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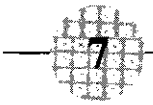

7 Antebellum Wages and Labor Markets
A New Interpretation

Previous chapters in this book have presented new series of nominal and real wages for the antebellum period and have used the new series, as well as other data, to examine the behavior of labor markets. This chapter uses these findings and others to construct the new interpretation of antebellum wages and labor markets sketched in the introduction.

7.1 Real Wages in the Long Run

Charting economic growth before the Civil War has long occupied the attention of economic historians. For the benchmark census years of 1840 and 1860, sufficient economic data are available in the federal censuses and other documents to produce fairly reliable estimates of per capita incomes (Gallman 1966). For the period before 1840, however, there is much less certainty over the long-run growth rate of per capita income. The most recent estimates for the pre-1840 period are those of Thomas Weiss (1992), based on the so-called conjectural method (David 1967). According to Weiss (1992; and Gallman 1966), per capita income rose from $77.00 in 1820 (in 1840 dollars) to $125 in 1860, implying an average annual rate of growth of 1.2 percent per year.

To place this figure in the context of my indices of real wages, it is useful to begin by assuming that total output can be described by the aggregate production function $Q = F(K, L, T)$, where Q = output, K = capital, L = labor, and T = natural resources or raw materials. I further assume that F is Cobb-Douglas, $F = AK^{\beta}L^{\alpha}T^{\delta}$, where $\alpha + \beta + \delta = 1$.

If labor is paid the value of its marginal product, then

$$w = pMP_L = p\alpha Q/L,$$

where p = price of output. In rate-of-change form,

$$\dot{(w/p)} = \dot{\alpha} + \dot{(Q/L)},$$

where "•" indicates the percentage growth rate. Assuming that the aggregate output elasticity of labor (α) did not change, the real wage (w/p) should grow at the same rate as labor productivity (Q/L) in the long run if labor is paid the value of its marginal product.

Weiss (1992) has also produced new estimates of the labor force for the census years 1820–60. According to these estimates, the aggregate labor force participation rate increased from 0.328 in 1820 to 0.358 in 1860 (computed from Weiss 1992, 37; and U.S. Department of Commerce 1975, 8). Combining the estimates of labor force participation with his estimates of per capita income, it follows that output *per worker* increased from $235 in 1820 to $349 in 1860, or at an average annual rate of 0.99 percent per year.

Chapter 3 presented occupation- and region-specific indices of real wages. In chapter 5, the regional series were adjusted for differences across regions in the cost of living, and aggregate occupation-specific series were constructed. If the trend rates of growth estimated from these series are aggregated by weighting by estimates of occupation shares derived from the 1850 census, the overall growth rate of real wages is 1.01 percent per year from 1820 to 1860.[1]

If output per worker and real wages grew at approximately the same secular rate, it is reasonable to infer, as stated in the introduction, that economic growth did "trickle down," on average, to the members of the antebellum working class.[2] Pessimists who maintain that antebellum growth bypassed the working class evidently cannot base their case on a failure of real wages to rise in the long run.

It is important to keep in mind that my real wage indices pertain to daily or monthly wages while Weiss's estimates pertain to annual output. No series of average annual days worked has been produced for the antebellum period. Scattered evidence, however, suggests that seasonality declined, and annual days of labor increased, over the course of the nineteenth century (Gallman 1975; Adams 1982; Engerman and Goldin 1993).

7.2 Real Wages in the Short Run

Although real wages grew in the long run before the Civil War, my new series reveal considerable variability in the growth rate in the short run, measured over a period of years (decades or five-year periods, e.g.) or on an annual basis. Real wages grew in fits and starts, and certain periods witnessed stagnation and decline.

Although there were differences across occupations and regions, the

general cyclic pattern was as follows. Real wages grew starting in the mid-1820s into the early 1830s, but then growth ceased or reversed direction in the mid- to late 1830s. Real wages then increased sharply in the early 1840s, declining somewhat in the late 1840s from their early 1840s peak, but still remaining well above levels observed in the 1820s and 1830s. Then, from the late 1840s to the mid- to late 1850s, real wages fell.

The finding that real wages fell beginning in the late 1840s is consistent with much of the previous literature on antebellum real wages and supports Robert Fogel's (1989) characterization of this final period before the Civil War as a "hidden depression" for free labor. But the relatively slow growth of real wages comparing the mid- to late 1830s to the 1820s is a novel finding and is the consequence of the improved measurements made possible by the new real wage series in this book.

Some of the variability of real wages in the short run reflects real factors that influenced either labor demand or labor supply. Because of the paucity of good annual economic time series for the antebellum period, it is difficult convincingly to measure the effect of these shocks quantitatively. But identifying plausible candidates is not so difficult.[3] For example, the Midwest experienced severe cycles in railroad construction in the 1840s and 1850s. The waves of railroad building led to periodic booms and then slumps in labor demand, putting (respectively) upward and downward pressure on wages in the labor markets affected by the construction (Fogel 1989; for a contrary view, see David 1987). Perhaps most important, the Irish potato famine and political upheaval led to a marked increase in immigration into the United States starting in the late 1840s, dramatically altering the ethnic composition of Northeastern cities and sizably augmenting urban labor supplies (Fogel 1989). From 1844 to 1856, the annual number of unskilled immigrants entering the country was 950 percent higher than the average during the 1830s; for skilled artisans, the figure was 279 percent (computed from U.S. Department of Commerce 1975, ser. C-132, C-136, p. 111). In the light of these magnitudes, it is plausible that the immigration shock was an important factor contributing to the decline in real wages in the 1850s.[4]

Nominal factors may have played an important role in generating short- and medium-run movements in real wages because cyclic movements in prices were negatively correlated with movements in real wages. If the deviation from trend of the real wage of common labor in the Northeast is regressed on the deviation from trend in the Northeastern price deflator (both variables in levels are averages over five-year periods, e.g., 1821–25 and 1826–30), the (contemporaneous) correlation between the two was -0.90 ($t = 7.64$).[5]

While I will argue below that the sign of the correlation should be taken seriously, it might be claimed that the magnitude is biased away from zero (too large in absolute value).[6] The issue is my use of wholesale prices to

construct the price deflators. Specifically, if wholesale prices fluctuated more in the short run than retail prices, my real wage indices may be excessively volatile (fluctuate too much in the short run).[7]

Because of the lack of good retail price data for the antebellum period, it is difficult to respond directly to this criticism. David and Solar (1977) attempted to show that retail prices were less volatile than wholesale prices by estimating a regression of the log of their price index on the log of an index of Philadelphia wholesale prices. The regression coefficient β was positive but less than one, implying that shocks to wholesale prices were reflected in retail prices, but less than proportionately. Taken seriously, David and Solar's result would suggest that price deflators based on wholesale prices fluctuate "too much" in the short run (relative to price deflators based on retail prices). If this were true, my real wage indices would be excessively volatile. However, this inference is questionable because David and Solar's price index and the Philadelphia price index are not based on a common set of goods traded in the same location.[8] Because they are not, it is not surprising that β, as estimated by David and Solar, was less than one, even if its true value were unity.

Nevertheless, it is worthwhile exploring the possibility that retail prices were less volatile than wholesale prices. I do so by making use of my recent study of rental housing in antebellum New York, which estimated housing price indices over the period 1830–60 (Margo 1996). Specifically, I use the index numbers for 1840 and 1843, a period of substantial deflation in the general price level. My index of rents in New York City registers a fall from an index number of 86.0 in 1840 to 63.9 in 1843, or a decline of -0.297 in log terms (Margo 1996, 623). My overall Northeastern price deflator shows a decline from a peak of 118.1 in 1839 to 69.5 in 1844, or a decline of -0.534 in log terms. Suppose that the ratio of the two, 0.56 (= 0.297/0.534), identifies the relation between annual changes in retail prices and annual changes in wholesale prices (i.e., the value of β).[9] I use this ratio to smooth (dampen) year-to-year movements in the Northeastern price deflator. I then recompute the real wage series for common labor by dividing nominal wages by the smoothed price deflator and reestimate the regression of real wages on prices, both detrended, as described above. If this is done, the contemporaneous correlation between real wages and prices is still smaller but significantly negative, -0.83 ($t = 4.35$). In other words, even allowing for the possibility that my price deflators are excessively volatile, it would still appear that contemporaneous increases in the antebellum price level were associated with falling real wages (and vice versa).

Why would there be a negative relation between changes in real wages and changes in prices? One explanation might be that nominal wages were simply unresponsive to changes in the price level—that is, inflation or deflation had no bearing on the wage-setting process.

Using the nominal wage series and price deflators developed in chapter 3, table 7.1 shows wage and price changes over three inflationary-deflationary episodes—the price rises of the early to mid-1830s; the price deflation following the Panic of 1837; and the inflation of the late 1840s and early to mid-1850s, which culminated in the Panic of 1857. Given enough time to adjust, nominal wages moved in the same general direction—and, during inflationary periods, at approximately the same magnitude—as the price level did over these episodes. Thus, the point is not that nominal wages were totally unresponsive to changes in prices but that the response took time.[10] Simply put, changes in nominal wages lagged behind changes in prices.

The lagged response of nominal wages to prices implies that shocks to the price level could have persistent effects on real wages—real wages could be below or above their equilibrium level for some period of time (Goldin and Margo 1992a). Such persistence has been found for other historical economies, including the postbellum United States (DeCanio and Mokyr 1977) and therefore may not be very surprising. But it does raise the question as to the precise mechanisms producing the wage lag.

One possibility is imperfect information (Lucas 1981). Individuals may have confused changes in the level of prices with changes in the structure of relative prices, causing them to adjust real magnitudes (labor demand or supply) in response to deflation or inflation. Given the costs of transmitting timely price information during the antebellum period as well as the fact that the inflationary episodes involved both absolute and relative price changes (Margo 1992, 194–95), the imperfect information story is a plausible one.

In addition to confusion over relative versus absolute price changes, expectations about the course of future price changes may have played a role. To understand this point, the distinction between an *integrated* and a *stationary* time series is useful. A stationary time series returns to a fixed, or normal, level. By contrast, an integrated time series, such as a random walk, does not return to a fixed level. If the antebellum price level were thought to be a random walk, the rational expectation of tomorrow's price level would have been today's. But, if the price level were thought to be stationary, the rational expectation would be that prices would return to their fixed level sometime in the future.

Anecdotal evidence suggests that, prior to the inflation of the 1830s, antebellum employers (and workers) may have believed that the price level was generally stable, at least during peacetime.[11] In terms of the discussion presented above, the price level was expected to be stationary. Wages did not adjust immediately when prices changed because, for the most part, such price change was expected to be temporary and prices would soon return to normal. Hence, it did not pay for workers to demand immediate wage changes or for employers to implement them. Only when inflation

Table 7.1 **Nominal Wage Flexibility during the Antebellum Period**

	Inflation	Deflation	Inflation
Northeast			
$\Delta(\ln p)$	.334	−.513	.562
	(1830–36)	(1839–43)	(1844–57)
	.271		.462
	(1830–35/37)		(1844–57/59)
$\Delta(\ln w)$:			
Laborers	.411	−.380	.366
	(1831–37)	(1837–40)	(1847–59)
Artisans	.279	−.195	.333
	(1830–36)	(1839–44)	(1848–59)
Clerks	.216	−.085	.345
	(1830–37)	(1839–41)	(1846–56)
Average	.302	−.220	.348
Midwest:			
$\Delta(p)$	.447	−.591	.638
	(1830–36)	(1839–43)	(1844–57)
	.373		.508
	(1830–35/37)		(1844–57/59)
$\Delta(w)$:			
Laborers	.470	−.375	.420
	(1831–37)	(1839–41)	(1847–59)
Artisans	.276	−.302	.425
	(1830–37)	(1839–43)	(1847–57)
Clerks	.357	−.121	.134
	(1831–39)	(1839–41)	(1844–57)
Average	.368	−.266	.326
South Atlantic:			
$\Delta(p)$	.428	−.586	.549
	(1830–36)	(1839–43)	(1844–57)
	.314		.441
	(1830–35/37)		(1844–57/59)
$\Delta(w)$:			
Laborers	.283	−.354	.368
	(1831–37)	(1837–43)	(1846–58)
Artisans	.099	−.155	.302
	(1830–36)	(1837–46)	(1847–57)
Clerks	.439	−.240	.019
	(1831–39)	(1839–42)	(1848–57)
Average	.274	−.250	.230
South Central:			
$\Delta(p)$	.432	−.620	.564
	(1830–36)	(1838–43)	(1844–57)
	.338		.483
	(1830–35/37)		(1844–57/59)
$\Delta(w)$:			
Laborers	.077	−.295	.481
	(1831–36)	(1837–46)	(1847–60)

(*continued*)

Table 7.1 (continued)

	Inflation	Deflation	Inflation
Artisans	.262	−.232	.312
	(1830–35)	(1839–44)	(1846–58)
Clerks	.613	−.386	.423
	(1832–39)	(1839–43)	(1843–57)
Average	.317	−.304	.405
Overall average:			
$\Delta(\ln p)$	.324	−.578	.474
	(1830–35/37)		(1844–57/59)
$\Delta(\ln w)$	.315	−.260	.327

Source: Chapter 3.

Note: A "Δ(ln)" indicates the difference in the logarithm of the variable (w = nominal wage; p = price level) between dates. Beginning and end dates shown in parentheses; dates like "57/59" are unweighted averages of years (e.g., 1857, 1858, and 1859). Rows labeled *average* are unweighted averages across occupations within a census region. *Overall average* is the unweighted average across census regions (e.g., .324 is the unweighted average across census regions of $\Delta[\ln p]$ from 1830 to 1835/37).

or deflation became abundantly obvious, and persistent, would nominal wages adjust, possibly abruptly.[12] During the inflation of the mid-1830s, strikes by journeyman cabinetmakers in New York City are said to have been motivated by the fact that the "price book [giving journeymen's wages] used by their masters was more than a quarter of a century old . . . the old book failed to keep up with the cost of living" (Wilentz 1984, 231). Such shocks to prices led first to confusion, then to a revision of price expectations, and ultimately to nominal wage adjustments.

To explore the effect of nominal and real shocks further, more and better data on retail prices and on real economic activity are needed so that the timing, the amplitude, and the duration of antebellum cycles can be more accurately determined *independently* of movements in the price level (Calomiris and Hanes 1994). That said, my new wage series may have some implications for the timing of antebellum business cycles. For example, the rise in nominal wages observed in my series of nominal wages for common labor in the Northeast beginning in 1841 suggests that economic recovery after the Panic of 1837 in that region may have begun earlier than 1843, as previously thought (see, e.g., North [1961] 1966, 206).

7.3 The Consequences of Declining Real Wages: Nutritional Status and Poor Relief

All other things being equal, a short-run decline in the real wage meant a decline in purchasing power and, therefore, in living standards. The decline might be offset by working more, by drawing on savings, or by shift-

ing into economic activities (e.g., subsistence agriculture on the frontier) that might have been insulated from downturn. But, for individuals who had access to none of these options, a substantial fall in real wages could spell economic hardship or even disaster.

I consider here two consequences of real wage declines. The first concerns nutritional status. Given that food loomed large in antebellum budgets, declines in real wages may have had negative effects on nutritional intake and possibly, therefore, nutritional status. The second concerns a strategy to avoid economic hardship in the face of a decline in real wages—namely, the decision to seek public assistance, or poor relief.

7.3.1 Real Wages and Nutritional Status

Historians have recently begun to examine trends and cycles in height and weight by age.[13] Height and weight by age are measures of *net nutrition* or *nutritional status.* Ingesting nutrients serves three purposes in the human body—sustaining current physical activity; fighting infection; and, prior to adulthood, enabling physical growth. When a child or an adolescent suffers a nutritional insult, such as disease or malnutrition, growth is typically slowed. As long as the insult does not occur too early in life and for too long a period, adult height is unaffected, although the growth period may be prolonged. While, at an individual level, height and weight are also influenced by genetic factors, such factors tend to cancel out in the aggregate, at least among the ethnic and racial groups that populated the United States in the nineteenth century (Fogel 1986; Costa 1993).

Historical research on heights is greatly facilitated by the availability of abundant military height data. Starting in the eighteenth century, armies routinely recorded the heights of soldiers to aid in identifying deserters (as well as to gauge physical prowess). In the American case, such information is usually reported in so-called muster rolls. Surviving muster rolls of army regiments, from wartime and peacetime periods, are lodged at the National Archives in Washington, D.C.

Analysis of military height data is fraught with technical difficulties. During peacetime, armies were not randomly selected from the eligible male population, and minimum height requirements were used as a screening device. However, because data on height are (approximately) normally distributed, it is possible to work out reliable techniques for inferring unbiased estimates of mean heights. In addition, the military samples usually contain enough ancillary information that, by reweighting, aggregate estimates can be produced.

Margo and Steckel (1983) analyzed one such military sample, derived from the muster rolls of the Union army. Regression analysis was used to control for a variety of factors potentially influencing height, such as occupation, year of entry into the military, and place of birth. For the purposes of this book, the most significant finding concerned the trend in

adult height. Among farmers and the nonfarm rural born, there were modest secular increases in height for cohorts born between 1820 and 1834, but, for both groups, heights declined for cohorts born between 1835 and 1839 (see also Komlos and Coclanis 1997). Using data for the Ohio National Guard, Steckel and Haurin (1982) demonstrated that the decline in height continued for individuals born after 1840: comparing cohorts born in the late 1850s to those born in the late 1820s, the decline was 2.3 centimeters, slightly less than one inch—a large change by anthropometric standards (Fogel 1986, 511). Using data on West Point cadets, Komlos (1987) showed that weight for age and weight for height also declined among the relevant cohorts.

Consumption goods—more and better food, housing, shelter, and so on—that produce an increase in average nutritional status are normal goods; that is, the demand for such goods is increasing in real income. If the period 1820–60 witnessed rising per capita incomes, how is it possible for heights to have declined?

One answer invokes negative externalities of economic growth. For example, one by-product of antebellum growth was an increased rate of urbanization. But antebellum cities were death traps and disease ridden. Exposure to a virulent disease environment, holding diet constant, can impede physical growth. The results of chapters 4–6 suggest that well-functioning labor markets promoted economic growth. But high rates of labor mobility could also spread infectious disease, exposing nonmigrants to diseases to which they may not have been immune. Rural born recruits in the Union army who moved to urban areas at young ages were at greater mortality risk than the urban born, presumably because the former lacked certain immunities compared with the latter (Lee 1997). Regressions estimated by Craig, Haines, and Weiss (1997) on a sample of heights of Civil War soldiers show significant negative correlations between crude death rates in the recruit's county of origin and adult height (see also Haines 1997).

Increases in economic inequality have also been suggested as a factor behind the decline in nutritional status because height is negatively correlated with income inequality, holding per capita income constant (Steckel 1995). In certain respects, wage inequality increased before the Civil War (see the discussion later in the chapter), which may have contributed somewhat to the decline. There is also evidence that wealth inequality increased, but this is disputed by some scholars (Williamson and Lindert 1980; Soltow 1992).

Yet another explanation lays the blame on movements in relative prices. According to Komlos (1987; see also Komlos and Coclanis 1997), various features of antebellum economic development led to shifts in relative prices that had deleterious effects on physical growth. In particular, rela-

tive food prices rose, while the relative prices of other consumption goods, chiefly manufactured products (such as clothing and shoes), fell. Consumers reacted to these relative price shifts by cutting food consumption relative to other goods.[14]

Could movements in real wages per se have been responsible for the decline in antebellum heights? From a long-run perspective, the answer obviously must be no because my real wage indices show increases between the 1820s and the 1850s. However, if attention is restricted to comovements in height and real wages over certain subperiods, the answer to this question is maybe.

I say maybe because there is no *direct* evidence linking movements in height and real wages for the antebellum United States. However, Weir (1997) has shown that, in the case of nineteenth-century France, mean adult heights and real wages (measured around infancy and early childhood) were positively correlated.[15] Assuming that the French relation ultimately reflects positive income elasticities for nutrients at the household level *and* that the distribution of nutrients within households did *not* move in favor of mothers or their (young) offspring when household real incomes fell, then it is plausible to infer that a positive relation between real wages at the time of infancy and early childhood and adult height also existed in the antebellum United States.[16] Weir's regressions imply that the elasticity of adult height with respect to the real wage was 0.01, and I use this figure for my calculations.[17]

Two cases are examined. The first concerns the data for the Ohio National Guard. Cohorts born in the 1850s were 0.8 percent shorter as adults (173.6 centimeters) than cohorts born in the 1840s (175 centimeters). My real wage series for common labor in the Midwest indicates a decline in real wages from the 1840s to the 1850s of −0.132 when measured in logs (calculated from table 3A.9). This fall in the real wage can explain 16.5 percent (= 0.00132/0.008) of the decline in height.

The second case is the South Atlantic region in the 1830s. Comparing birth cohorts of the 1830s to those of the 1820s, Komlos and Coclanis (1997, 440) found that heights declined by −0.18 inches for white male convicts in Georgia. My real wage series for common labor in the South Atlantic region registers a decline in log terms of −0.120 from the 1820s to the 1830s (calculated from table 3A.9). According to Komlos and Coclanis's (1997, 440) regression, the mean height of white men born in the South Atlantic states in the 1820s was 68.06 inches; hence, the decline in adult height for the 1830s cohorts was 0.26 percent. The fall in the real wage explains 46.2 percent (= 0.00120/0.0026) of the decline in height.[18]

In view of the assumption that a French elasticity can be applied to an American setting, these calculations—particularly for the South Atlantic case—should be viewed as speculative. However, I do believe that they

demonstrate that adverse short-run movements in real wages before the Civil War could have been factors contributing to what some have called an "antebellum puzzle" (Komlos 1987).

7.3.2 Real Wages and the Antebellum Welfare Explosion, 1850–60

In the 1850s, the United States experienced one of its earliest welfare explosions on record. The 1850 and 1860 Censuses of Social Statistics were the first to report the total number of persons receiving public assistance during the census year. According to the 1850 census, 5.8 per 1,000 persons received public assistance at some point during the year. By 1860, the rate had jumped to 10.2 per 1,000 persons, an increase of 76 percent (Kiesling and Margo 1997).

When a society experiences a substantial rise in welfare usage over a relatively brief period of time, the causes are typically complex. But economic factors are likely to be important, particularly in a historical setting like the antebellum United States, where many members of the working class lacked access to capital markets or could not easily avail themselves of other options (e.g., self-employment in agriculture) that might have smoothed consumption in response to a short-run economic downturn.

In this section, I briefly discuss the findings of Kiesling and Margo (1997), who used data from the eight-state sample from the 1850 and 1860 Censuses of Social Statistics (see chap. 2) to study the relation between antebellum usage of poor relief and real wage movements. Here, *real* means the nominal wage of unskilled labor deflated by the cost of board, as measured by the census in 1850 and 1860, and as used in chapters 4 and 5. The basic presumption is that the real wage so defined was a meaningful proxy for the extent to which labor income could provide an adequate diet—that is, if real wages fell, hunger became a possibility.

Because counties were generally responsible for administering poor relief before the Civil War, Kiesling and Margo (1997) specify a model of the per capita demand and supply of poor relief at the local (i.e., county) level. The key idea in the model is that demand for relief depends negatively on the real wage as defined above—thus, a fall in the real wage generates an increase in the number of persons per capita seeking public assistance. Demand depends positively on the generosity of relief, where generosity is measured by average expenditures on relief per full-time equivalent recipient: other factors held constant, greater generosity elicits a greater demand for relief (see, e.g., the discussion in Lebergott [1976]). Demand also depends on additional factors, such as the percentage foreign born and the extent of urbanization (Hannon 1996). The urban poor lacked direct access to resources in times of need. Immigrants tended to have less wealth than the native born and thus were more vulnerable to economic distress (Ferrie 1999). On the supply side, the key assumption is that the willingness of antebellum taxpayers to support others in need

was limited—that is, there was a negative trade-off between generosity (as defined above) and the number (per capita) provided public assistance. Equilibrium in the model is achieved when the number of people seeking relief just equals the number the county is willing to support at a given level of generosity.

Econometric analysis supports the basic framework sketched above—namely, that the demand for relief was a positive function of generosity, supply a negative function—and also demonstrates that increases in welfare usage were positively associated with immigration and urbanization. But movements in real wages were also a critical factor because the demand for relief, as hypothesized, was a negative function of the real wage. The magnitude to the relation between welfare usage and real wages was sufficiently large that fully 30 percent of the rise in per capita welfare usage between 1850 and 1860 can be attributed to a fall in the average real wage as defined above—more than any other single factor (Kiesling and Margo 1997).

7.4 The Effectiveness of Antebellum Labor Markets

Real world economies are characterized by a never-ending stream of decisions about how to allocate labor in response to economic opportunities created by initial conditions (e.g., a regional imbalance in factor proportions) or by economic change (e.g., technical progress in manufacturing). Broadly speaking, labor markets can be judged effective when they permit these opportunities to be realized relatively quickly, in the manner suggested by standard economic models of supply and demand.

The findings of chapters 4–6 suggest that antebellum labor markets were quite effective, in the sense just described. Antebellum labor markets appear to have been at their best when facilitating the shift of labor out of agriculture. They were reasonably effective when development necessitated a geographic reallocation of labor, and they were least effective in keeping the structure of wages intact when growth caused the relative demands for workers with different skills to change.

7.4.1 Sectoral Effectiveness: Farm-Nonfarm Wage Gaps

The shift of labor out of agriculture is the hallmark of modern economic growth. Typically, labor shifts out of agriculture when technical progress and capital accumulation raises the relative demand for labor in the nonfarm sector. The antebellum economy certainly experienced a shift of labor out of agriculture. But some scholars have questioned whether this shift was too slow, causing economic growth before the Civil War to be slower than it otherwise might have been.

Chapter 4 examined the issue of sectoral effectiveness by measuring the size of wage gaps between the farm and the nonfarm sectors. The gaps in

question pertained to common laborers, chosen because such workers did not possess skills specific to either sector. The existence of farm-nonfarm wage gaps for common laborers would be prima facie evidence of a lack of labor mobility between sectors.

The analysis in chapter 4 established two points. First, wage gaps were negligible when measured in nominal terms at the level of local labor markets for labor hired on an average monthly (or daily) basis. Such markets appear to have been effective, therefore, in allocating labor between farm and nonfarm uses. Second, the gaps were relatively large in nominal terms when aggregated to the level of states. However, the gaps diminished again when the wage data were adjusted for differences in the cost of living between sectors. Nonfarm labor tended to be employed in areas where the cost of living was relatively high compared with farm labor.

My results suggest that the antebellum United States did not appear to suffer from broad sectoral imbalances in the allocation of labor, unlike some other nineteenth-century economies or less-developed countries today. In essence, the antebellum market for common labor was common to both the farm and the nonfarm sectors. Economic change that resulted in higher real wages for common nonfarm labor, therefore, can be presumed to have had a similar effect on the real wages of common farm labor.

7.4.2 Geographic Effectiveness

Labor markets are effective in a geographic sense when they help guide the allocation of labor from low- to high-value locations. In responding to the initial condition of a frontier or to economic change that increased or decreased the relative demand or supply of labor in one location in relation to another, antebellum labor markets had a reasonably good, although mixed, record of success.

The United States began the nineteenth century with most of its labor force—free or slave—located on or near the Eastern Seaboard. In response both to these initial conditions and to various economic changes, primarily technical progress in distribution, labor needed to shift toward the interior—that is, settle both the Midwest and the South Central states.

In the North, real wages were initially higher in the Midwest than in the Northeast, providing the appropriate economic signal for east-west migration. As the Northern labor force shifted toward the Midwest, the real wage gap between the Midwest and the Northeast declined, as predicted by a simple economic model of the settlement process. The decline did not occur consistently in every decade, but, when it did not—such as for common labor in the 1830s—shifts in the relative demand for labor that temporarily favored the Midwest appear to have been the reason. Previous work has suggested that a regionally integrated labor market did not appear in the North until after the Civil War, but my results suggest that such a market was already well in place by the 1850s, if not earlier.

In the South, real wages were initially higher in the East South Central region than in the South Atlantic, but, in contrast to the North, the regional wage gap did not narrow before the Civil War. The demand for labor moved against the South Atlantic states; while labor did shift out of the region, the shift was neither fast enough nor large enough. Some scholars have suggested that the existence of well-functioning markets for transferring slave labor from east to west promoted a more efficient geographic allocation of free labor in the South compared with the North (Fleisig 1976; Wright 1978). The failure of the regional wage gap to narrow in the South, however, is inconsistent with this point of view.

The South also lagged behind the North in real wage growth. As a result, there emerged a real wage gap for common labor favoring the North in the 1830s. The timing of the emergence of the gap suggests an important causal role for early industrialization, which was concentrated initially in the Northeast. Although the North-South wage gap narrowed somewhat in the 1850s, the low-wage South was already a feature of the American economy before the Civil War.

Aside from questions of regional allocation, the antebellum economy was continuously beset by shocks that left wages relatively high in some labor markets and relatively low in others. One point of view is that antebellum labor markets did not respond effectively to such shocks, with the result that wage differentials between locations persisted over long periods of time. Using data from the 1850 and 1860 Censuses of Social Statistics, however, I found strong evidence of regression to the mean: a local labor market with real wages that were, say, 10 percent above average in 1850 would have real wages only 2 percent above average in 1860. Wage convergence of this sort is exactly what would be predicted if labor markets operated effectively to guide migration from low- to high-wage areas. The remaining persistence in real wage differentials across locations may very well be due to the effect of location-specific amenities (leading to low wages) or disamenities (leading to high wages).

Additional evidence of the ability of the antebellum economy to respond to geographic shocks was presented in chapter 6, which examined one of the most extraordinary natural experiments involving labor markets in nineteenth-century America—the California Gold Rush. Real wages rose sharply during the initial years of the Gold Rush and then declined once labor migrated into the state. Thus, the labor market worked in the case of the Gold Rush, although it should be kept in mind that the supply of labor into Gold Rush California was not particularly elastic when judged by late twentieth-century standards.

7.4.3 The Structure of Wages

The occupational wage series developed in this book reveal that real wages grew most rapidly for white-collar laborers and more rapidly for

common laborers than for artisans. In terms of the trickle-down effects of antebellum growth, in other words, artisans fared less well than the other occupation groups.

That the real wages of artisans did not keep pace with the wages of common laborers supports a view widely held by labor historians.[19] According to this view, the growth of manufacturing, with its emphasis on the factory system, displaced the artisanal shop (Sokoloff 1984). New methods of production and labor organization led to an increased relative demand for less-skilled labor and a decline in the relative demand for artisanal skills (James and Skinner 1985). Artisans fought back in various ways—for example, by attempting to form unions—but ultimately they could not stem the tide of technological change. The end product of the shifts in relative labor demand was a decline in the skilled-unskilled wage ratio, consistent with my estimates of the more rapid growth of common than artisanal wages in the long run.[20]

But, while economic development before the Civil War did not enhance the relative wages of artisans, it did enhance the relative wages of white-collar workers. Technical progress and organizational change—the factory system—in antebellum manufacturing, along with improved transportation, led to growth in internal trade and a concomitant increase in the demand for white-collar skills to cope with the changes (Aldrich 1971). The wage evidence presented in this book suggests that, before the Civil War, the demand for such skills must have been growing more rapidly than the supply.[21]

There is also evidence that the relative wages of white-collar labor continued to remain relatively high for several decades after the Civil War. Goldin (1998; see also Goldin and Katz 1995) has recently estimated ratios of the wages of white-collar workers to those of factory operatives for the late nineteenth century. These ratios range from 1.69 for relatively low-skilled white-collar workers to 4.35 for business managers in the early 1890s (Goldin 1998).

Economic development after the Civil War produced an increase in the number and complexity of white-collar occupations, so it is somewhat difficult to make ready comparisons between Goldin's estimates of wage ratios and any based on my wage series. However, my wage series for white-collar labor are constructed to pertain to the average clerk, who was involved in record keeping and (some) management of supplies. Hence, such labor is probably most comparable to bookkeepers in the late nineteenth century, for which Goldin (1998) has also produced an estimate of the wage ratio: 2.278.

Using decadal averages of wages from the national aggregate series in chapter 5, my estimate of the white-collar to common labor ratio is 2.07 in the 1850s, about 10 percent below Goldin's estimate for late nineteenth-century bookkeepers.[22] Taken literally, the comparison suggests

that the relative wage of white-collar labor remained constant, or increased slightly, from the 1850s to the late nineteenth century. The relative wage in the 1850s was lowest in the Northeast (1.90) and highest in the South Central states (2.50).[23]

Economic historians have long wondered whether a Kuznets curve existed in American history (Williamson and Lindert 1980). By *Kuznets curve,* I mean Simon Kuznets's (1955) assertion that inequality first rises, then plateaus, and finally declines over the course of economic development. If the Kuznets curve is interpreted as referring to the relative position of educated labor in the wage structure, then my results (and Goldin's) suggest that the initial, rising portion of the curve can be dated to the period 1820–60. Wage ratios then either rose slightly or remained constant between 1860 and 1900. After the turn of the twentieth century, America experienced a substantial education expansion that increased the supply of educated labor relative to demand, driving down the returns to schooling and the relative earnings of white-collar labor after World War I (Goldin and Katz 1995).