integration in this era is argued by Williamson (1995b). See also Thomas (1954). The increasing integration of markets within the United States is discussed by Chandler (1977), Perloff, et al (1965), and James (1978).

[2] Studies of regional wage variation within the United States include Coelho and Shepherd (1976, 1983); Rosenbloom (1990a, 1991, forthcoming 1996); and Sundstrom and Rosenbloom (1993). Allen (1994) and Williamson (1995) offer the most extensive efforts at international wage comparisons.

sources by themselves is adequate to trace the changing extent of American labor markets, but taken together they present a clear and consistent picture of the history of labor market integration. Rather than exploring a new body of data this paper surveys the state of existing research on labor market integration. It argues that the expansion of labor market boundaries in the half century between the Civil War and World War I was impressive, but uneven. By the end of the nineteenth century, labor markets in the northern United States were part of a tightly integrated regional market and were, in turn, closely linked with labor markets in northern Europe. Yet this regional and international integration coincided with the persistent failure of integration between northern and southern labor markets within the United States.

The importance of these results is two-fold. First, they suggest that late-nineteenth century labor market history was neither purely local, nor purely national. The forces shaping the determination of wages, the evolution of wage structure, and the growth of unions varied regionally, and were in some cases driven by developments outside the country altogether. Second, they show that the process of market integration was complex. Falling transportation and communication costs during the late nineteenth and early twentieth centuries were an important impetus for the expansion of markets, but the uneven character of market integration implies that by themselves they were not sufficient to explain increasing market integration. Rather it was the interaction between falling transportation and communications costs on the one hand, and historically determined labor market institutions that shaped patterns of geographic integration.

The essence of what markets do is process information, and bring transactors together so that they can complete exchanges. In the absence of the Walrasian auctioneer, they must

do this through humanly created institutions. As is true today the institutional framework of the labor market is the product of the decentralized and largely uncoordinated actions of millions of individuals. Because these actions were interdependent and subject to increasing returns, labor market integration was path-dependent, and subject to the tendency to lock-in to certain patterns.[3] Consequently, the pattern of integration which emerged in the decades after the Civil War reflected the influence of antebellum labor market conditions, and it was only as a consequence of the disruptions to labor supply and demand caused by the First World War that new patterns of labor recruitment began to emerge.

I. Was There a National Labor Market in the U.S.?

Within the United States, the half century between the Civil War and the First World War was characterized by extremely high rates of internal population redistribution (Eldridge and Thomas 1964). In general population tended to move from East to West, and from rural to urban areas. But these broad trends masked substantial local variation in growth experience (Madden 1956).

The volume of population movements does not by itself reveal much about the extent of market integration, however. The essential characteristics of an integrated markets are that information flows freely and quickly between market participants at different locations, and these participants are able to respond rapidly to any imbalances in supply and demand that may emerge at a particular location. Unfortunately the flow of information and the

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[3] David (1986, pp. 41-43) discusses the conditions under which path-dependent behavior will arise.

responsiveness of market participants to this information cannot be directly observed. Instead, empirical work must focus on the observable consequences of those information flows. This shift of focus is evident, for example, in Cournot's definition of a market as "the whole of any region in which buyers and sellers are in such free intercourse with one another that the prices of the same good tend to equality easily and quickly" (quoted in Marshall 1920, p. 324). This "law of one price" seems simple enough, but even this criterion is difficult to apply since the equalization of prices is never perfect.

The better integrated markets are, the more easily and inexpensively information and resources can move between them, and the smaller will be the resulting price differentials. Differences in prices then provide one measure of the extent of the market. While the magnitude of geographic price differentials is influenced by the costs of transportation per se, other transactions costs, such as gathering information, financing migration, and the psychic costs of dislocation, may in many cases be more important in determining the extent of integration. In equilibrium, the magnitude of wage differentials provides a measure of the combined effects of these technologically and institutionally determined costs of movement. Because integration is not an either/or phenomenon, rather it is a matter of degree, the relevant standards will necessarily be comparative.

The problem of assessing the extent of integration is further complicated because wages are subject to a variety of forces that can produce the appearance of large differentials even in a well integrated market or equalization in the absence of integration. or the appearance of large differences even in a well integrated market. Differences in measured wages may arise due to differences in labor force composition as well or as compensating

variations for differences in workplace or local amenities and the cost of living. In addition, persistent supply or demand shocks can perpetuate wage differences, even when the market is relatively well integrated. On the other hand, trade in goods can be a substitute for the movement of factors of production. No completely satisfying solution can be offered to these sorts of objections, but other kinds of evidence, such as data on population movement can help to resolve these sorts of ambiguities.

Most research on geographic wage differentials within the United States has focussed on analyzing the results of a small number of late nineteenth century studies that collected payroll data from samples of employers in a variety of locations. These include the Weeks and Aldrich Reports (U.S. Congress 1886, 1893), Bulletin 18 of the Department of Labor (U.S. Department of Labor 1898), and the Nineteenth Annual Report of the Commissioner of Labor (U.S. Department of Labor 1905). The advantage of the data contained in these studies is that they permit comparisons of wage rates across locations for specific occupations, thus controlling for potential heterogeneity in human capital and working conditions that could otherwise produce spurious variations. Against this advantage, however, must be weighed the limited chronological and geographic coverage of these surveys, as well as the small size and possibly unrepresentative composition of the samples on which they rest. In general, wage data are available only for occupations sufficiently ubiquitous to be found in a large number of locations; in practice, this means that most of the wage quotations refer to skilled craft workers engaged in production for local markets. Even so, the available figures often rest on small samples of employers and workers, and cover a

restricted, and in some cases changing, sample of locations and years.[4] The principal alternative to the occupational wage data are average factory earnings calculated from the census of manufactures. Average factory earnings cover a much larger segment of the labor force, and are available for 100 or more cities at each census date beginning in 1880. But because they are an average over possibly heterogenous groups of workers it is more difficult to control for the effects of labor force composition on wages.

Clearly neither source of data is perfect, but their imperfections are different, and both point to substantially similar conclusions. Reflecting the more rapid pace of economic growth in the North Central region, wages there remained higher than in the Northeast throughout the pre-World War I era. Although the east-west differential was relative large as late as 1870, within the northern part of the country there was a very rapid convergence suggesting the emergence of a substantially unified labor market across the Northeast and North Central regions before the end of the century. Wages in the Mountain and Pacific regions remained higher than those in the Northeast and North Central regions, despite substantial population flows into this area, suggesting that the growth of demand simply outpaced the ability of the market to respond to this disequilibrium. Within the South, a similar East-West wage gradient is also apparent. In the 1870s and 1880s wages in the West Central were equal to or greater than northern wages, while wages in the South Atlantic were below northern levels. Wages throughout the South declined relative to the North after 1870 resulting in a widening North-South wage gap at the same time that wages across the South were becoming more equal. Despite declining southern wages, rates of outmigration from

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[4] See Long (1960, pp. 7-12) for further discussion of these sources.

the region remained extremely low until the 1910s. Thus it appears that regional integration within the North and South coincided with the persistent isolation of the two regions.

The earliest data on regional variation in occupational wage rates is contained in the Weeks report. Conducted as a special supplement to the 1880 Census, the report gathered data on wages and prices extending back to 1850 or earlier from 627 manufacturing, mechanical, and mining firms in 38 states, 2 territories, and the District of Columbia. Although data were collected from all parts of the country, 83 percent of the employers surveyed were concentrated in the Northeast and North Central regions. In addition, because the data were collected retrospectively, the number of observations also declines sharply in the earlier years. Coelho and Shepherd (1976) used these data to examine regional differences in real wages from 1851 to 1880 for common laborers and engineers--the two most numerous occupations in the data--as well as a combined regional index based on wages for six occupations.[5]

Figure 1 plots Coelho and Shepherd's estimates of real wages of common laborers in New England, the East North Central, West North Central, and East South Central regions as a percentage of the wage in the Middle Atlantic. Because of the small number of observations available, they do not report real wages for the South Atlantic and other

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[5] The six occupations are engineers, blacksmiths, machinists, painters, carpenters, and common laborers. Because each observation in their data represents the average wage for a particular occupation paid by a particular employer and the mix of occupations across regions may differ, regional average wages will reflect differences in occupational mix as well as differences in earnings within occupations. To control for differences in occupational composition across regions, Coelho and Shepherd regressed each wage observation on region and occupation dummy variables, and used the coefficient on the region dummy to measure interregional earnings differences.

regions. A clear tendency toward convergence is apparent in all four regions.[6] In the 1850s wages were from 10 to 40 percent above the Middle Atlantic, but by the 1870s these differentials had fallen to less than 10 percent except in the East North Central, where wages remained 10 to 20 percent above the Middle Atlantic. A similar pattern of convergence is also apparent for engineers and the combined occupational index, though the magnitude of the differentials is somewhat greater.

Two sources--the Aldrich and Nineteenth Annual reports--are available for 1890.[7] Although differences in geographic coverage between these sources and the Weeks report mean that wage differentials for 1890 cannot be directly compared to those based on the Weeks report, both sources suggest that within the North convergence continued over the next decade. Table 1 reports relative real wages for a variety of occupations based on Coelho and Shepherd's (1983) analysis of wage and price data from the Aldrich Report. Although relative wages varied across occupations, wages in New England, and the East and West North Central regions were generally within 5 to 10 percent of those in the Middle Atlantic by 1890. In contrast wages further west--in the Mountain and Pacific regions--remained 15 to 25 percent above eastern levels.

The data for the South present a more complicated picture. The South Atlantic was clearly a low wage region for all types of labor, but differentials were largest for laborers,

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[6] These results are broadly consistent with Margo's (1992, pp. 190-92) analysis of antebellum regional wage differentials based on Civilian wage data, which finds that from 1820 to 1860 real wages of artisans and laborers in the Midwest were higher than eastern wages, but with a gradual tendency toward convergence.

[7] The Aldrich report also included retrospective wage data for New England, and the Middle Atlantic regions, but not for other parts of the country.

and smallest among skilled metal workers (blacksmiths, machinists, iron workers, and tinsmiths). Relative wages for skilled labor were also higher in the South Central regions, equaling or exceeding wage rates for the same occupations in the Middle Atlantic. On the other hand, in the East South Central region, laborers wages, which had been nearly equal to those in the Middle Atlantic in 1880, were 20 percent below northern levels by 1890, while in the West South Central laborers wages were comparable to those in the North. Overall, the impression is that southern wages were falling increasingly below northern levels, with the downward pressure most intense on less skilled workers.

Sundstrom and Rosenbloom's (1993) analysis of wage data from the Nineteenth Annual report closely parallels Coelho and Shepherd's results. Table 2 shows relative regional real wages for each of the eight occupations that they consider. Wages in the North Central and Northeast were approximately equalized, while wages in the West remained 15 to 25 percent above eastern levels. Wages in the Southeast were again consistently lower than in the North, with the differential greatest for unskilled labor, while wages in the South Central were relatively high for skilled workers, but below northern levels for unskilled labor.

Covering 23 occupations in 12 cities from 1870 to 1898, wage data in Bulletin 18 provide a consistent sample of locations and occupations spanning the gap in coverage between the Weeks report and the Aldrich and Nineteenth Annual reports. Contrary to the convergence of northern wages suggested by these other sources, however, Rosenbloom (1990) reports that real wages in the four midwestern cities included in the data remained roughly 20 to 25 percent above wages in 5 northeastern cities covered throughout the entire

period. Only two southern cities--Richmond and New Orleans--and one western city--San Francisco--were included in the data. Wage data for these cities are consistent with the patterns of interregional variation indicated by other sources. Wages in Richmond diverged from the northeastern levels, dropping from 85 to 81 percent of wages in the Northeast, while wages in New Orleans were approximately equal to those in the Northeast. Wage rates in San Francisco began much higher than eastern levels, but the West-East wage gap narrowed over time, declining from 36 percent in the 1870s to 15 percent by the late 1890s.

It is not possible to offer a conclusive explanation for the discrepancy in the magnitude of East-Midwest wage gap implied by Bulletin 18 and the other wage studies. It seems likely, however, that the difference between the studies may be attributable to the peculiar sampling procedures used to assemble the Bulletin 18 data, and the small sample sizes on which most observations were based. Like the Weeks report, the Bulletin 18 wage data were collected retrospectively, but to maintain a consistent sample over the 1870-1898 period, investigators collected data only from employers who had been in existence and had payroll records for the entire period being considered. Since both the Aldrich and Nineteenth Annual Reports which are based on larger, more representative, and presumably more reliable, samples it seems likely that the wage gap implied by the Bulletin 18 data is a statistical anomaly.

Average factory earnings data analyzed by Rosenbloom (forthcoming, 1996) provide a largely independent test of conjectures based on the occupational wage data. Covering many more places and a much broader segment of the labor force, they reinforce conclusions based on the wage data, while making it possible to extend comparisons to many more cities and

over a much longer time period. Beginning with the 1880 census, collection of industrial statistics in major cities was turned over to special agents knowledgeable about manufacturing conditions in their districts. The resulting returns are generally regarded as being of substantially higher quality than the manufacturing returns collected for other areas by regular census enumerators. From the published census volumes it is possible to calculate the average earnings of adult male wage earners in a consistent sample of 100 cities for each census year from 1879 to 1919.[8] Figure 2 shows that as early as 1879 real average earnings were nearly equalized across New England, the Middle Atlantic and East North Central regions. Although earnings in the West North Central were substantially higher than in the east in 1879 they converged rapidly (though not completely) toward equality. In the South Atlantic earnings which began 16 percent below the Middle Atlantic diverged steadily, so that by 1914 the gap had risen to 26 percent. In the South Central region, earnings began higher than in the Middle Atlantic, but had fallen slightly behind by 1889. This gap continued to widen, reaching 14 percent by 1914, resulting in a convergence of wage levels within the two southern regions.

Because census earnings data are an average over possibly heterogeneous groups of workers, differences in labor force composition across cities could in principal affect the

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[8] Until 1905 the Census Bureau defined the census year for manufacturing data to be the 12 months ending on May 31 of the Census year, but firms were allowed to submit reports for the business year coinciding most closely with the Census year. In most cases the reported data seem to pertain to the preceding calendar year. Reflecting this practice, beginning with the 1905 census, the census year was shifted to coincide with the previous calendar year, and greater efforts were made to ensure that all firms reported statistics for this period. Easterlin (1957, pp. 679-80). There were a number of changes in census concepts and methods over time, but Rosenbloom (forthcoming 1996, pp. 4-10) argues that the impact of these changes on interregional differentials was negligible.

interregional comparisons shown in Figure 2. In practice the extent of any such effect seems limited. During the late nineteenth century technological changes in manufacturing were promoting the increasing homogenization of the factory work force (Goldin 1990, p. 115; Gordon, Edwards and Reich 1982, pp. 79-100). Rosenbloom (forthcoming, 1996) shows that controlling for broad differences in occupational composition as well as the age structure and literacy of the labor force actually tends to reinforce the pattern of interregional differentials: within the North interregional variation is reduced, while the North-South earnings gap is actually increased slightly.[9]

The census earnings data can also be used to examine the extent of wage equalization within regions, something that previous studies have not explicitly considered. Table 3 reports one widely used measure of within region dispersion, the coefficient of variation of earnings. In 1879 the greatest dispersion of earnings occurred within the two southern regions, where the coefficient of variation was greater than 0.3, roughly 2 to 3 times as large as for any of the other regions. In both the South Atlantic and South Central, however, dispersion fell sharply indicating that inter-regional earnings convergence within the South was accompanied by substantial equalization of earnings within regions. In the North, there is more limited evidence of within region convergence; in both New England and the Middle Atlantic regions, dispersion fell over time, approaching levels comparable to the North Central regions.

Both wage and earnings data suggest that a well-integrated northern labor market

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[9] Rosenbloom (forthcoming, 1996) controls for the proportion of the labor force in two of the numerically most important groups of skilled occupations--construction, and metalworking--as well as the proportion of unskilled laborers.

capable of achieving a substantial redistribution of population without producing large or lasting wage differentials emerged in the decades immediately following the Civil War. This market did not, however, extend to the far West or the South. Despite relatively large population movement into the West, wages and earnings in this region remained above eastern levels (Eldridge and Thomas 1964, pp. 117-20). The combination of high immigration and continued wage differentials suggest that the rapid pace of labor demand growth in this region simply outstripped the ability of the labor market to respond. In the South, despite impressive within region convergence, wages and earnings fell further behind the northern levels, especially in markets for less skilled labor. Compared both to the degree of equalization achieved within the North, and to the magnitude of trans-Atlantic wage differentials considered below, the North-South wage gap which had emerged by the turn of the century appears quite large.

Estimates of net migration from the South further reinforce the impression that it was becoming a low wage area isolated from the rest of the country. Eldridge and Thomas's (1964, p. 90) estimates of regional net migration show that after 1880 there was a modest outflow of population from the South, but that it hovered at very low numbers until 1910-1920. In the 1880s, it reached 20 per 1,000 population, but then subsided to just 10 per thousand in the two decades after 1890. These rates are well below those found in many European countries at this time (see Table 4). Only after 1910 did the rate of outmigration begin to accelerate, quadrupling to 42 per thousand in the 1910s, and then rising again to 48 per thousand in the 1920s.

II. International Labor Market Integration

Between 1860 and 1914 about 52 million Europeans emigrated to labor scarce areas in the Americas, and Australasia. Of these immigrants roughly two thirds were bound for the United States. Undoubtedly there were many factors that influenced individual decisions about whether to migrate, and if so where. But it is also apparent that economic forces were a central factor in directing these unprecedented population movements.[10]

Jerome (1926) has noted that year to year variations in immigration to the U.S. closely paralleled the business cycle, while a number of studies have shown that immigrant destinations within the United States were influenced by across state variations in per capita income (Dunlevy and Gemery 1978; Dunlevy 1980; Dunlevy and Saba 1992). Within Europe, rates of emigration varied widely across countries and over time, and the reasons for this variation have been the subject of considerable study.[11] Hatton and Williamson's (1994b) regression analysis of decadal average emigration rates from eleven European countries shows that close to three quarters of the variation in emigration rates can be explained by a small number of economic and demographic factors. In particular, they find a strong positive relationship between emigration rates and the wage gap between sending and receiving region. Other important explanatory variables include the rate of population growth 20 years in the past, the share of the labor force in agriculture, and the stock of past

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[10] Prior to the second half of the nineteenth century the only comparable intercontinental migration is the forced movement of black slaves from Africa to the Americas and the Caribbean (Hatton and Williamson 1994a, p. 4).

[11] Hatton and Williamson (1994a, pp. 8-15) review the literature on this subject in greater depth.

emigrants living abroad. Higher lagged population growth both raised the proportion of the population in the prime emigration age group, and may have reduced the chances to acquire land, while declining agricultural employment may reflect the disruptive impact of industrialization on domestic agricultural labor markets. The stock of previous migrants was important both as a source of information about opportunities abroad and as a means of financing emigration.

To assess the effectiveness of these population movements in promoting trans-Atlantic integration it is necessary to look at the magnitude of international real wage differentials. Fortunately, several recent studies have attempted to make such comparisons for the late nineteenth and early twentieth centuries. The most extensive comparison is offered by Jeffrey Williamson (1995), who has constructed a data set of internationally comparable real wages from 1830 to the present for 11 European and 4 New World countries. Williamson's data are intended to reflect national averages, but judging from his sources for the U.S. it would be most appropriate to view his wage series as a measure of labor market conditions in the Northeast and North Central regions of the country. Wage rates in each country refer to unskilled labor. They are deflated by national cost of living series and then converted to internationally comparable levels using purchasing-power-parity price indices calculated at benchmark dates. As Williamson (1995) demonstrates, the period from 1870 to 1913 was one of pronounced international wage rate convergence, explained in large part by reductions in the wage gap between the New World and the Old.[12]

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[12] Taylor and Williamson (1994) and O'Rourke, Williamson and Hatton (1994) argue that this convergence would have been even more pronounced had international capital markets been less integrated. The parallel flow of capital from Europe to the New World

To understand what this convergence meant for American labor markets it is useful, however, to look more closely at the gap between wages in the U.S. and each of the European countries in Williamson's data. Two kinds of behavior are apparent. In the first group of countries (Great Britain, Germany, France, Belgium, and the Netherlands), despite substantial short run fluctuations, the wage gap with the U.S. remained relatively stable. Figure 3 graphs wages in each of these countries relative to those in the U.S. from 1870 to 1913. Among these countries, wage levels were highest in Great Britain, fluctuating between 60 and 70 percent of American levels, and lowest in France, where wages were between 40 and 50 percent of those in the United States. The persistence of these gaps suggests that they reflect a relatively stable equilibrium situation. Indeed, as Table 4 shows, emigration rates from most of the countries shown in Figure 1 were quite low after 1870, implying that the remaining wage gaps created little incentive to trans-Atlantic immigration. Only British emigration rates remained relatively high, suggesting that the wage gap may overstate the transactions costs in this case.

In the second group of countries (Ireland, Denmark, Norway, Sweden, and Italy) wage levels were converging toward those in the U.S. Wage ratios for these countries, and for Spain, where wages actually diverged from the U.S., are graphed in Figure 4. In three of these countries--Ireland, Sweden, and Denmark, wage ratios reached levels only slightly below Great Britain by the early 1890s, and then leveled off. Convergence in Norway and Italy was slower and less complete. For all of these countries we seem to observing a

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helped to offset the effects of migration on the capital-labor ratio in both the Old and New World and thus reduced the effects of labor movements on the wage gap.

process of gradual adjustment toward equilibrium. Consistent with this view Table 4 shows that the emigration rates from these countries were higher than for the countries with stable wage gaps.

In another recent study of international labor market integration Robert Allen (1994) compares real wage levels in the English speaking world from 1880 to 1913. Allen has compiled wages for unskilled laborers and bricklayers, as well as average factory earnings for six cities in England, Canada, the U.S., and Australia. English wages were below those in all three New World countries, consistent with the outflow of labor from England, but the magnitude of these differentials varied substantially, indicating that migration streams were not very responsive to differences in economic incentives across destinations. Allen also finds that differentials varied substantially by skill level. Comparing British and American real wages he concludes that real wages of unskilled labor were essentially equalized across the two countries, but that the wages of bricklayers and average factory earnings in the United States were roughly twice what comparable workers in Britain earned. Shergold's (1983) comparison of real wages in Pittsburgh and Birmingham, England in the early 1900s similarly found that wage gaps increased with skill level, rising from near equality among unskilled workers to a range of 50 to 100 percent for the most skilled workers.

Together wage and migration data point to the emergence and extension of a well integrated trans-Atlantic labor market in the decades after the U.S. Civil War.[13]

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[13] In principal international wage convergence could have been achieved without labor market integration through the effects of factor price equalization. The large magnitude of population flows at this time suggests, however, that factor price equalization cannot be the whole story. General equilibrium analysis also suggests that factor price equalization was not a major factor in wage equalization at this time (Williamson 1995b, pp. 7-8).

Transactions costs in international labor markets were large enough to prevent the equalization of American and European wage levels, but whether one views the resulting differentials as "large" or "small" is a matter of judgement. In comparison with wage differentials within the Northeast and North Central United States they were relatively large, but relative to the North-South gap in unskilled labor wages, the trans-Atlantic wage differential does not appear especially large. The important point to notice though is that because the flow of labor was almost exclusively from Europe to America, American employers faced what was in effect a nearly perfectly elastic long-run supply of labor. In the short-run, wage rates on the two-sides of the Atlantic could move in opposite directions, as evidenced by the fluctuation in wage ratios shown in Figures 3 and 4. But the long-run stability of trans-Atlantic wage gaps reflects the fact that labor supply responses were large enough to ensure the equalization of the growth rates of wages in the United States and the major economies of northwest Europe. In addition, the high rates of outmigration and convergence of wage rates in Ireland, Scandinavia, and Italy provides compelling evidence of the extension of international labor markets to include new areas.

III. Labor Market Institutions and Labor Market Integration

Clearly labor market integration over long distances was possible by the late nineteenth century. Within the Northeast and North Central regions of the United States substantial population redistributions were accomplished with only relatively small wage differentials. Although the larger cost of trans-Atlantic migration kept international wage differentials larger, international labor market integration was sufficient to equalize the long-

run trend in wage growth in the United States and the countries of northwest Europe. Moreover, the rising tide of emigration from Ireland, Scandinavia, and later Italy and the corresponding increase in relative wages in these countries suggests that the boundaries of international labor markets were expanding in the late nineteenth and early twentieth centuries.

But the pattern of integration was uneven. At the same time that labor markets across the Northeast and North Central U.S. were becoming part of a unified regional and international market, they remained largely isolated from Southern labor markets. Explaining the selective pattern of labor market integration requires a consideration of the institutional structures that facilitated the flow of information between employers and workers, and provided them with the resources they needed to complete transactions. Because these institutions were the product of decentralized but interdependent decisions made by millions of job-seekers and employers, and were subject to important economies of scale, they were prone to evolve in a path-dependent manner, which can only be understood by examining the historical circumstances in which they were formed.

Networks of friends and relatives were the principal channel of communication and assistance in late nineteenth and early twentieth century labor markets. The predominance of "chain migration" in which earlier migrants from a particular community were followed by later migrants has been widely noted by historians and economists studying population movements in this period.[14] According to Tilly (1990, p. 84) "the effective units of

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[14] See, for example, Kamphoefner (1987), Gjerde (1985), Barton (1975), MacDonald and MacDonald (1974), Morawska (1990), Gould (1979), Hareven (1982).

migration were (and are) neither individuals nor households but sets of people linked by acquaintance, kinship, and work experience...." Not only could friends and family provide accurate information about employment opportunities at little cost, they were often in a position to provide funds to help finance migration, and to assist in the process of adaptation to a new environment (Ben-Porath 1980, Hareven (1982). In 1868 the New York Times (2 February, p. 4) observed that:

> when the demand for help is fair and wages are good, a brisk business is done at the offices of the emigrant lines of passenger ships in receiving the money of servant girls, mechanics and laborers, to prepay the cost of bringing hither other members of their family.

In 1880 the representative of one trans-Atlantic steamship company estimated that perhaps 30 to 40 percent of German immigrants were travelling on tickets prepaid by someone already in the U.S. By the early twentieth century it was estimated that 60 percent of immigrant arrivals were travelling on prepaid tickets, and nearly 80 percent had a relative waiting for them (Rosenbloom 1988, p. 21; Morawska 1990, p. 194; Kamphoefner 1987, p. 188). The importance of family and friends did not stop with long-distance migration. The workings of local labor markets are harder to observe, but all of the available evidence suggests that friends and family were among the most important sources of labor market information within as well as between locations.[15]

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[15] A 1936 study of 2,500 Philadelphia workers conducted by Gladys Palmer and recently analyzed by Walter Licht (1992, pp. 31-40) asked for retrospective information on the respondents' entire employment histories. In a number of cases these stretched back into the 1880s. In this survey, 50% of those interviewed reported finding their first job through a friend or relative, while 44% reported using this method to find subsequent jobs. Hareven

The importance of kin and friendship networks in the labor market reflects their advantages for employers as well as job-seekers.[16] For employers, referrals by their current workers were a low cost method of labor recruitment that also served as a screening mechanism, and insured that newly arrived workers would have someone to assist in their training and assimilation into the work force (Hareven 1982). Consequently, employers actively encouraged chain migration, and in some instances even advanced money for travel costs which would then be repaid from future earnings. (Rosenbloom 1994, p. 389).

Once a particular migration stream had been initiated kin and friendship networks were a highly effective means of mobilizing labor. Because the connections established in this way linked specific sending and receiving regions, they offer a partial explanation for the selective and uneven patterns of integration observed during the late nineteenth and early twentieth centuries. But chain migration by itself is not sufficient to account for the pattern of labor market integration. As the locations of economic activity shifted, and additional sources of labor supply emerged, new streams of migration were continually being initiated. The key question is why the processes responsible for creating these new connections within the labor market operated selectively and unevenly.

When the referrals of current employees and direct applications of job-seekers proved inadequate, employers were obliged to recruit labor directly. Employers located in or near

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(1982) researches a similar conclusion about workers in the textile factories of Amoskeag, N.H. Rosenbloom (1994) cites a wide range of more recent surveys consistent with this conclusion.

[16] Montgomery (1991) offers a theoretical model illustrating the way in which reliance on employee references can emerge as the preferred method of recruitment and job-seeking.

urban areas might simply dispatch a foreman to nearby immigrant communities to recruit additional workers. For more isolated employers, however, it was necessary to search further afield, and even employers in urban areas sometimes found the local labor supply inadequate for their needs. As Rosenbloom (1994, pp. 389-90) documents, when employers were unable to obtain the labor they needed through the referrals of their current employees or from the locally available pool of job-seekers, they either dispatched their own agents to the major immigrant destinations--New York, Chicago, Boston--and regional hubs--such as Minneapolis-St. Paul, and Kansas City (Rosenbloom 1994, pp. 388-91), or turned to employment agencies located in these places.[17] There is little indication that they ever looked to the South as a potential source of labor. In fact, when southern employers found the local labor supply inadequate for their needs they typically sought to recruit European immigrants as well.

Less is known about the forces that directed job-seekers setting off without the assistance of friends or family. Newspapers, guidebooks for immigrants, and more general word of mouth were presumably important factors influencing their decisions to migrate, and their choices of destinations. Such pioneering immigrants were most likely to head for the major cities where employment agencies were concentrated, and employers were most likely to send their agents. The decisions of employers and workers were mutually reinforcing. Job-seekers without specific information were most likely to go to the places with the highest concentration of potential employers, and employers were most likely to send their agents to the places with the greatest number of potential employees. Thus, while employer

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[17] On the evolution of employment agencies see Rosenbloom (1990b).

recruitment and worker job-search helped to create new channels of communication as the sources and destinations of labor changed, this process was also subject to a tendency toward path-dependence and historical lock-in that helps to explain failure of North-South integration within the U.S.

Prior to the Civil War, the dominant pattern of internal migration was from East to West (Steckel 1983). Initially, manufacturers in the Northeast recruited labor for their factories from among the stranded agricultural population created by competition from western farms (Field 1978). But by the 1840s, this source of labor was declining, while European immigration was increasing. North-South separation and northern reliance on immigrant labor was reinforced by the Civil War, and it was in these circumstances that late nineteenth-century patterns of labor market integration emerged. They persisted because southern job-seekers, especially in less-skilled jobs were unlikely to have personal contacts in the North who could provide them with information or assistance, and because northern employers who might have wished to tap lower-wage southern labor sources lacked any well developed mechanism to do so. There were few established employment agencies in the South, or places to which agents could be dispatched with the expectation of being able to recruit a large number of workers. Consequently outmigration from the South remained relatively slow until the end of large scale European immigration caused by World War I forced northern employers to undertake the concerted efforts necessary to develop mechanisms to recruit labor in the South (Whatley 1990; Wright 1986, ch. 7). In the wake of these efforts, outmigration rates from the South rose sharply after 1910.

IV. Conclusion

Wage and earnings data from the late nineteenth and early twentieth centuries show that labor markets were extensive, but that integration was uneven and selective. In the decades after the Civil War, labor markets across the Northeast and North Central United States were increasingly closely linked with each other, and with labor markets in Europe. At the same time labor markets across the South were becoming increasingly unified with each other, but they remained largely isolated from northern and international markets. This peculiar pattern of integration can be traced back to patterns of migration that emerged in the antebellum period, and were subsequently reinforced by the path-dependent evolution of labor market institutions.

While the history of labor market integration is interesting in its own right, these conclusions are also important for a variety of other questions. Most importantly, they suggest that late nineteenth century labor history cannot be fully understood at the level of the community or the nation. Labor market integration was not perfect of course, and in the short run local conditions probably did matter, but in the longer run, communities were integrated into much broader markets, and this connection profoundly influenced wage determination. Thus, the relatively slow growth of real wages in the U.S. as compared to labor productivity in this period appears to be explained by the depressing effects of immigration on domestic wage levels. There is some evidence that the effects of this competition were greatest among unskilled workers, and the relative protection afforded skilled workers may thus help to explain the apparent widening of skill differentials at this time. The competitive pressures created by the extension of labor markets also help to

rationalize much of the rise in labor conflict in this period, as workers sought to preserve or enhance barriers to competition which would protect them from this competition.

Table 1:
Relative Regional Real Wages for Selected Occupations in 1890
from the Aldrich Report
(Middle Atlantic = 100 for each occupation)

Occupation	NE	ENC	WNC	SA	ESC	WSC	MTN	PAC
Blacksmith	94	94	104	89.5	105	113	115	113
Machinist	92	103	106	103	114	143	113	115
Iron Moulder	87	105	103	104	107	119	117	123
Tinsmith	82	96	100	96	102	111	121	112
Carpenter	93	94	96	81.6	101	122	117	94
Mason	91	109	104	84	111	114	122	130
Painter	80	92	94	70	94	103	110	103
Bricklayer	82	102	103	79	109	97	119	123
Plumber	103	105	122	91	121	112	125	121
Baker	104	114	114	90	114	105	95	134
Cabinet Maker	92	85	98	82	100	109	116	94
Stonecutter	86	108	111	80	102	114	119	114
Common Laborer	101	108	110	67	79	100	148	121
Farm Laborer	126	114	123	67	78	90	124	129
Median Regional Wage Ratio	92	103	104	83	104	112	118	118

Notes and Sources: Relative real wages computed from Coelho and Shepherd (1979, p. 77). Occupational wages are from the Aldrich Report with the exception of Farm Labor wages, which are from the USDA.

Table 2:
Relative Regional Real Wages of Selected Occupations in 1890
From the Ninteenth Annual Report of the Commissioner of Labor
(Northeast = 100 for each occupation)

Occupation	North Central	South East	South Central	West
Bricklayer	110	63	117	138
Carpenter	99	71	102	116
Hod Carrier	104	62	91	128
Machinist	103	100	125	115
Iron Molder	105	92	117	118
Pattern Maker	104	88	110	110
Common Laborer, Building	107	53	92	116
Common Laborer, Foundry and Machine Shop	106	74	99	120
Median Regional Relative Wage Ratio	105	73	106	117

Notes and Sources: Relative real wage ratios computed from Sundstrom and Rosenbloom (1993, p. 386).

Table 3:
Within Region Coefficient of Variation of Real Average Earnings
of Male Manufacturing Wage Earners, 1879-1919

Region	1879	1889	1899	1904	1909	1914	1919
MA	0.124	0.133	0.086	0.081	0.077	0.073	0.086
NE	0.149	0.117	0.104	0.116	0.114	0.112	0.092
ENC	0.068	0.094	0.064	0.089	0.079	0.104	0.108
WNC	0.118	0.117	0.100	0.086	0.085	0.101	0.077
SA	0.304	0.204	0.236	0.196	0.197	0.125	0.148
SC	0.325	0.173	0.147	0.158	0.108	0.097	0.086
West	0.058	0.072	0.092	0.047	0.078	0.054	0.090

Notes and Sources: From Rosenbloom (forthcoming, 1996, Table 3). Regional abreviations: MA--Middle Atlantic; NE--New England; ENC--East North Central; SA--South Atlantic; SC--South Central, West--West. The coefficient of variation is calculated as the ratio of the standard deviation of earnings to the real average level of earnings across all cities for which data are available in each region at each date.

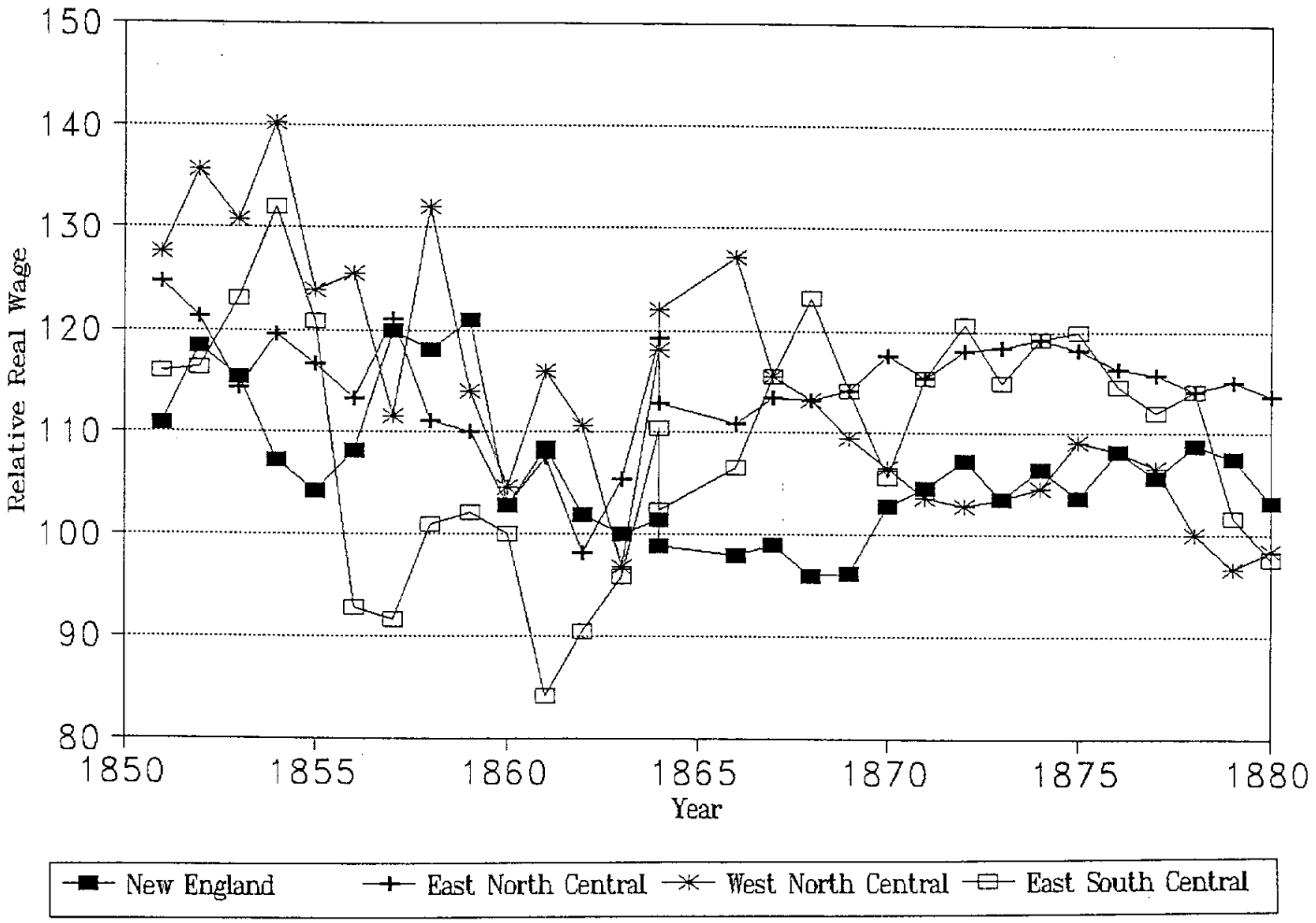
Table 4:
European Emigration Rates by Decade for
Countries Included in Figures 1 and 2
(per 1000 mean population)

Country	1871-1880	1881-1890	1891-1900	1901-1910
British Isles	50.4	70.2	43.8	65.3
Belgium		8.6	3.5	6.1
France	1.5	3.1	1.3	1.4
Germany	14.7	28.7	10.1	4.5
Netherlands	4.6	12.3	5.0	5.1
Denmark	20.6	39.4	22.3	28.2
Ireland	141.7	88.5	69.8	
Norway	47.3	95.2	44.9	83.3
Sweden	23.5	70.1	41.2	42.0
Italy	10.5	33.6	50.2	107.7
Spain		36.2	43.8	56.6

Source: Hatton and Williamson (1994, p. 7)

Figure 1:

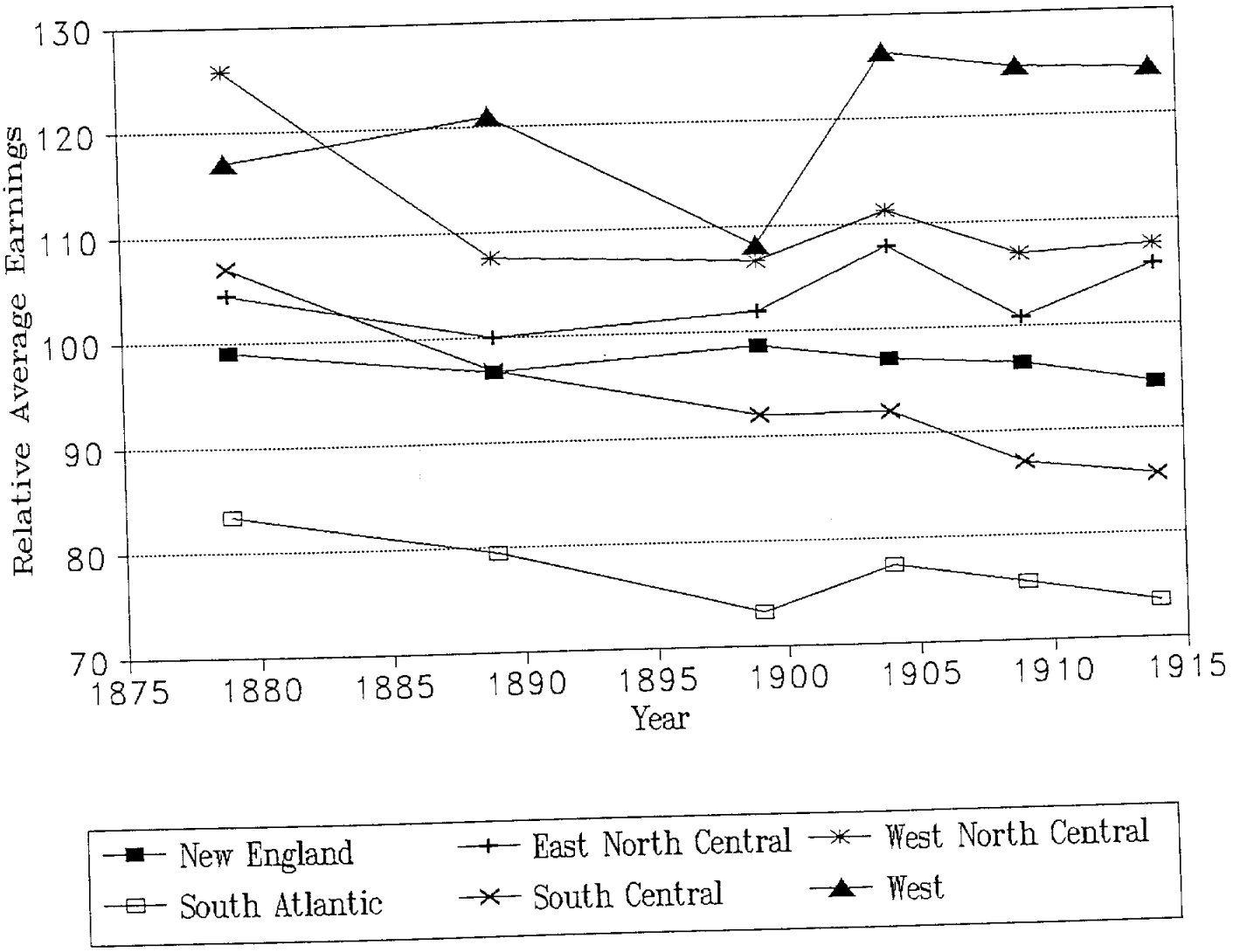
Relative Regional Real Wages of Common Labor, 1851-1880
(Middle Atlantic = 100 in each year)



Source: Coelho and Shepherd (1976).

Figure 2:

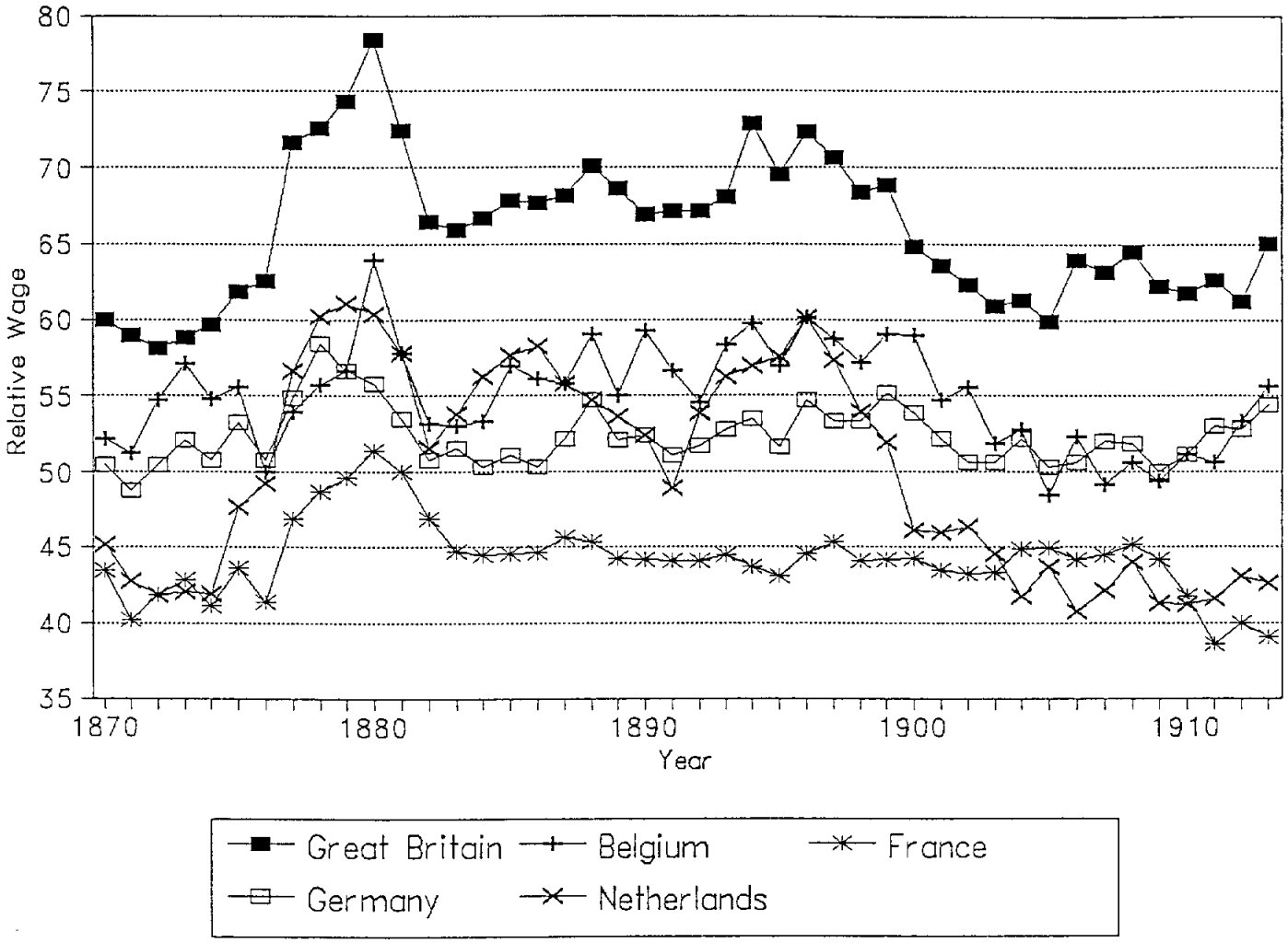
Relative Regional Real Earnings
of Male Factory Wage-Earners, 1879-1914
(Middle Atlantic = 100 in each year)



Source: Rosenbloom (forthcoming, 1996).

Figure 3:

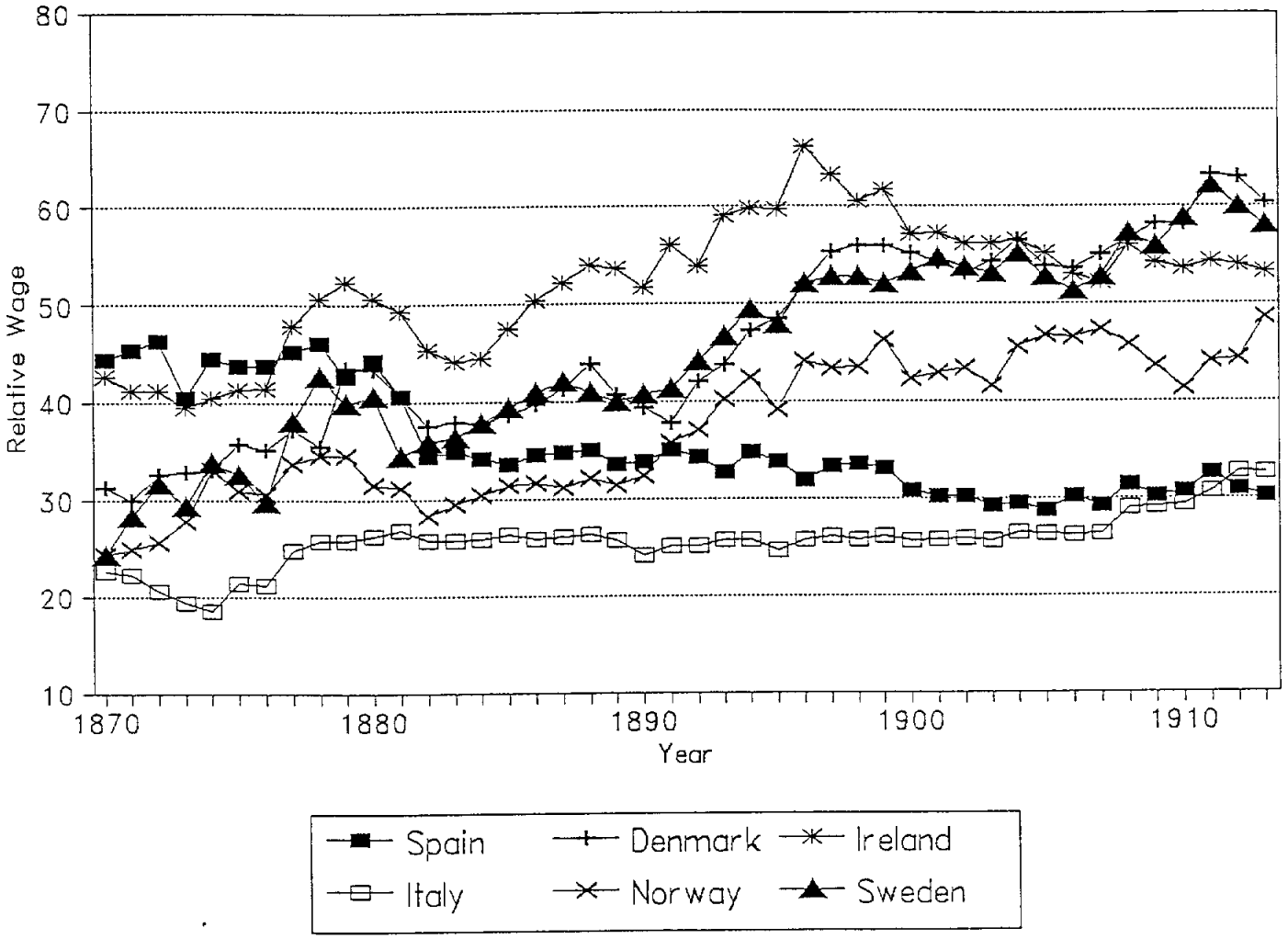
Relative International Real Wages, 1870-1914
(U.S.A. = 100 in each year)



Source: Williamson (1995)

Figure 4:

Relative International Real Wage Rates, 1870-1914
(U.S.A. = 100 in each year)



Source: Williamson (1995).

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