THE HIGH COST OF BIG LABOR

The Unintended Consequences of Collective Bargaining

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The Competitive Enterprise Institute's *The High Cost of Big Labor* series analyzes and compares the economic impact of labor policies on the states, including right to work and public sector collective bargaining laws.

Executive Summary

This study analyzes the effect of unionization on economic growth on a state-by-state basis, and calculates the "deadweight loss" resulting from unionization. By raising the cost of labor, unions decrease the number of job opportunities in unionized industries. That, in turn, increases the supply of labor in the nonunion sector, thereby driving down wages in those industries. The effect of this situation is to increase the natural rate of unemployment, thus imposing a deadweight loss of economic output on the economy.

Deadweight loss in this context means that unionization, by artificially increasing the price of a factor of production—labor—above the price that would be established in a free and competitive marketplace, comes at the cost of retarding economic output that would occur absent that artificial constraint on a free labor market.

This assessment does not suggest that, in an ideal world, workers should be paid increasingly less to ensure further economic growth. Rather, increases in *productivity*—not artificial increases in *labor prices*—are the key to economic growth.

The presence of deadweight losses arising from labor union activity can be shown in a formulation devised by labor economist Albert Rees (1953, 1963). Rees demonstrated the consequences of union wage-raising initiatives on levels of employment in both the union and nonunion sectors of the labor force.

The Rees formulation can be used to calculate the numerical value of deadweight losses from unionization if union density (the percentage of employees who are unionized), wage premiums associated with the presence of unions, and general elasticity of demand for labor are known. The elasticity of demand for labor measures how much the quantity of labor demanded by employers changes, given a change in the price of labor. Work done by Richard Vedder and Lowell Gallaway (1997) provides us the latest, best assessment of the elasticity of demand for labor.

Using this and other estimates, this study calculates the deadweight losses described by Rees as being associated with the presence of labor unions for six different and select years during the period 1967 through 2000. On average, the results show a deadweight loss in workers' wages of slightly less than a third of a percentage point.

Over a period of 50 years, the cumulative reduction in worker wages would be about 15 percent. Because wage payments are only a fraction, albeit a large one, of gross domestic product (GDP), the deadweight losses from unionization are a smaller fraction of that magnitude. However, over a long period, those small annual effects produce a substantial cumulative

loss of GDP—as much as a 10 to 12 percentage point loss over a half century.

It is worth noting that these figures are minimal estimates of the deadweight losses produced by labor unions. Rees's analysis assumes a perfectly inelastic supply curve for labor, and elasticity could easily double the deadweight losses produced by unionization in America.

Deadweight loss contributes to interstate income differentials. To explore the extent of this phenomenon, the analysis defines a statistical model to explain the growth in real per capita income (RPCI) in states. The unionization rates and an additional five independent variables—manufacturing, income tax rates, RPCI in 1964, politics, and college education equivalency—are included in the model to account for additional factors that are likely to affect the growth in income.

Most important for purposes of this report is the statistical significance (at the 5 percent level) of the regression coefficient for the average percent unionization variable. This measure indicates that every additional percentage point of average unionization in this time period reduced the growth in RPCI by 1.73 percentage points.

Knowing this relationship permits the calculation of the estimated effect of union-related deadweight losses on the growth in RPCI in each of the several states.

Two broad conclusions emerge from this document. First, the presence of labor unions that operate as bargaining agents in the process of collective bargaining has the potential to seriously inhibit economic growth in the several states and the District of Columbia. This conclusion suggests that the decision to officially encourage collective bargaining through public policy, which was the primary thrust of the National Labor Relations Act of 1935 (the Wagner Act), was rife with unintended negative consequences.

The disparity in the relative incidence of unionization of the workforce in the United States leads to our second broad conclusion—that certain states, such as Michigan (which enacted a right to work law only in 2012), have suffered large amounts of foregone economic growth, while others, such as South Carolina (which has had a right to work law for a long time), have been affected to a far lesser degree.

Those conclusions provide a strong case for viewing the passage of the Wagner Act in 1935 as a case of causing long-term economic trauma. However, state policy makers can mitigate some of the most damaging aspects of the Wagner Act by passing right to work laws.

—Aloysius Hogan

A Brief History of American Collective Bargaining

THE ACCEPTED HISTORY OF ORGANIZED labor in America dates the labor movement's beginning to a 1786 work stoppage by an association of shoemakers in Philadelphia seeking higher wages. The Philadelphia Cordwainers Association, as it became known, continued with other similar actions until 1806, when several of its members were hauled into court and were subsequently found guilty of "conspiracy," as that doctrine was espoused in the English common law. When Philadelphia's bootmakers joined the shoemakers to demand higher wages, both were indicted for violation of the common-law doctrine of criminal conspiracy, tried, and fined for forming an illegal union. That ruling encapsulated public policy regarding labor unions for most of the first half of the 19th century. In effect, that policy treated unions as being beyond the pale—in a legal sense.[1]

By the middle of the 19th century, however, a change occurred in the legal milieu. In an 1842 Massachusetts court case, *Commonwealth v. Hunt*, Massachusetts Supreme Court Chief Justice Lemuel Shaw ruled that an association of bootmakers was not illegal, had the right to organize, and—legally—could withhold its labor (that is, could strike) in pursuit of its objectives.[2] Shaw's legal opinion gained wide acceptance in other state courts and ushered in an era of public policy toward labor unions that would endure for almost a century. During this period, the right of workers to organize into unions would not be challenged in the courts, although some union actions were subject to legal scrutiny.

As a result of this public acceptance, American unions eschewed the radicalism of their European counterparts. America's labor environment following *Commonwealth v. Hunt* was well described by Morgan Reynolds in his book, *A History of Labor Unions from Colonial Times to 2009*:

> Nearly everything was tried … : socialism, syndicalism, anarchism, cooperatives, political unionism, and the most seductive idea of all, the welding of everybody (barring bartenders and bankers!) into one gigantic union. Yet, the main adhesive of British and European unions—easily aroused class antagonism—was absent in America.[3]

By 1900, however, a distinctive type of labor organization had emerged in America. Under American Federation of Labor (AFL) founder Samuel Gompers's notion of "business" unionism, unions would seek immediate gains for their members within the framework of the free enterprise system. The vehicle for the implementation of this approach was the AFL, which was formed in 1881, with Gompers as its president. The AFL consisted mostly of craft unions whose members had specialized expertise in narrowly defined fields of work. For the most part, the AFL *was* the labor movement in America around

the turn of the 20th century. To be sure, it was a small movement, totaling between 2 and 3 percent of the nation's labor force at the time.[4]

The early 20th century saw further growth in the labor movement. During World War I, membership rose to nearly 7 percent of the labor force; following the war, it surged above 12.1 percent. However, that rise was something of an aberration. During the 1920s, the proportion of the employed who belonged to unions fell back into the single-digit range, standing at 7.4 percent at the onset of the Great Depression of the 1930s.[5]

At various times during the early decades of the 20th century, lawmakers sought to legislate changes in the relationship between employers and unions. In 1912, Congress enacted the Lloyd-LaFollette Act, requiring the United States Post Office to engage in collective bargaining with unions representing its employees.[6] Then in 1914, Congress passed the Clayton Act,[7] which purported to exempt labor unions from the 1890 antitrust legislation known as the Sherman Act.[8] It also provided unions with relief from court injunctions and defined some of their practices as legal. Specifically, Section 6 (15 U.S.C. § 17) has a labor-union safe-harbor provision stating that "the labor of a human being is not a commodity or article of commerce, and permit[ting] labor organizations to carry out their legitimate objective." Boycotts, peaceful strikes, peaceful picketing, and collective bargaining were allowed.

However, those provisions were essentially eviscerated by judicial interpretations of the legislation. Such legal opinions were a disappointment for Gompers, who had described the Clayton Act as the Magna Carta for workers.[9]

After the United States entered World War I in April 1917, the Wilson administration created a War Labor Board and War Labor Policies Board under the justification of wartime emergency. The latter declared federal support of unions and adopted a variety of actions that promoted such organizations. The onset of peace following the war brought a brief respite from this spate of pro-labor union government interventions, but it was short lived, lasting less than a decade.

Collective bargaining in the government sector had begun (for example, with the AFL organizing a few police unions) before a famous 1919 Boston Police Strike. Public reaction to the strike was very hostile and followed Massachusetts Governor Calvin Coolidge's forceful view that unions had no right to organize against the public safety. Afterward, the AFL severed its ties with all of the police unions it had organized. Thereafter, another period was marked by a general absence of unions in government overall.[10]

In 1926, Congress passed the Railway Labor Act, which mandated compulsory collective bargaining for the railroad industry. This Act was the forerunner of a bevy of federal labor legislation during the Great Depression. The intellectual groundwork for this burst of activity was set by the growing acceptance during the 1920s of a line of thinking that came to be known as the *high-wage doctrine*.[11]

The high-wage doctrine maintained that higher wage rates translated into greater purchasing power and a more prosperous economy. It also implied that reducing labor's wage rates would not reverse a business downturn. Yet, the doctrine was based on the fallacy that all wage rises lead to greater prosperity, regardless of the reason for that rise. High wages will lead to real increased demand—and, by extension, growth—if they are driven by higher productivity, but raising demand does not by itself create supply. Public policy cannot improve aggregate living standards by mandating higher wages unless the productivity is there to support the increased demand. Otherwise, the result is inflation or unemployment.

Support for the high-wage doctrine was widespread. Two major books, both authored by W. T. Foster and W. Catchings (and published by Houghton-Mifflin), made the case for it: *Business without a Buyer*, published in 1927, and *The Road to Plenty*, published in 1928. Several prominent business leaders—including Henry Ford, Thomas Edison, Edward Filene, and Gerald Swope—supported the idea, as did major political figures, including Herbert

Hoover when he served as Secretary of Commerce in Warren G. Harding's administration.[12]

When the stock market crashed in October 1929, Hoover was President of the United States. He immediately convened a series of conferences at the White House, to which he invited prominent business leaders whom he hoped to persuade to set an example for the nation by refraining from reducing wage rates in response to the severe economic conditions that had already begun to emerge. In late November 1929, following one of those conferences, *The New York Times* reported the following White House press release:

> The President was authorized by the employers present at this morning's conference to state on their individual behalf that they will not initiate any movement for wage reductions, and it was their strong recommendation that this attitude should be pursued by the society as a whole. They considered that, aside from the human considerations involved, the consuming power of the country will thereby be maintained.[13]

One of the attendees at the conference, Henry Ford, further elaborated on the high-wage doctrine:

> Nearly everything in this country is too high-priced. The only thing that should be high-priced is the man that works. Wages must not come down; they must not even stay on their present level; they must go up. And even that is not sufficient of itself—we must see to it that the increased wages are not taken away from the people by increased prices that do not represent increased values.[14]

The goal of Hoover's employment conferences was realized. Between the fourth quarters of 1929 and 1930, real wage rates in the United States rose by more than 5 percent, despite an average labor productivity decline of more than 5 percent during that period, largely as the result of stable money wage levels and falling prices.[15] This increase in the cost of labor led to a near-doubling of the unemployment rate—from 5.7 to 10.7 percent over the period. Price levels continued to cascade downward during 1931, falling by more than 10 percent, as a result, in part, of the Federal Reserve's contraction of the money supply by about one-third between 1929 and 1933. The pressure on employers to reduce the costs of production then became reflected in declines in money wages, but wages fell less rapidly than the prices rose, which was by almost another 5 percentage points during 1931. If the high-wage doctrine were valid, the United States should have been enjoying a roaring prosperity. The reality was quite different because the unemployment rate climbed above 18 percent in 1931.[16]

In practice, the "prevailing wage" meant the union wage scale.

What had been learned by this experiment with the high-wage option? Apparently nothing. In 1931, Congress enacted the first of what would become a plethora of laws designed to elevate wage levels in America: the Davis-Bacon Act, which mandated the payment of prevailing wages that were in federally financed public construction projects and that were "based on the wages the Secretary of Labor determines to be prevailing for the corresponding classes of laborers and mechanics employed on projects of a character similar to the contract work in the civil subdivision of the State in which the work is to be performed, or in the District of Columbia if the work is to be performed there."[17] In practice, the "prevailing wage" meant the union wage scale.

The following year, Congress passed the Norris-LaGuardia Act, which increased the range of actions available to labor unions in dealing with employers while engaged in negotiations concerning wages and working conditions. Norris-LaGuardia restricted employers' use of injunc-

tive relief through the court system and banned yellow-dog contracts, which were agreements whereby employers required workers to refrain from joining unions as a condition of employment.

Those two legislative departures were merely the beginning. Following Franklin D. Roosevelt's inauguration as President of the United States in March 1933, a flurry of legislation that became known as "The First 100 Days" marked the beginning of the New Deal. The final scene in this opening act was the National Industrial Recovery Act (NIRA). While primarily an attempt to cartelize American industry, NIRA also contained provisions that greatly affected labor-management relations.

The industrial codes that were the dominant feature of NIRA set a general wage floor of 40 cents an hour—a minimum wage that was equal to about 90 percent of the average industrial wage at the time. The effect of this minimum wage was dramatic. Factory wages rose by more than 20 percent in the second half of 1933. In the process, a promising economic recovery that had seen unemployment decline by five percentage points between March and July was stifled. Sixteen months later, in November 1934, the unemployment rate in the United States was almost the same as it had been in July 1933.[18]

NIRA's existence was short-lived. In early 1935, the Supreme Court ruled it unconstitutional. However, by the end of the year, NIRA's Section 7a, which gave workers the right to organize and bargain collectively, had risen like a phoenix from the ashes of the Supreme Court's striking down of the statute. The Roosevelt administration accomplished this feat through a piece of legislation known as the National Labor Relations Act (NLRA). Also known as the Wagner Act, the NLRA drew on the experience gained from the administration of NIRA's Section 7a to establish a formal mechanism for certifying specific labor unions as monopoly bargaining agents for certain groups of workers and for requiring employers to negotiate with those unions.

At the time, the legal community largely believed that the Wagner Act would meet the same fate as NIRA, but that turned out not to be the case. In April 1937, the Supreme Court—in *National Labor Relations Board v. Jones & Laughlin Steel Co.*—upheld the Wagner Act as constitutional.[19] With that decision, labor policy in the United States shifted toward not only legal certification of unions' status as bargaining agents for workers, but also active federal encouragement of unionization.

Why did this change happen? A possible answer to that question is provided by the following excerpt from the Policy and Findings section of the law:

> [Unequal bargaining power] tends to aggravate recurrent business depressions, depressing wage rates and the purchasing power of wage earners in industry.[20]

This assertion is essentially a restatement of the high-wage doctrine. It would not disappear, despite the abundance of evidence contradicting it that emerged in the early years of the Great Depression. In fact, this concept is still encountered in modern economic policy debates and is often cited as a justification for increasing the minimum wage.

Further, relative to minimum wage rates, another piece of legislation revived some of the basic features of NIRA: the Fair Labor Standards Act (FLSA) of 1938, which included among its provisions a federal minimum wage rate of 25 cents an hour. Although admittedly lower than the minimum wage mandated by NIRA in 1933, the Fair Labor Standards Act incorporated the notion of a federal minimum wage into American public policy.

The high-wage doctrine would not disappear, despite the abundance of evidence contradicting it that emerged in the early years of the Great Depression.

Effects of the Change in Public Policy Regarding Labor Unions

TO EXPLORE THIS ISSUE, ONE MUST understand how labor markets operate under what is essentially unions' monopoly over the supply of labor. In a broad sense, labor markets tend to conform to economists' notion of institutions that move toward equilibrium outcomes. In an unconstrained labor market, the price of labor—the wage rate—will move toward a level where the number of workers who wish to work at that wage will match the number of workers that employers are willing to hire. In the aggregate, this is not likely to occur in all markets, but when it does occur, the result is what often is called a *full employment* situation.

This term does not imply an absence of statistically measured unemployment. The measured unemployment under those circumstances can be explained through a choice-theoretic, reservation-wage, job-search model. Job-seeking workers approach the labor market with a reservation wage in mind—the lowest wage at which they will accept a job. If an initial search turns up no job offers that satisfy their reservation-wage aspirations, they will continue to search. As they do, they are regarded by the statistical authorities as involuntarily unemployed—that is, actively seeking work but without a job. As the search process continues and time passes, one of two alternative scenarios is bound to happen:

1. Superior job alternatives will present themselves, and workers maintain or raise their reservation-wage expectations.
2. Reservation-wage opportunities do not present themselves, and workers revise their reservation-wage expectations downward in response to the previous search disappointments.

Eventually, a correspondence between an actual job and wage opportunity and the job seeker's reservation wage will be attained, and the market will clear, as shown in Figure 1. However, even when all job opportunities have been filled, some active job seekers will remain in the market—as historical experience shows. Thus, statistically measured unemployment will still be observed. Moreover, any measured unemployment at this point should be viewed as voluntary.

Various factors determine the magnitude of the measured rate of unemployment. Public policies may generate shifts in either the reservation-wage or best-offer loci shown in Figure 1. For example, government programs that effectively subsidize job searches, such as unemployment compensation and general income maintenance arrangements, will move the reservation wage locus upward and rightward, thereby increasing the natural rate of unemployment. Of particular interest to this discussion is the effect of the presence of labor unions on job-search

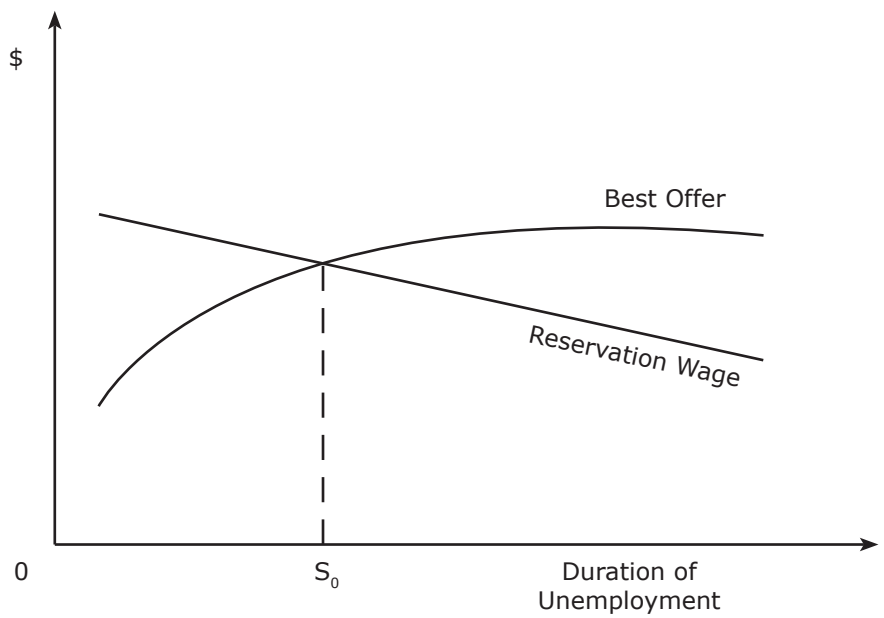
outcomes. At first glance, unions may seem to shift the best-offer locus upward by raising the wages of their members.

However, in a world in which unions are pervasive, this rise would not be the case. Because unions increase wage rates through their monopoly power, the number of job opportunities in unionized industries and occupations will decrease, thus increasing the supply of labor in the nonunion sector. This change drives down wages in those areas and increases the relative number of lower-wage jobs available to workers engaged in the job-search process. The effect of this situation is rotation of the best-offer locus to a less steeply sloped position (Figure 2), which typically increases the search time necessary to clear the market, thereby increasing the natural rate of unemployment and imposing a deadweight loss of economic output on the economy.

Deadweight loss in this context means that unionization, by artificially increasing the price of a factor of production—labor—above the price that would be established in a free and competitive marketplace, comes at the cost of slowing the increases of economic output that would occur absent that artificial constraint on a free labor market. This statement does not purport to say that, in an ideal world, workers should be paid increasingly less to ensure further economic growth. Rather, increases in *productivity*—not artificial increases in *labor prices*—are the key to economic growth.

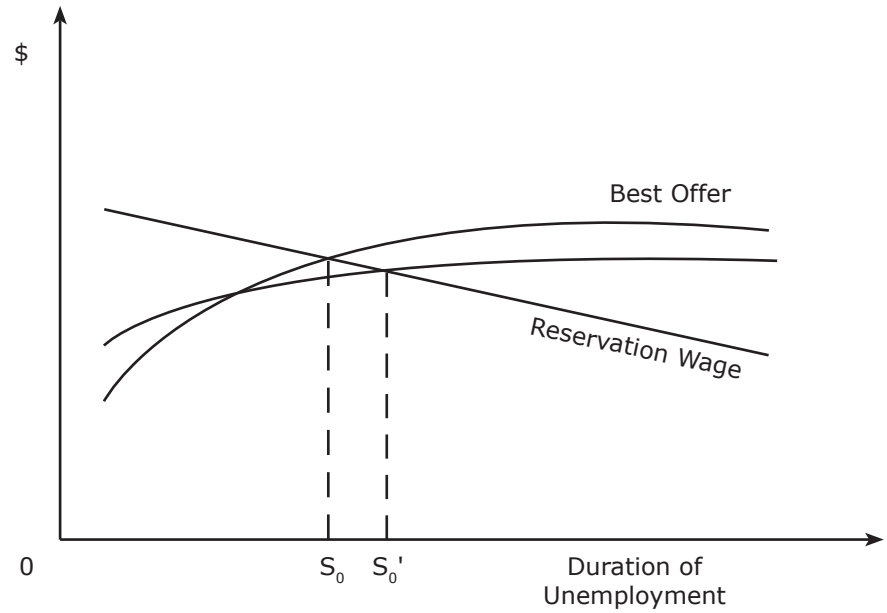
The presence of deadweight losses arising from labor union activity can be shown by a formulation devised by labor economist Albert Rees (1953, 1963). Rees demonstrated the consequences of union wage-raising initiatives on levels of employment in both the union and nonunion sectors of the labor force. His formulation begins with a negative-sloping aggregate demand curve for labor and a fixed supply of labor, as shown in Figure 3, in the loci D_t and S_t, respec-

FIGURE 1. MARKET CLEARING RESERVATION WAGE FOR WORKERS



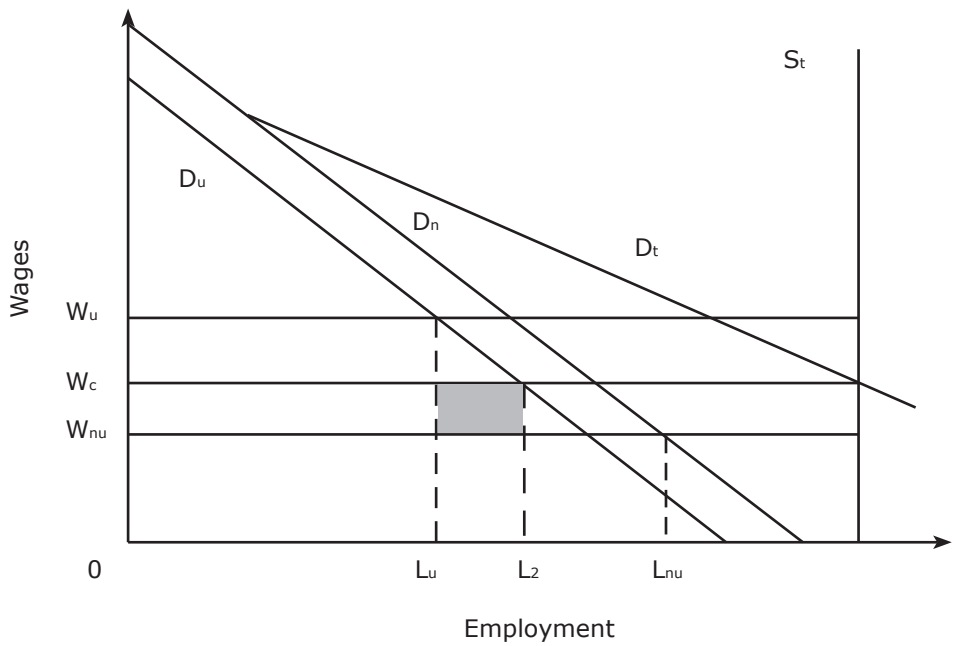
Source: Vedder and Gallaway (2002)

FIGURE 2. EFFECT OF UNIONIZATION ON RESERVATION WAGE FOR WORKERS



Source: Vedder and Gallaway (2002)

FIGURE 3. THE EFFECTS OF UNION WAGE DIFFERENTIALS ON RESOURCE ALLOCATION



Source: Vedder and Gallaway (2002)

tively (the subscript t denotes "total"). In illustrating an unhampered competitive labor market, the equilibrium wage rate would be depicted as W_c. Consider an initial state in which the labor market is divided into two sectors, both of which are nonunion. In both sectors, the competitive wage rate, W_c, will be the norm. Now, let one of the sectors become unionized—say the smaller one. Denote the unionized sector's demand for labor by D_u and the nonunionized sector's by D_n. Union presence in the former sector will cause wages among union members to rise above the competitive standard. This change will reduce employment in the union sector from L_2 to L_u.

Workers who become unemployed in the union sector will tend to gravitate to the nonunion sector, driving down wage rates for jobs available in the latter. If we assume the same slopes for the demand schedules in both the union and nonunion sectors of the labor market, the deadweight welfare loss to the overall economy can be calculated with the following formula: $\frac{1}{2} (W_{nu} - W_u) (L_2 - L_u)$. It is shown by the shaded rectangle in Figure 3.

The Rees formulation can be used to calculate the numerical value of these deadweight losses from unionization if union density (the percentage of employees who are unionized), wage premiums associated with the presence of unions, and general elasticity of demand for labor are known.[21]

The union density measure establishes the value of L_u, while union wage premium information allows the calculation of W_{nu} and W_u.[22] The latter is done by setting the wage that would exist in a competitive market equal to 1.0 and through the formula $W_c = (L_{nu} W_{nu} + L_u W_{nu})$, where L_{nu} and L_u are expressed as decimal fractions of total employment. If the wage premium is known, this expression can be expanded to $W_c = (L_{nu} W_{nu} + L_u [1 + a] W_{nu})$, where a is a decimal fraction representing the union wage premium. With W_c set to 1.0, we can solve for W_{nu}, viz., $W_{nu} = 1/[(1 + a)] W_u$.

That formula leaves only the calculation of L_2 to make Rees's model operational. An estimate of the aggregate elasticity of demand for labor is needed to calculate the employment effects of the wage premium in the union sector, using the expression $L_2 = L_u/[(W_u - W_c)\ E_{DL}]$, where E_{DL} represents the aggregate elasticity of demand for labor.[23]

The final piece of information required to complete the calculations is assigning a value to E_{DL}. From a framework suggested in work done by Richard Vedder and Lowell Gallaway (1997), a value of –0.76 has been selected for this statistic. Using this and other estimates of the necessary data, the deadweight losses described by Rees as being associated with the presence of labor unions in American labor markets have been calculated for six different years during the period 1967 through 2000. The results, expressed as a percentage of workers' wages, are shown in the second column of Table 1 for the years 1967, 1973, 1980, 1986, 1993, and 2000.

TABLE 1. ESTIMATED DEADWEIGHT LOSS OF U.S. NATIONAL INCOME RESULTING FROM THE PRESENCE OF TRADE UNIONS, VARIOUS YEARS, 1967–2000 (PERCENT)

Years	Rees Effect	Factor Adjusted
1967	0.34	0.23
1973	0.39	0.26
1980	0.41	0.28
1986	0.33	0.22
1993	0.26	0.17
2000	0.11	0.08

Source: Vedder and Gallaway (2002)

On average, they show a deadweight loss in workers' wages of slightly less than a third of a percentage point. Over a period of 50 years, the cumulative reduction in worker wages would be about 15 percent.

Because wage payments are only a fraction, albeit a large one, of gross domestic product (GDP), the deadweight losses from unionism are a smaller fraction of that magnitude, but over a long period of time, those small annual effects produce a substantial cumulative loss of GDP—as much as a 10 to 12 percentage point loss over a half century.[24]

It is worth noting that these are minimal estimates of the deadweight losses produced by labor unions. One shortcoming of Rees's analysis is the assumption of a perfectly inelastic supply curve for labor, which means that any labor supply effects associated with the pushing down of wage rates in the nonunion sector of the labor market are ignored in Rees's formulation. If the aggregate quantity supply of labor responds positively to changes in wages, an additional amount of output will be lost as the result of union activity. The magnitude of the loss depends on the elasticity of supply of labor. Estimates presented elsewhere suggest that this phenomenon could easily double the size of the estimated deadweight losses produced by unionization in America.

Extensions of the Deadweight Loss Estimates

THE PERCENTAGE OF THE LABOR force that is unionized is not uniform across the United States. In 1964, for example—the first year for which information is available in the most complete data set describing state-by-state variations in union activity—the range of variation in the proportion of workers who were unionized ranged from 7.6 percent in South Carolina to 44.8 percent in Michigan. In that same year, the average for union membership for all states was 29.3 percent. Since then, union membership in America has steadily declined. The percentage of all workers who are union members has fallen below 12 percent (11.8 in 2011 and 11.3 in 2012). In 2011, the range of union activity was still substantial. New York led the way with 24.1 percent of its workers being unionized, while North Carolina had the lowest proportion of union workers, at 2.9 percent. Over the entire period 1964 through 2011, New York led the way with an average of 29.8 percent, with Michigan following very close behind with a 29.2 percent average level of unionization (Michigan and Indiana passed right to work laws in 2012). South Carolina, at 5.2 percent, had the lowest average rate of unionization in the country. In general, the level of unionization in the most heavily unionized states is nearly six times that of those with the lowest levels of union activity.[25]

This wide variation in the level of unionization in the various states, combined with the evidence validating the existence of deadweight losses arising from union activity, should be a contributing factor to interstate income differentials. To explore the extent to which this is the case, we have defined a statistical model that can be used to explain the growth in real per capita income (RPCI) in those states.[26] The basic model has as a dependent variable the percentage growth in real per capita personal income between the years 1964 and 2011. The choice of those years is determined by the availability of unionization data for the states, which is the key independent variable in the analysis. An additional five independent variables are included in the model to account for additional factors that are likely to affect the growth in income:

1. MANUF, the percentage of employment in manufacturing in 1964;
2. INCOME TAX, the average top marginal income tax rate for the period 1977 through 2010;
3. INC64, real per capita income in 1964;
4. POLITICS, the percentage of the population voting for Ronald Reagan in the 1984 presidential election;[27] and
5. COLLEGE, the percentage of the population over 25 years of age with a college education or its equivalent as of the 1980 census.

Table 2 reports the basic summary statistics for this model.

TABLE 2. DEPENDENT VARIABLE: REAL PER CAPITA INCOME GROWTH, 1964–2011

	Coefficient	Std. Error	t-Ratio	p-Value	Significance
Const.	3.27589	0.529334	6.1887	<0.00001	***
POLITICS	−1.61199	0.452771	−3.5603	0.00090	***
COLLEGE	2.71075	1.67594	1.6174	0.11293	
INC64	−5.69575e-05	1.96551e-05	−2.8978	0.00584	***
UNIONIZATION	−1.73537	0.847661	−2.0472	0.04663	**
MANUF	0.0112495	0.349459	0.0322	0.97447	
INCOME TAX	−1.03384	3.51499	−0.2941	0.77005	

Mean dependent var.	1.301897	S.D. dependent var.	0.333967
Sum squared resid.	2.336413	S.E. of regression	0.230435
R-squared	0.581041	Adjusted R-squared	0.523910
F(6, 44)	10.17036	P-value(F)	4.83e-07
Log-likelihood	6.255961	Akaike criterion	1.488077
Schwarz criterion	15.01086	Hannan-Quinn	6.655531

Collectively, in an ordinary least squares regression analysis, those six independent variables explain more than half the variation in the percentage growth in real per capita personal income over the period 1964 through 2011. Most important for purposes of this report is the statistical significance (at the 5 percent level) of the regression coefficient for the average percent unionization variable. This measure indicates that every additional percentage point of average unionization in this time period reduced the growth in real per capita personal income by 1.73 percentage points. Knowing this relationship permits the calculation of the estimated effect of union-related deadweight losses on the growth in real per capita income in each of the several states. Michigan, for example, had a real per capita income level of $21,915 in 1964 and $37,014 in 2011 (based on 2012 prices), with an absolute reduction in real per capita income amounting to $11,111 during the period 1964 through 2011. This finding translates into a 23.1 percent real per capita income loss, the largest percentage loss of real income among the 50 states and the District of Columbia. (Years since passage of Michigan's and Indiana's right to work laws are not included in this analysis.)

Meanwhile, South Carolina had the lowest percentage loss of real income. Its real income levels per capita were $13,131 in 1964 and $34,079 in 2011. As to unionization, the average level was 5.4 percent. This finding yields an absolute per capita deadweight loss of $1,238, which translates into a 3.5 percent loss of real income. It is worth noting that the relative gap between the real per capita income of Michigan and South Carolina closed significantly from 1964 to 2011. In 1964, South Carolina's real per capita personal income stood at 60 percent of Michigan's. By 2011, the differential between those states had narrowed considerably, with South Carolina's income standing at 92.1 percent of Michigan's.

Returning to the saga of Michigan, we find that the effect of the high rate of unionization in the state is a primary explanation for the relative decline of its economy. The 1964 level of real per capita income was the 10th highest of the 51 political jurisdictions analyzed. By 2011, though, the union-induced attenuation of the state's income had produced a decline sufficient to give it a ranking among those entities of 37. In the process, the state was transformed into an economically stagnant, near-disaster area, whose premier city, Detroit, has seen its population shrink to almost a third of its peak size. This analysis in-

dicates that a major factor accounting for this phenomenon is deadweight economic losses inflicted on the state by collective bargaining.

But enough about Michigan; 50 other political jurisdictions must be considered. All of them appear to have suffered to some degree from similar deadweight losses. The extent to which this problem has been the case is described for each state in Appendix A. The information provided includes the following:

1. 1964 Real Per Capita Income (RPCI)
2. 1964 State Income Rank
3. 2011 Real Per Capita Income
4. 2011 State Income Rank
5. 1964 Percentage Unionized
6. 2011 Percentage Unionized
7. Average Percentage Unionized (1964–2011)
8. Estimated RPCI with Zero Union Membership
9. RPCI Lost Because of Unionization
10. Percentage of Possible RPCI Lost

Conclusion

TWO BROAD CONCLUSIONS emerge from the analysis reported in this document. First, the presence of labor unions that operate as bargaining agents in the process of collective bargaining has the potential to seriously inhibit economic growth in the several states and the District of Columbia. This conclusion suggests that the decision to legally enforce collective bargaining, which was the primary thrust of the National Labor Relations Act of 1935 (the Wagner Act), was rife with unintended negative consequences.

The disparity in the relative incidence of unionization of the workforce in the United States leads to our second broad conclusion—that certain states, such as Michigan, have suffered large amounts of foregone economic growth, while others, such as South Carolina, have been affected to a far lesser degree. Collectively, those conclusions make a strong case for viewing the passage of the Wagner Act in 1935 as a decidedly unwise action. However, state policy makers have the ability to mitigate some of the most damaging aspects of the Wagner Act through passage of right to work laws.

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Appendix

Cost of Collective Bargaining on State Economies, from Most Affected to Least Affected

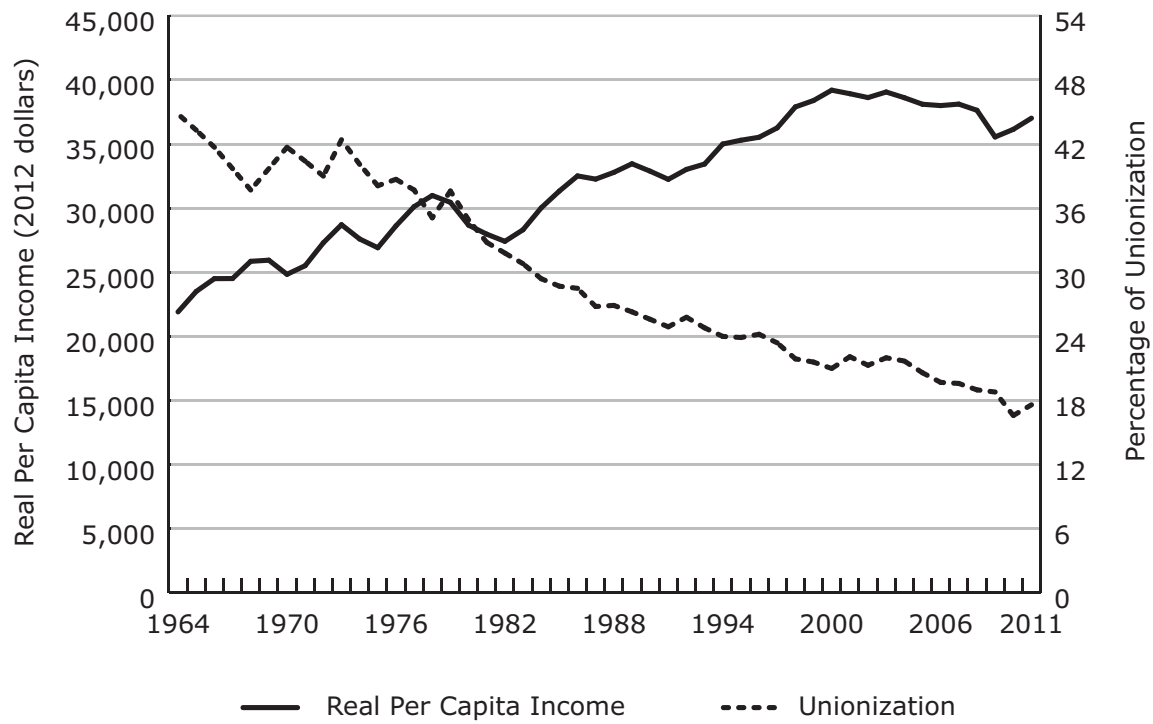
All real income magnitudes are expressed in 2012 dollars (represented by the blue lines in the charts). Union membership rates are represented by the red lines in the chart.

All income figures come from the Bureau of Economic Analysis. All estimates of income absent unionization or income loss caused by unionization are the authors' calculations. All figures for state-level unionization come from unionstats.com

(Includes data for each jurisdiction)

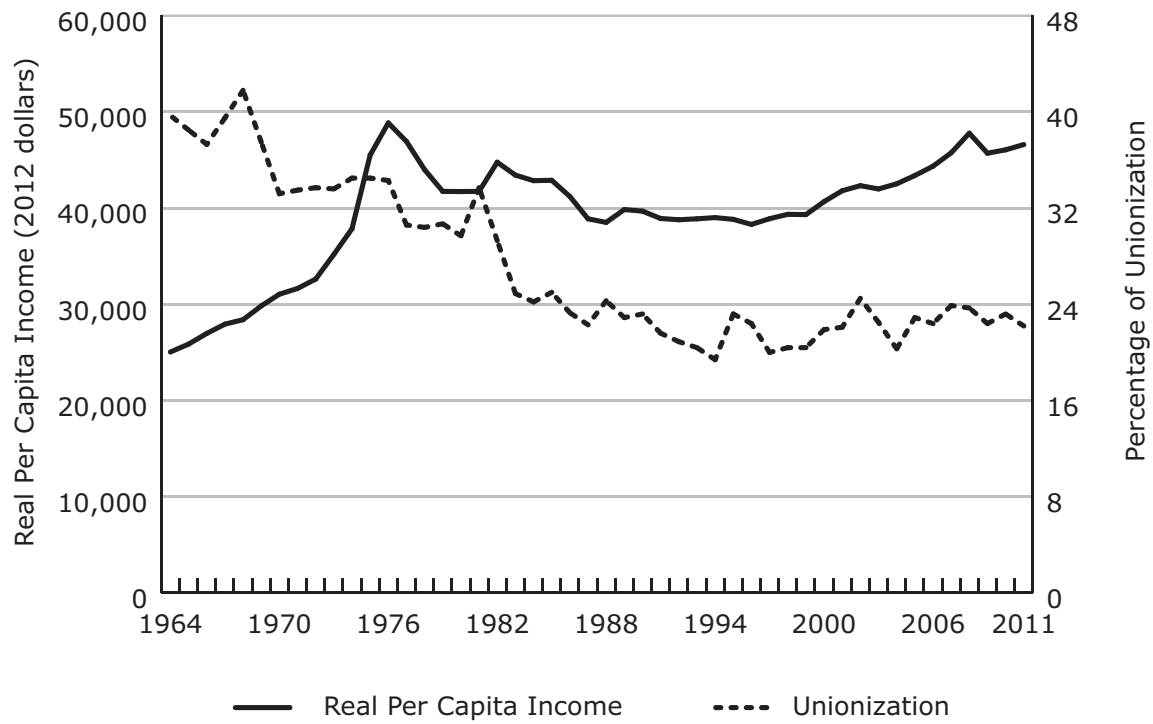
Michigan

1964 Real Per Capita Income (RPCI)	$ 21,915
1964 State Income Rank	10
2011 RPCI	$ 37,014
2011 State Income Rank	37
1964 Percentage Unionized	44.8 %
2011 Percentage Unionized	17.6 %
Average Percentage Unionized (1964–2011)	29.2 %
Estimated RPCI with Zero Union Membership	$ 48,125
RPCI Lost Because of Unions	$ 11,110
Percentage of Possible RPCI Lost	**23.1 %**



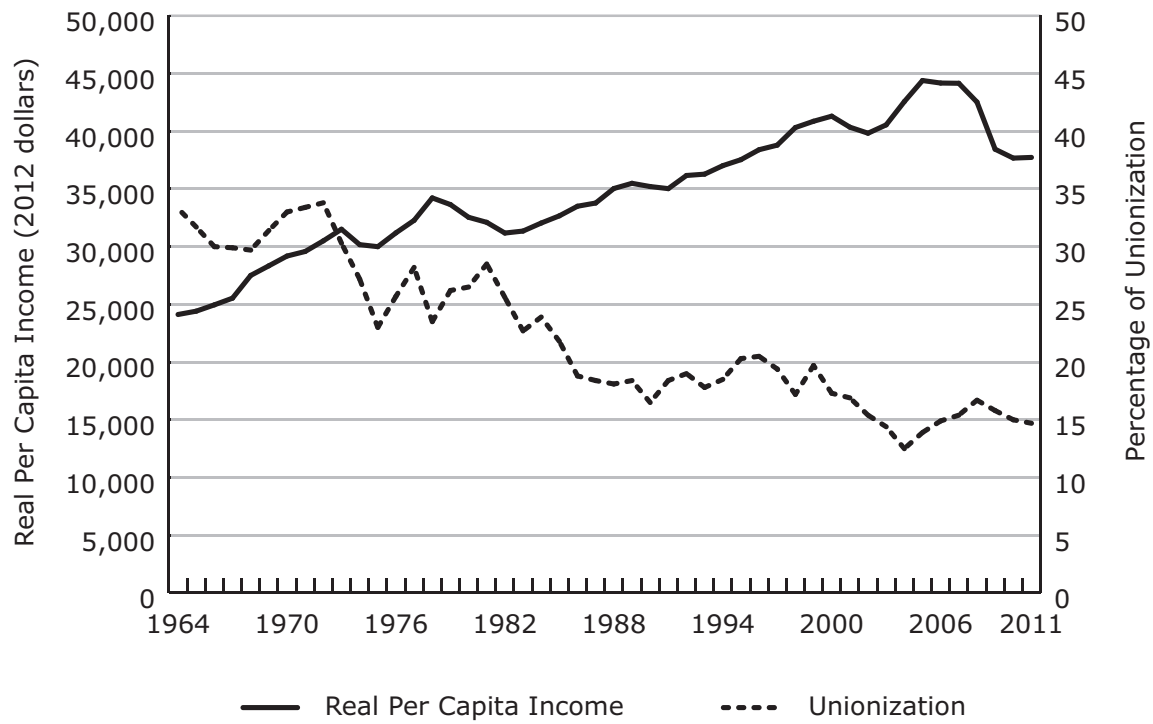
Alaska

1964 Real Per Capita Income (RPCI)	$ 25,048
1964 State Income Rank	2
2011 RPCI	$ 46,610
2011 State Income Rank	11
1964 Percentage Unionized	39.7 %
2011 Percentage Unionized	22.2 %
Average Percentage Unionized (1964–2011)	27.1 %
Estimated RPCI with Zero Union Membership	$ 58,402
RPCI Lost Because of Unions	$ 11,792
Percentage of Possible RPCI Lost	**20.2 %**



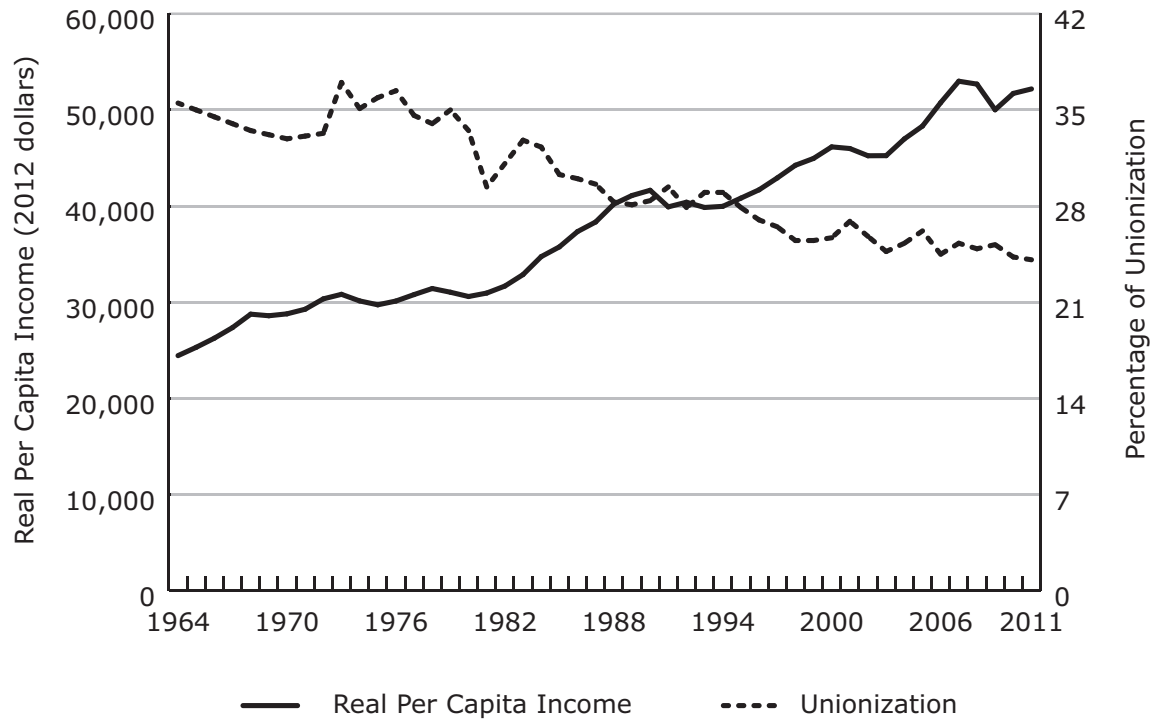
Nevada

1964 Real Per Capita Income (RPCI)	$ 24,122
1964 State Income Rank	6
2011 RPCI	$ 37,729
2011 State Income Rank	35
1964 Percentage Unionized	33.3 %
2011 Percentage Unionized	14.7 %
Average Percentage Unionized (1964–2011)	22.0 %
Estimated RPCI with Zero Union Membership	$ 46,938
RPCI Lost Because of Unions	$ 9,209
Percentage of Possible RPCI Lost	**19.6 %**



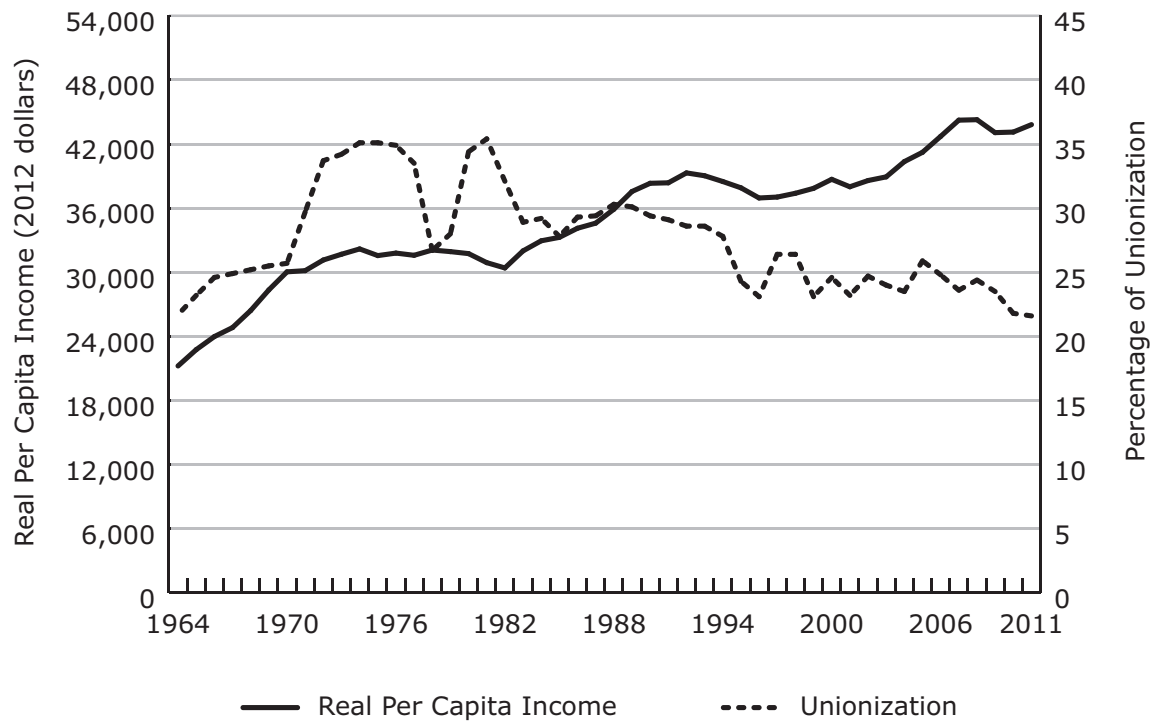
New York

1964 Real Per Capita Income (RPCI)	$ 24,463
1964 State Income Rank	3
2011 RPCI	$ 52,184
2011 State Income Rank	5
1964 Percentage Unionized	35.5 %
2011 Percentage Unionized	24.1 %
Average Percentage Unionized (1964–2011)	29.8 %
Estimated RPCI with Zero Union Membership	$ 64,838
RPCI Lost Because of Unions	$ 12,654
Percentage of Possible RPCI Lost	**19.5 %**



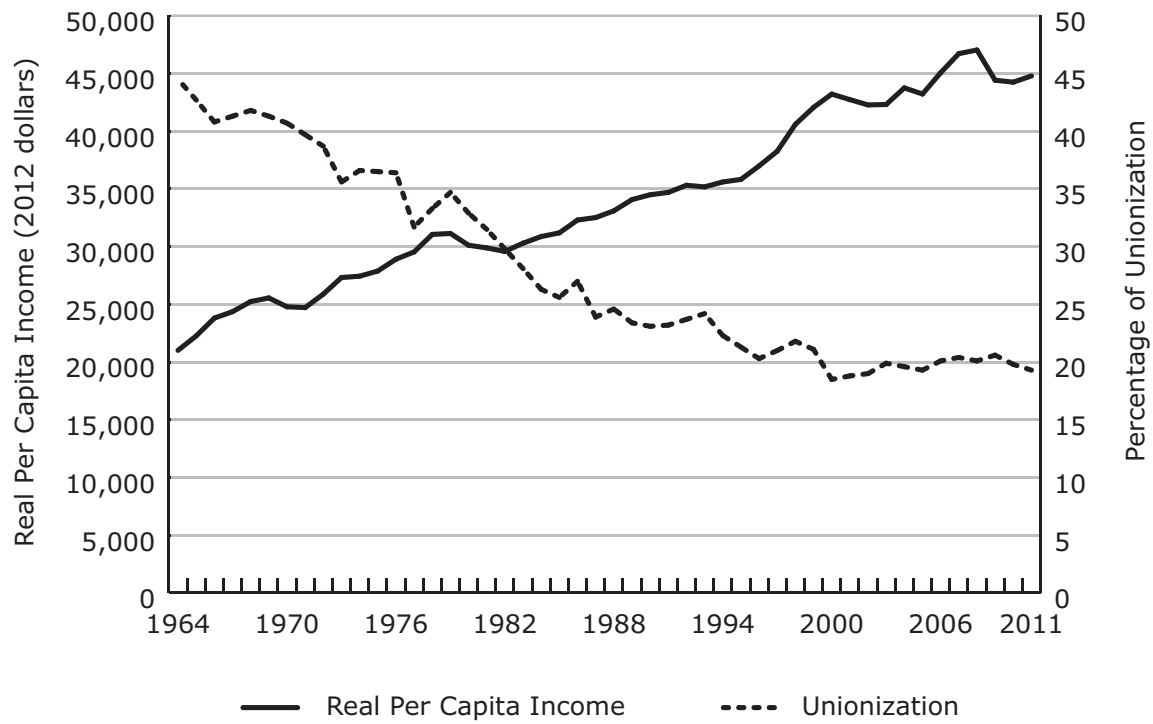
Hawaii

1964 Real Per Capita Income (RPCI)	$ 21,241
1964 State Income Rank	12
2011 RPCI	$ 43,813
2011 State Income Rank	19
1964 Percentage Unionized	21.7 %
2011 Percentage Unionized	21.6 %
Average Percentage Unionized (1964–2011)	27.4 %
Estimated RPCI with Zero Union Membership	$ 53,916
RPCI Lost Because of Unions	$ 10,102
Percentage of Possible RPCI Lost	**18.7 %**



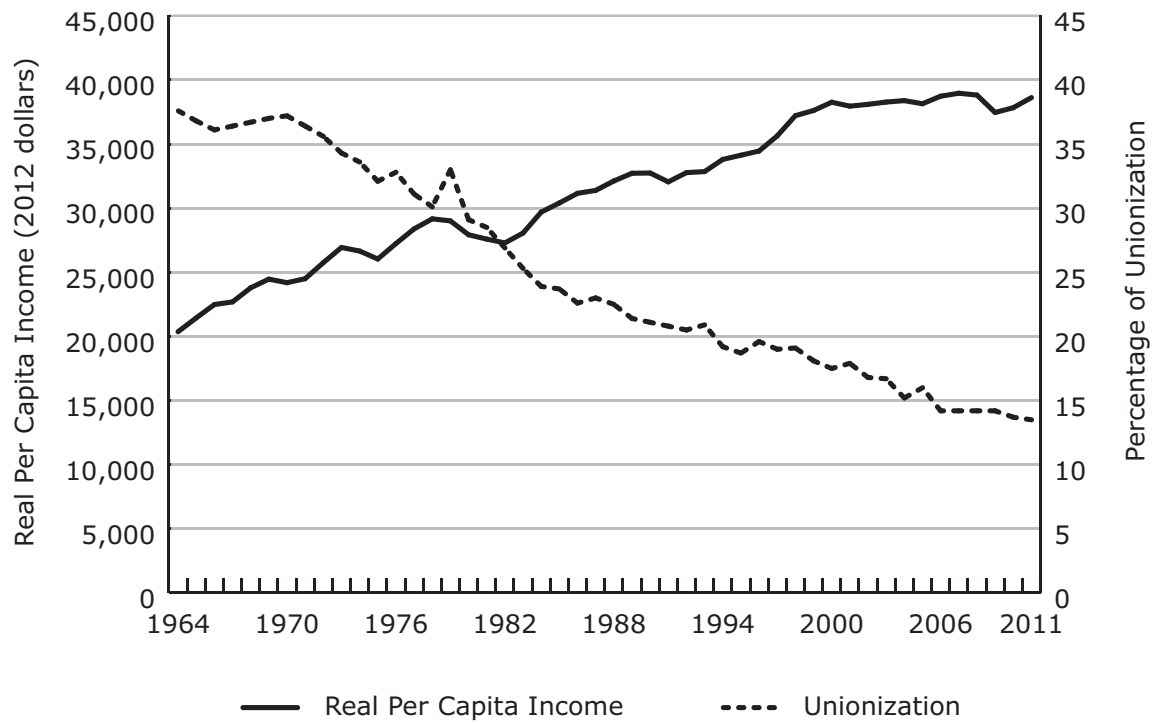
Washington

1964 Real Per Capita Income (RPCI)	$ 21,019
1964 State Income Rank	13
2011 RPCI	$ 44,786
2011 State Income Rank	15
1964 Percentage Unionized	44.5 %
2011 Percentage Unionized	19.3 %
Average Percentage Unionized (1964–2011)	27.9 %
Estimated RPCI with Zero Union Membership	$ 54,952
RPCI Lost Because of Unions	$ 10,166
Percentage of Possible RPCI Lost	**18.5 %**



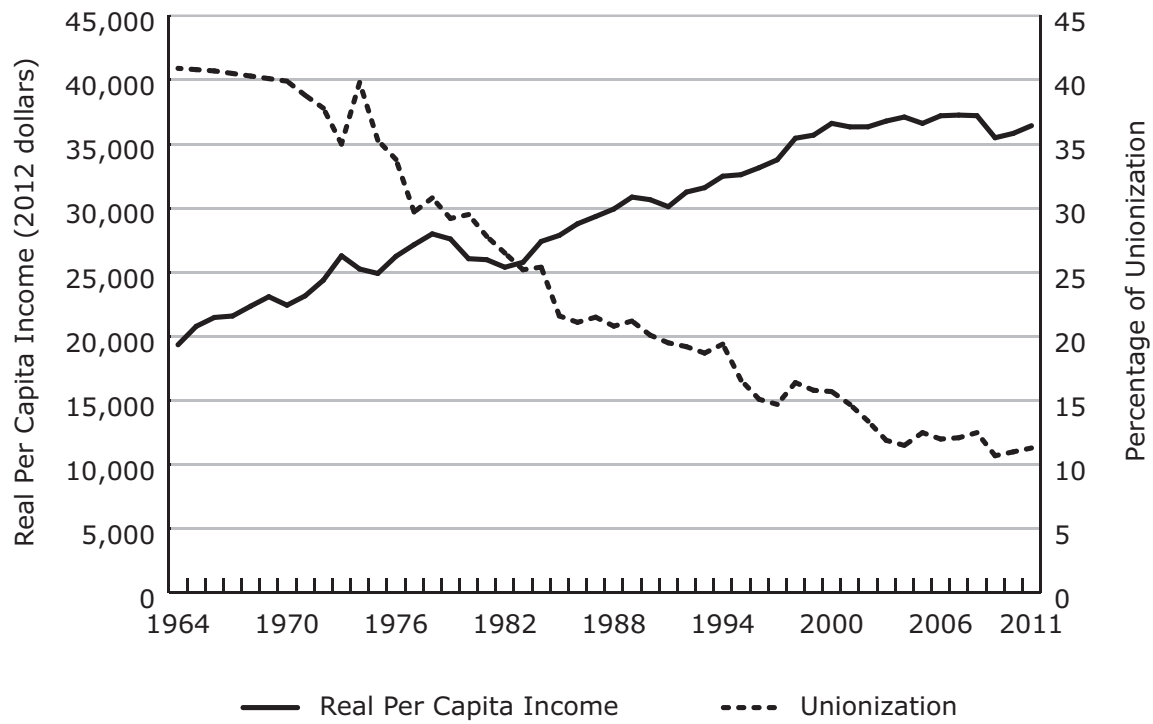
Ohio

1964 Real Per Capita Income (RPCI)	$ 20,367
1964 State Income Rank	15
2011 RPCI	$ 38,619
2011 State Income Rank	32
1964 Percentage Unionized	37.6 %
2011 Percentage Unionized	13.5 %
Average Percentage Unionized (1964–2011)	24.4 %
Estimated RPCI with Zero Union Membership	$ 47,257
RPCI Lost Because of Unions	$ 8,638
Percentage of Possible RPCI Lost	**18.3 %**



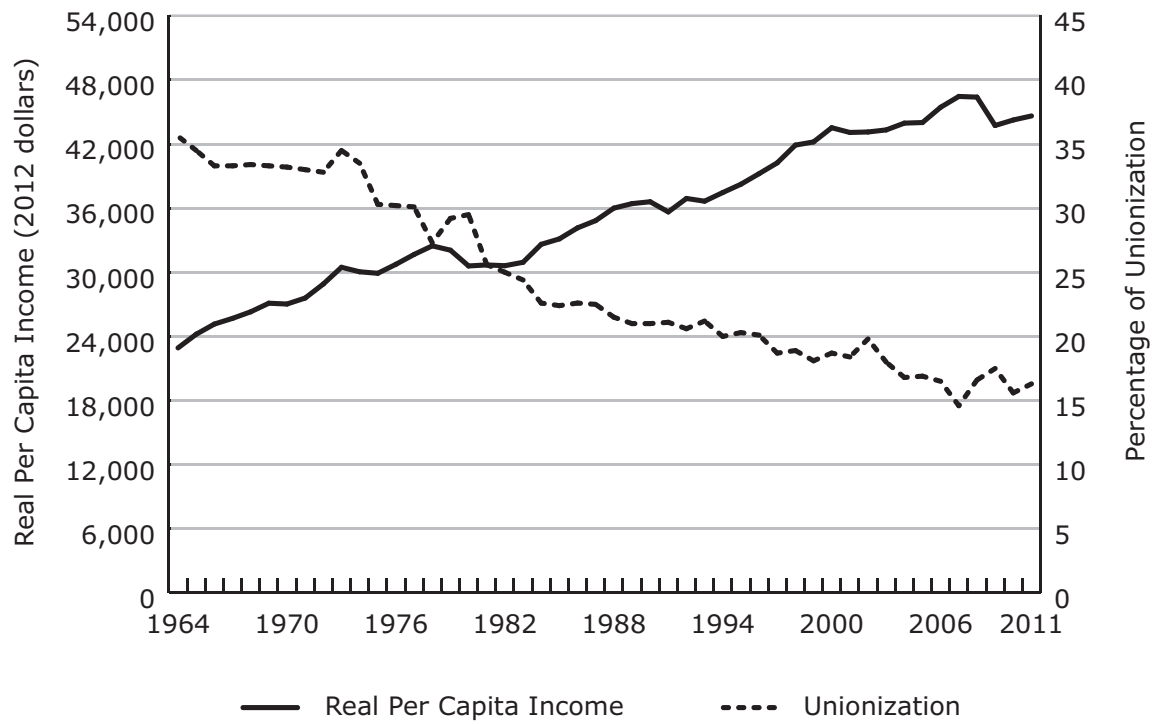
Indiana

1964 Real Per Capita Income (RPCI)	$ 19,353
1964 State Income Rank	20
2011 RPCI	$ 36,428
2011 State Income Rank	41
1964 Percentage Unionized	40.9 %
2011 Percentage Unionized	11.3 %
Average Percentage Unionized (1964–2011)	23.8 %
Estimated RPCI with Zero Union Membership	$ 44,433
RPCI Lost Because of Unions	$ 8,005
Percentage of Possible RPCI Lost	**18.0 %**



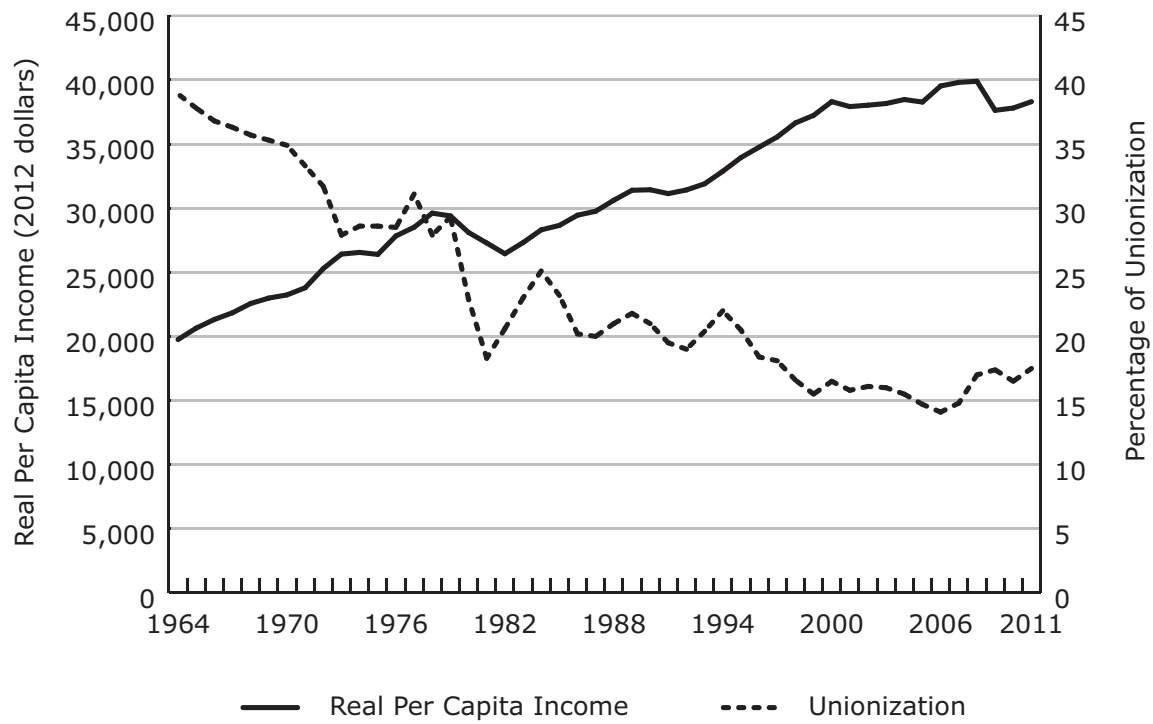
Illinois

1964 Real Per Capita Income (RPCI)	$ 22,930
1964 State Income Rank	9
2011 RPCI	$ 44,626
2011 State Income Rank	17
1964 Percentage Unionized	35.6 %
2011 Percentage Unionized	16.3 %
Average Percentage Unionized (1964–2011)	24.0 %
Estimated RPCI with Zero Union Membership	$ 54,168
RPCI Lost Because of Unions	$ 9,542
Percentage of Possible RPCI Lost	**17.6 %**



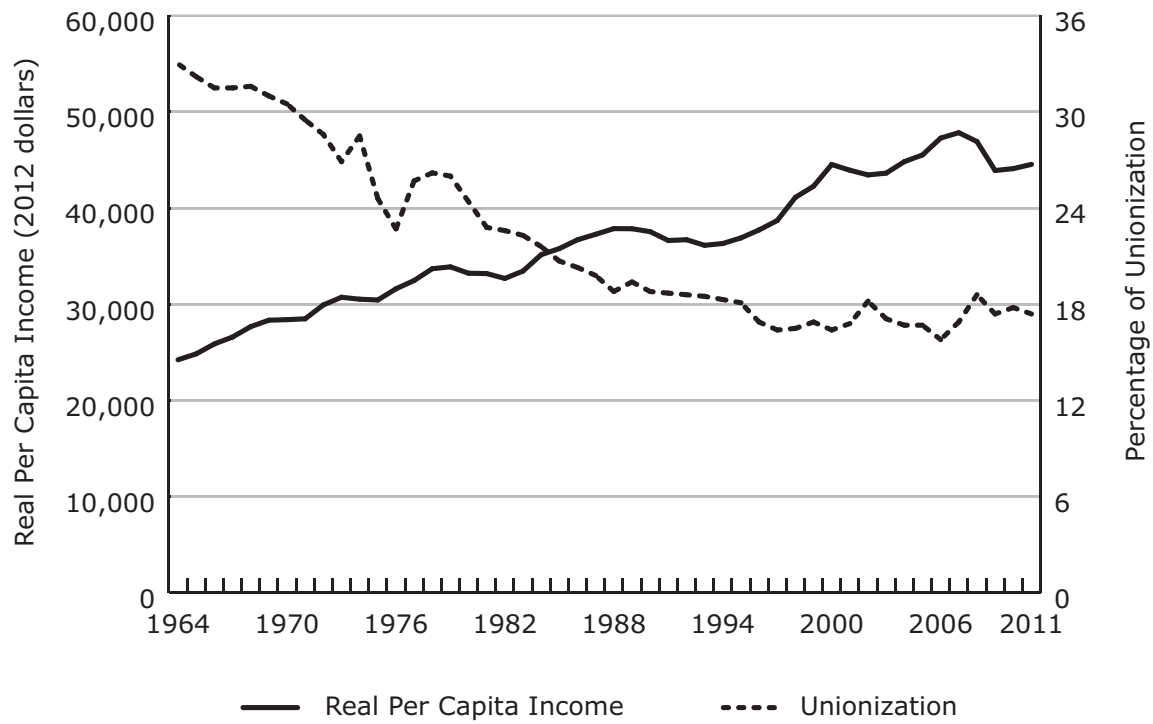
Oregon

1964 Real Per Capita Income (RPCI)	$ 19,760
1964 State Income Rank	17
2011 RPCI	$ 38,304
2011 State Income Rank	34
1964 Percentage Unionized	38.9 %
2011 Percentage Unionized	17.5 %
Average Percentage Unionized (1964–2011)	23.2 %
Estimated RPCI with Zero Union Membership	$ 46,265
RPCI Lost Because of Unions	$ 7,962
Percentage of Possible RPCI Lost	**17.2 %**



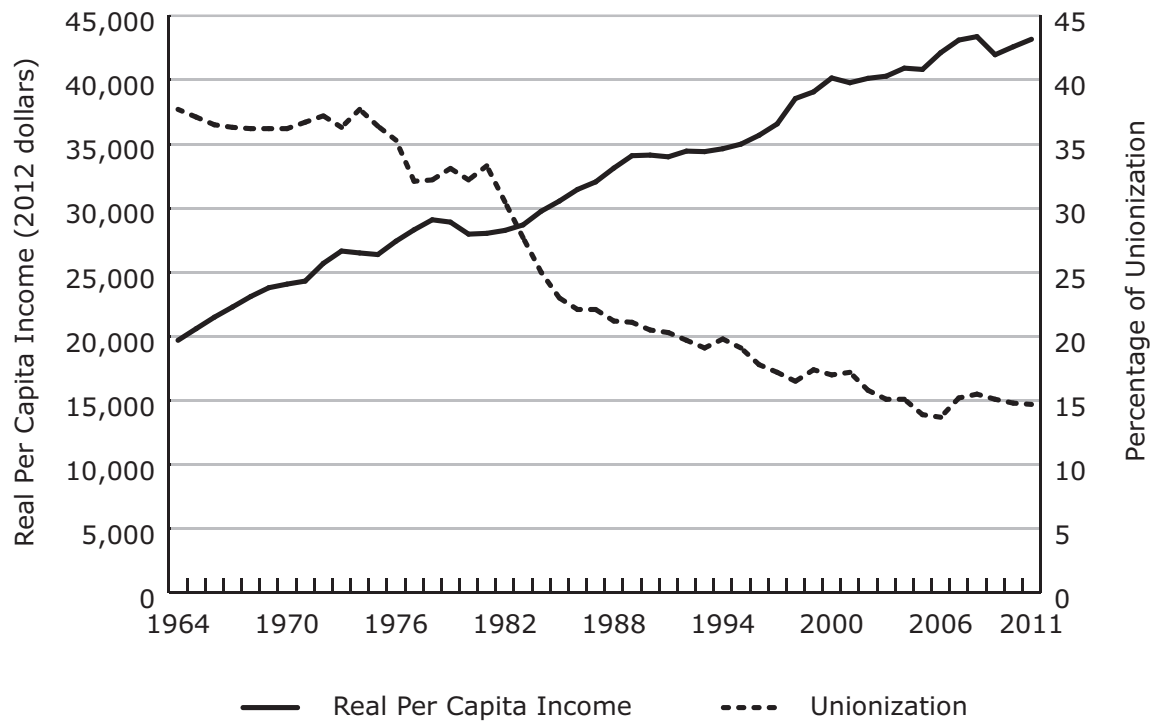
California

1964 Real Per Capita Income (RPCI)	$ 24,421
1964 State Income Rank	4
2011 RPCI	$ 44,550
2011 State Income Rank	18
1964 Percentage Unionized	33.0 %
2011 Percentage Unionized	17.4 %
Average Percentage Unionized (1964–2011)	21.9 %
Estimated RPCI with Zero Union Membership	$ 53,767
RPCI Lost Because of Unions	$ 9,217
Percentage of Possible RPCI Lost	**17.1 %**



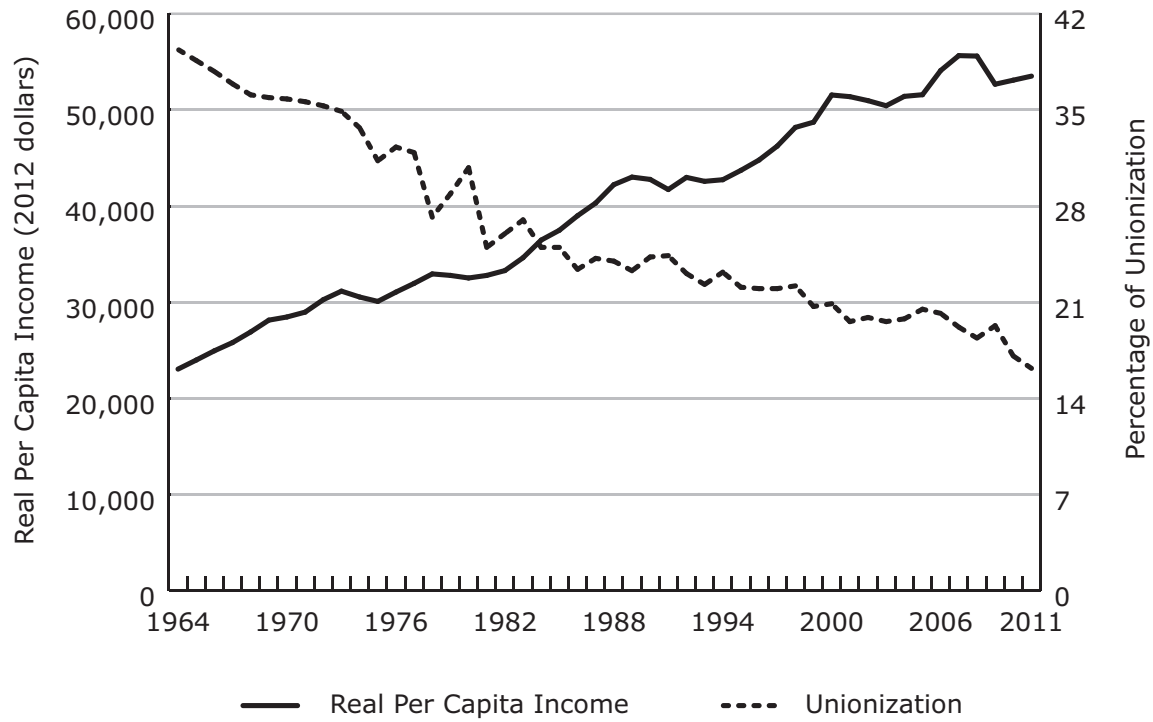
Pennsylvania

1964 Real Per Capita Income (RPCI)	$ 19,701
1964 State Income Rank	18
2011 RPCI	$ 43,166
2011 State Income Rank	21
1964 Percentage Unionized	37.7 %
2011 Percentage Unionized	14.7 %
Average Percentage Unionized (1964–2011)	24.8 %
Estimated RPCI with Zero Union Membership	$ 51,647
RPCI Lost Because of Unions	$ 8,481
Percentage of Possible RPCI Lost	**16.4 %**



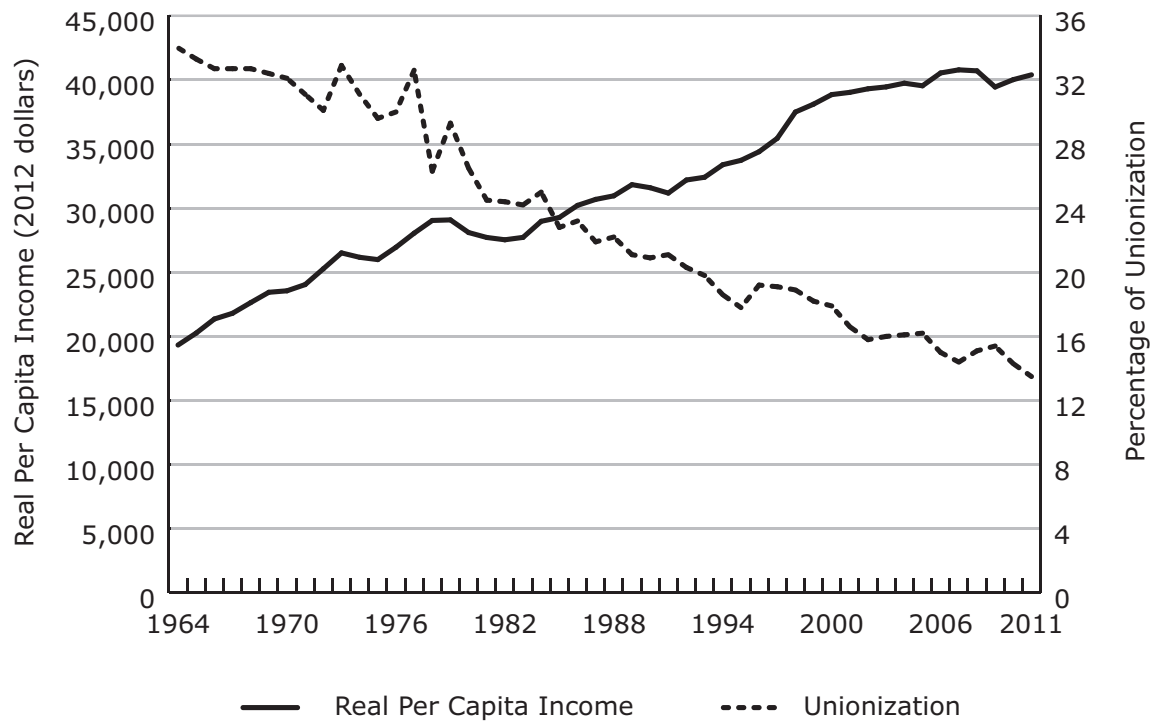
New Jersey

1964 Real Per Capita Income (RPCI)	$ 23,063
1964 State Income Rank	8
2011 RPCI	$ 53,515
2011 State Income Rank	4
1964 Percentage Unionized	39.4 %
2011 Percentage Unionized	16.2 %
Average Percentage Unionized (1964–2011)	26.1 %
Estimated RPCI with Zero Union Membership	$ 63,957
RPCI Lost Because of Unions	$ 10,422
Percentage of Possible RPCI Lost	**16.3 %**



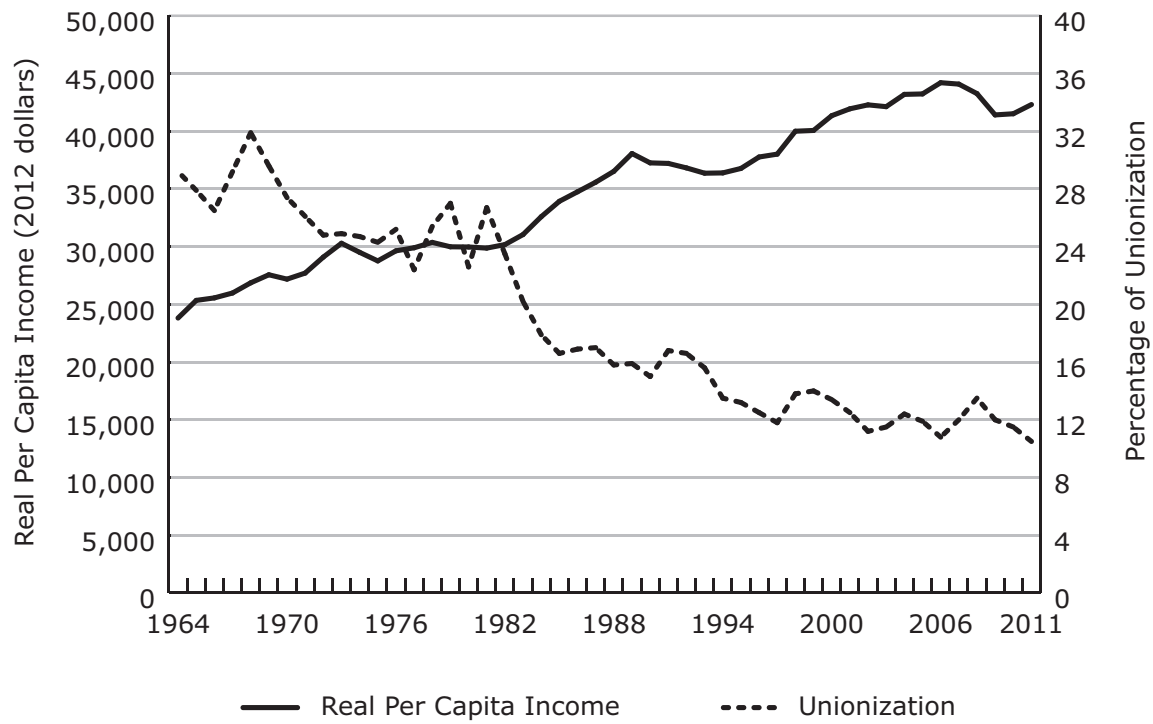
Wisconsin

1964 Real Per Capita Income (RPCI)	$ 19,330
1964 State Income Rank	21
2011 RPCI	$ 40,394
2011 State Income Rank	28
1964 Percentage Unionized	34.0 %
2011 Percentage Unionized	13.5 %
Average Percentage Unionized (1964–2011)	23.1 %
Estimated RPCI with Zero Union Membership	$ 48,132
RPCI Lost Because of Unions	$ 7,738
Percentage of Possible RPCI Lost	**16.1 %**



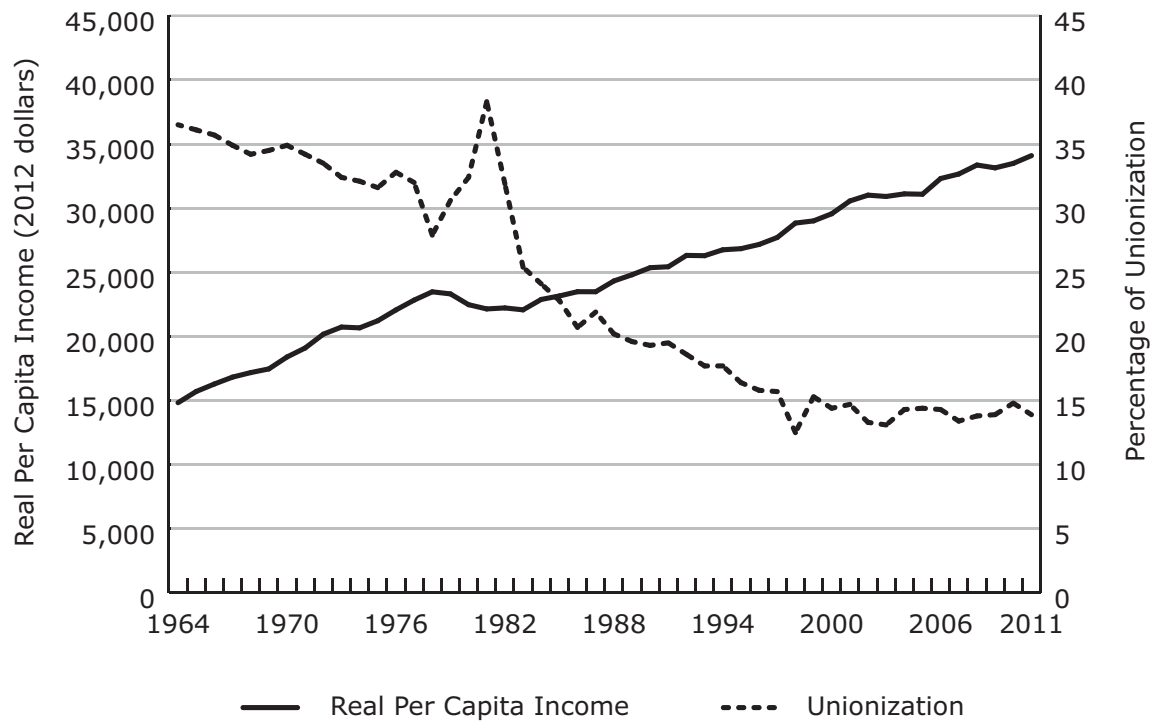
Delaware

1964 Real Per Capita Income (RPCI)	$ 23,819
1964 State Income Rank	7
2011 RPCI	$ 42,307
2011 State Income Rank	23
1964 Percentage Unionized	29.2 %
2011 Percentage Unionized	10.5 %
Average Percentage Unionized (1964–2011)	18.7 %
Estimated RPCI with Zero Union Membership	$ 50,035
RPCI Lost Because of Unions	$ 7,729
Percentage of Possible RPCI Lost	**15.4 %**



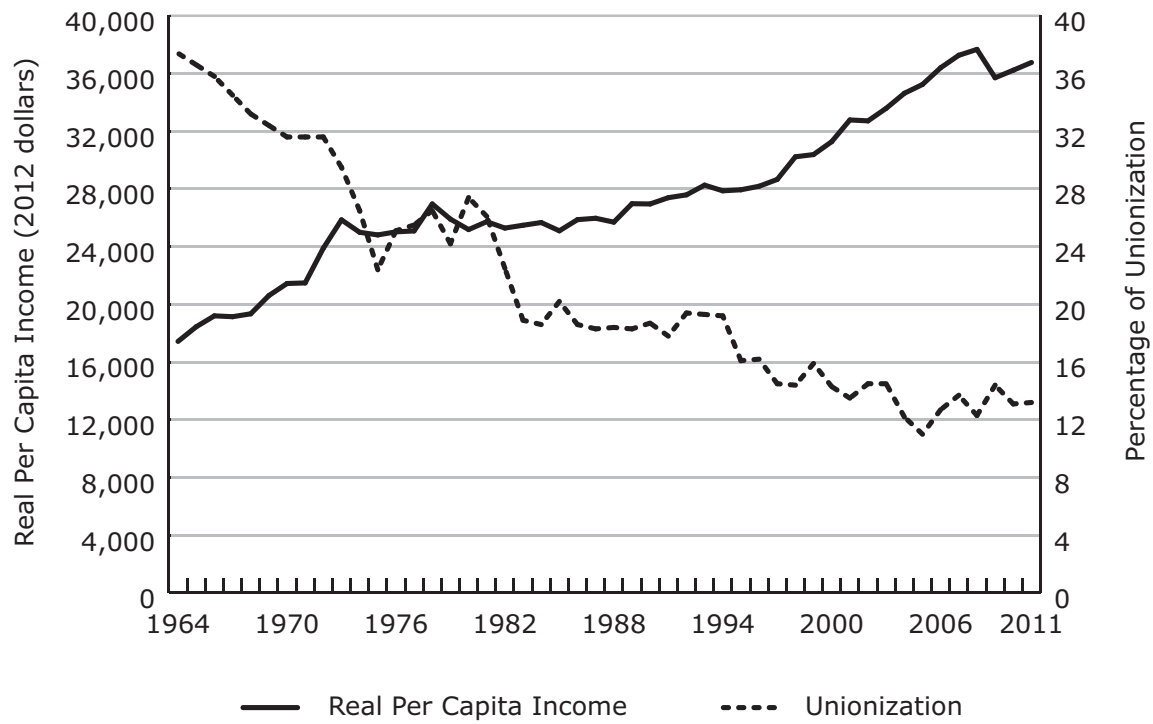
West Virginia

1964 Real Per Capita Income (RPCI)	$ 14,835
1964 State Income Rank	42
2011 RPCI	$ 34,094
2011 State Income Rank	48
1964 Percentage Unionized	36.5 %
2011 Percentage Unionized	13.9 %
Average Percentage Unionized (1964–2011)	23.3 %
Estimated RPCI with Zero Union Membership	$ 40,084
RPCI Lost Because of Unions	$ 5,989
Percentage of Possible RPCI Lost	**14.9 %**



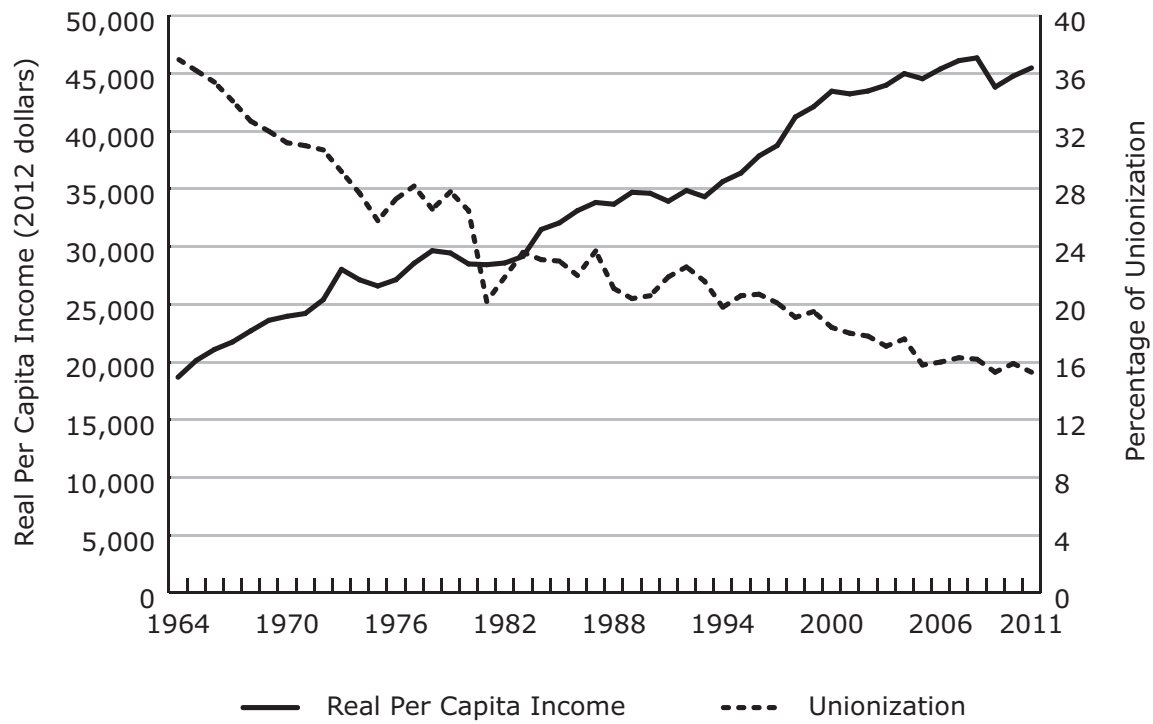
Montana

1964 Real Per Capita Income (RPCI)	$ 17,434
1964 State Income Rank	31
2011 RPCI	$ 36,761
2011 State Income Rank	39
1964 Percentage Unionized	37.4 %
2011 Percentage Unionized	13.2 %
Average Percentage Unionized (1964–2011)	21.2 %
Estimated RPCI with Zero Union Membership	$ 43,164
RPCI Lost Because of Unions	$ 6,402
Percentage of Possible RPCI Lost	**14.8 %**



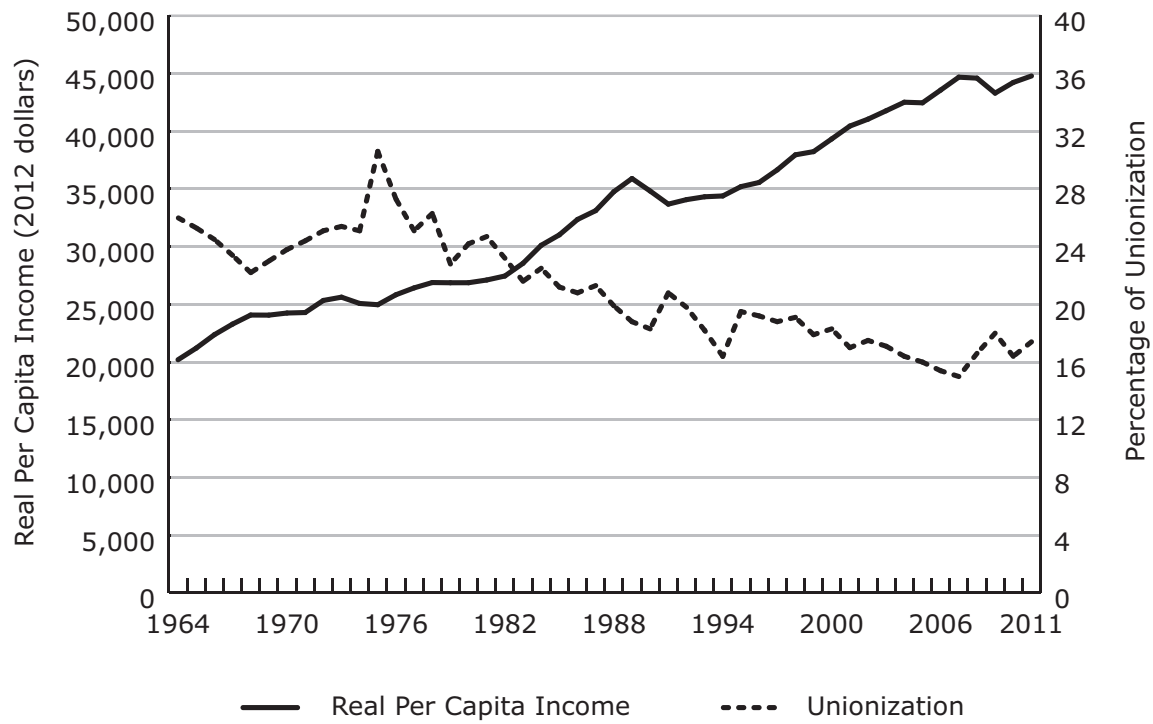
Minnesota

1964 Real Per Capita Income (RPCI)	$ 18,693
1964 State Income Rank	26
2011 RPCI	$ 45,482
2011 State Income Rank	12
1964 Percentage Unionized	37.0 %
2011 Percentage Unionized	15.3 %
Average Percentage Unionized (1964–2011)	23.2 %
Estimated RPCI with Zero Union Membership	$ 53,023
RPCI Lost Because of Unions	$ 7,541
Percentage of Possible RPCI Lost	**14.2 %**



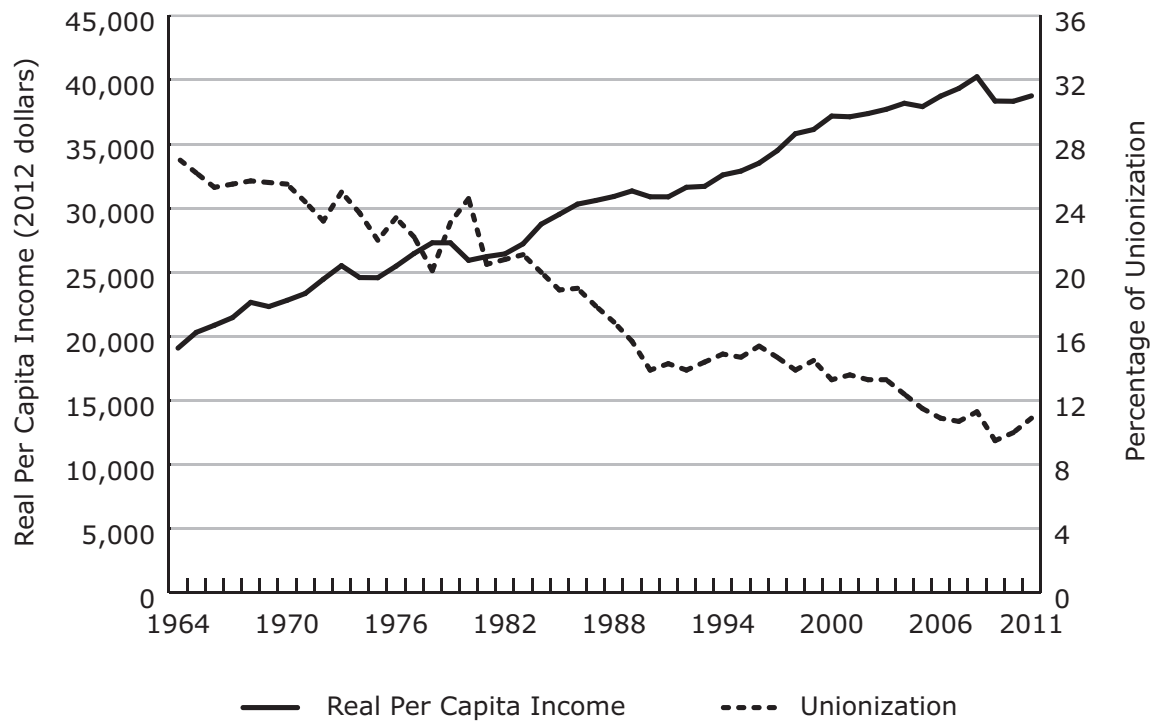
Rhode Island

1964 Real Per Capita Income (RPCI)	$ 20,204
1964 State Income Rank	16
2011 RPCI	$ 44,783
2011 State Income Rank	16
1964 Percentage Unionized	26.0 %
2011 Percentage Unionized	17.4 %
Average Percentage Unionized (1964–2011)	20.9 %
Estimated RPCI with Zero Union Membership	$ 52,121
RPCI Lost Because of Unions	$ 7,338
Percentage of Possible RPCI Lost	**14.1 %**



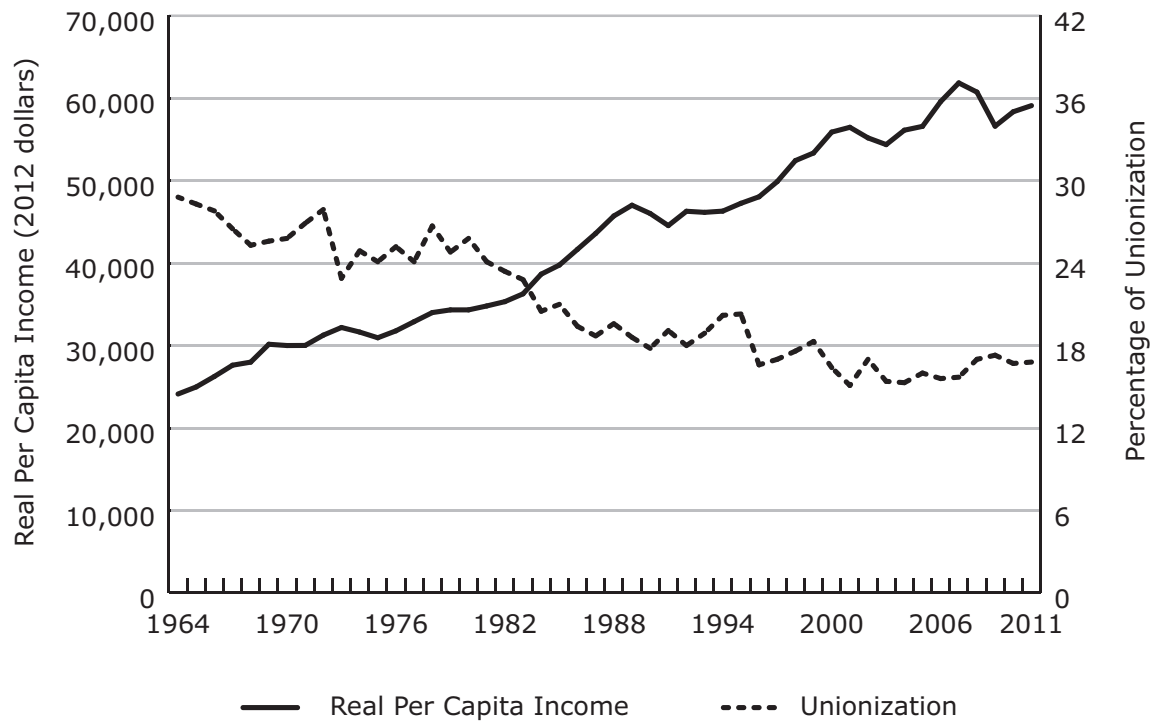
Missouri

1964 Real Per Capita Income (RPCI)	$ 19,093
1964 State Income Rank	22
2011 RPCI	$ 38,755
2011 State Income Rank	31
1964 Percentage Unionized	27.1 %
2011 Percentage Unionized	10.9 %
Average Percentage Unionized (1964–2011)	17.9 %
Estimated RPCI with Zero Union Membership	$ 44,690
RPCI Lost Because of Unions	$ 5,935
Percentage of Possible RPCI Lost	**13.3 %**



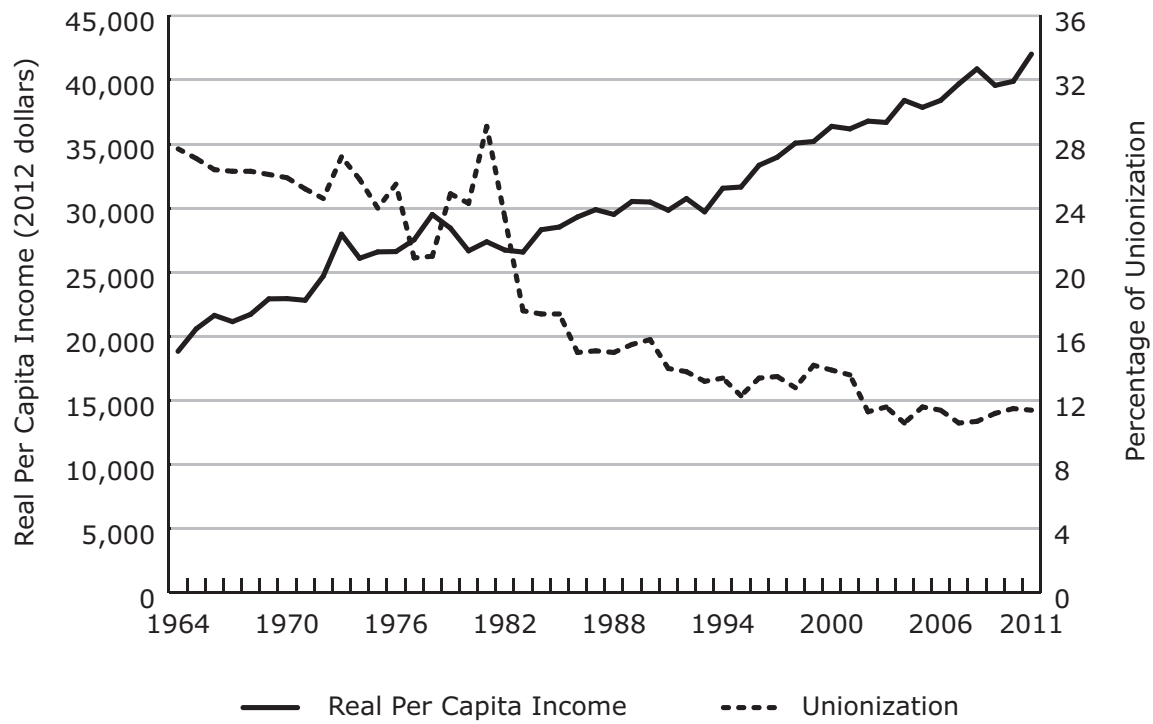
Connecticut

1964 Real Per Capita Income (RPCI)	$ 24,130
1964 State Income Rank	5
2011 RPCI	$ 59,100
2011 State Income Rank	2
1964 Percentage Unionized	28.8 %
2011 Percentage Unionized	16.8 %
Average Percentage Unionized (1964–2011)	20.9 %
Estimated RPCI with Zero Union Membership	$ 67,831
RPCI Lost Because of Unions	$ 8,731
Percentage of Possible RPCI Lost	**12.9 %**



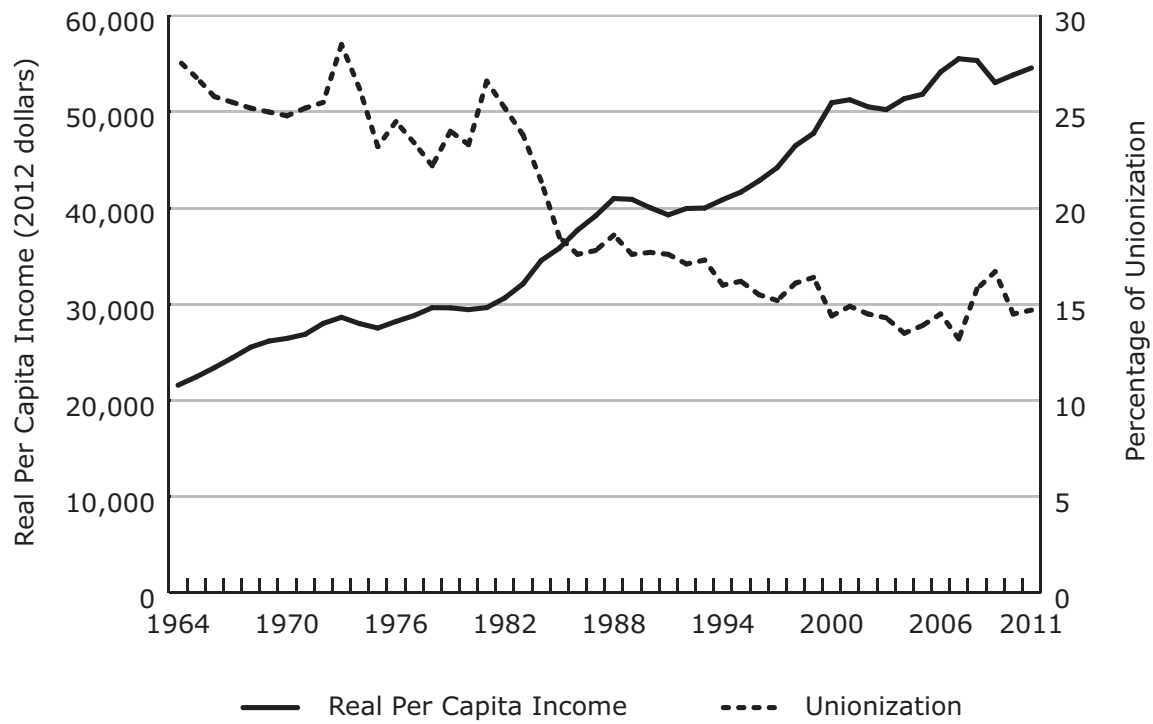
Iowa

1964 Real Per Capita Income (RPCI)	$ 18,842
1964 State Income Rank	24
2011 RPCI	$ 42,008
2011 State Income Rank	24
1964 Percentage Unionized	27.7 %
2011 Percentage Unionized	11.4 %
Average Percentage Unionized (1964–2011)	18.0 %
Estimated RPCI with Zero Union Membership	$ 47,886
RPCI Lost Because of Unions	$ 5,879
Percentage of Possible RPCI Lost	**12.3 %**



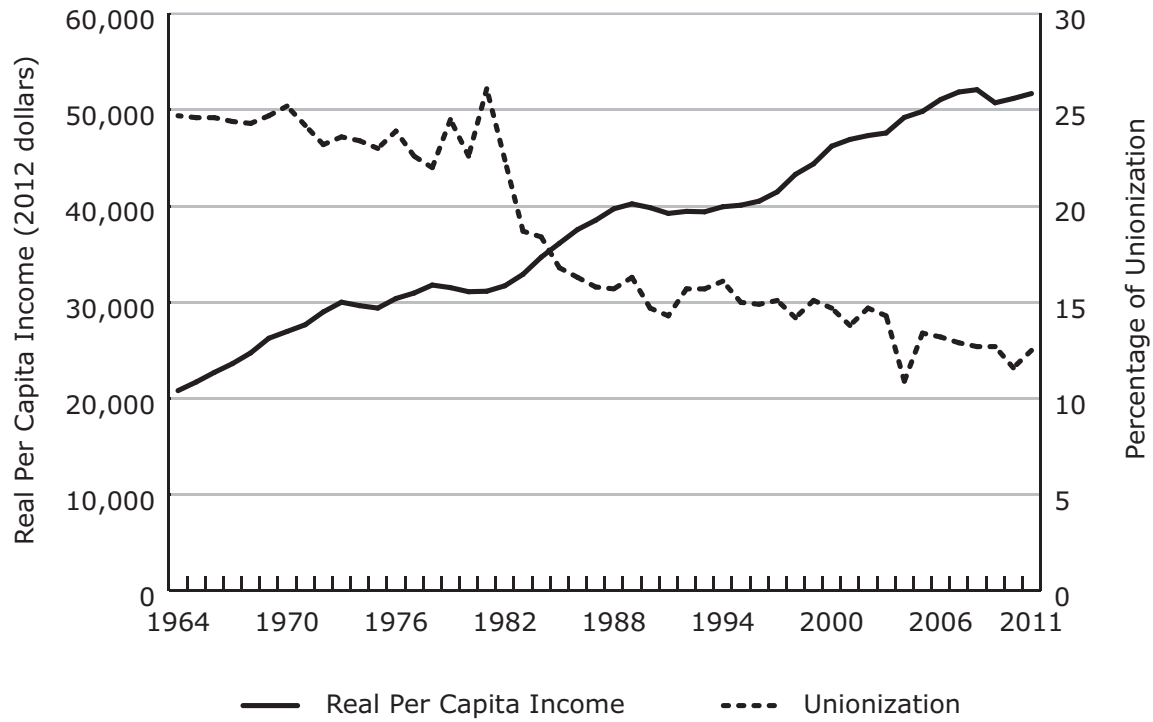
Massachusetts

1964 Real Per Capita Income (RPCI)	$ 21,597
1964 State Income Rank	11
2011 RPCI	$ 54,578
2011 State Income Rank	3
1964 Percentage Unionized	27.7 %
2011 Percentage Unionized	14.7 %
Average Percentage Unionized (1964–2011)	19.8 %
Estimated RPCI with Zero Union Membership	$ 61,984
RPCI Lost Because of Unions	$ 7,406
Percentage of Possible RPCI Lost	**11.9 %**



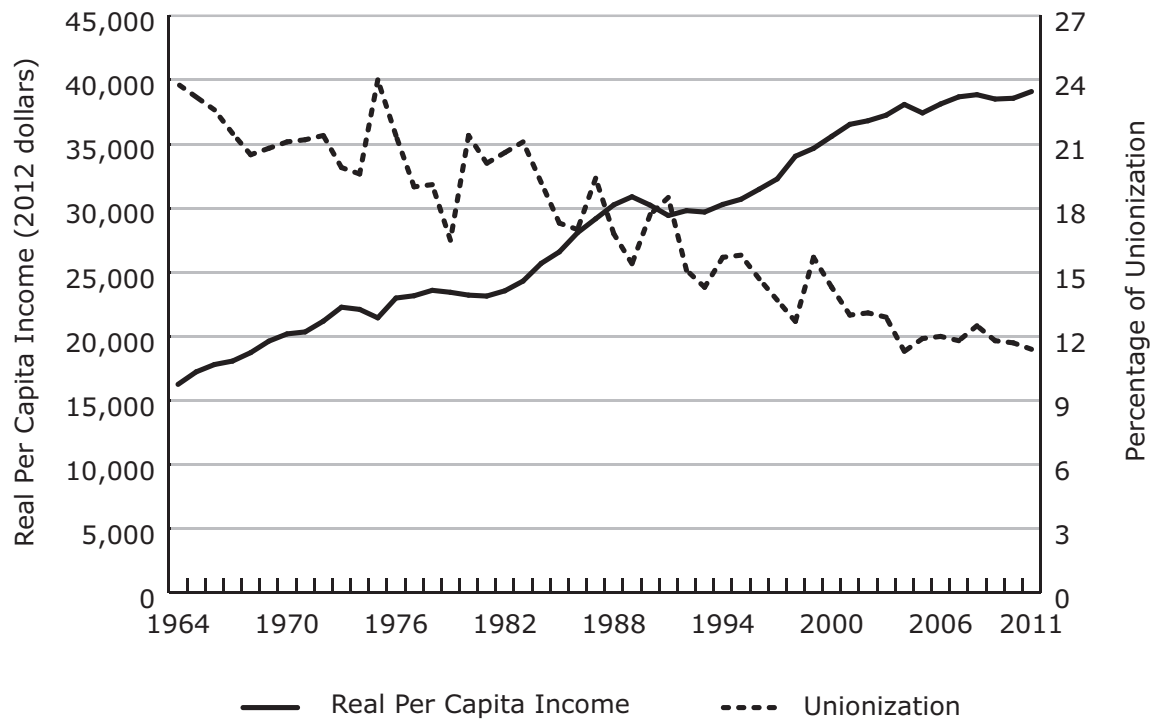
Maryland

1964 Real Per Capita Income (RPCI)	$ 20,826
1964 State Income Rank	14
2011 RPCI	$ 51,704
2011 State Income Rank	6
1964 Percentage Unionized	24.7 %
2011 Percentage Unionized	12.5 %
Average Percentage Unionized (1964–2011)	18.2 %
Estimated RPCI with Zero Union Membership	$ 58,275
RPCI Lost Because of Unions	$ 6,570
Percentage of Possible RPCI Lost	**11.3 %**



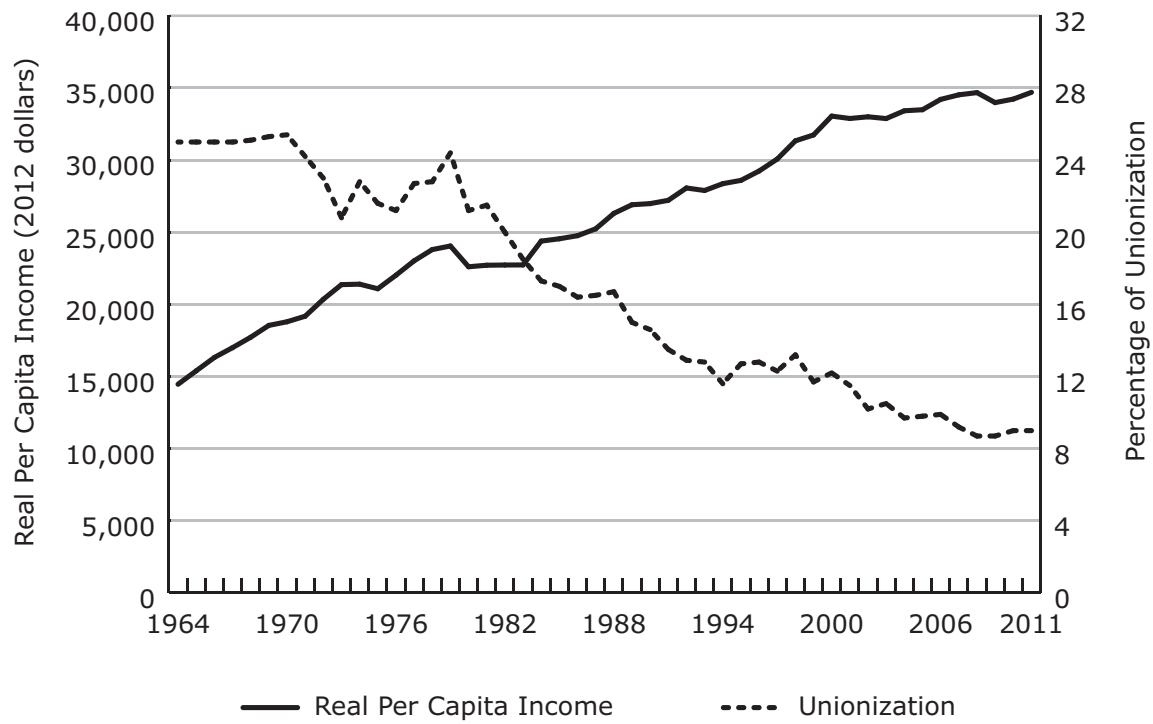
Maine

1964 Real Per Capita Income (RPCI)	$ 16,264
1964 State Income Rank	37
2011 RPCI	$ 39,092
2011 State Income Rank	30
1964 Percentage Unionized	23.8 %
2011 Percentage Unionized	11.4 %
Average Percentage Unionized (1964–2011)	17.1 %
Estimated RPCI with Zero Union Membership	$ 43,913
RPCI Lost Because of Unions	$ 4,822
Percentage of Possible RPCI Lost	**11.0 %**



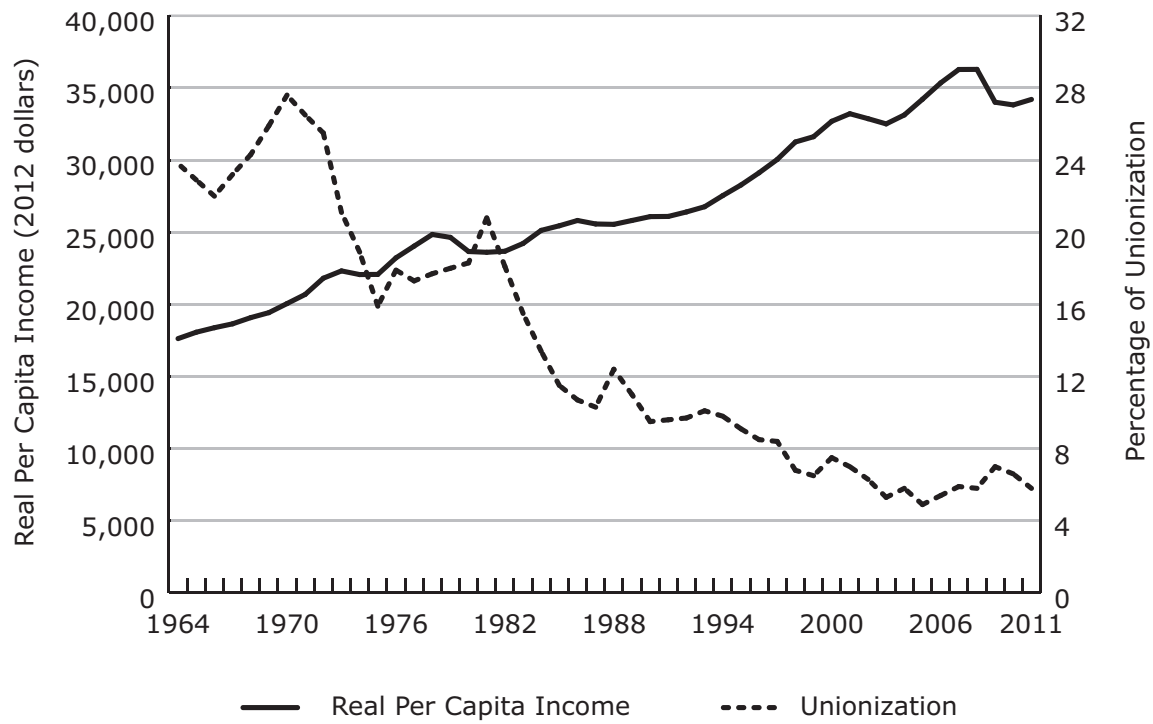
Kentucky

1964 Real Per Capita Income (RPCI)	$ 14,464
1964 State Income Rank	47
2011 RPCI	$ 34,692
2011 State Income Rank	45
1964 Percentage Unionized	25.0 %
2011 Percentage Unionized	9.0 %
Average Percentage Unionized (1964–2011)	16.7 %
Estimated RPCI with Zero Union Membership	$ 38,872
RPCI Lost Because of Unions	$ 4,180
Percentage of Possible RPCI Lost	**10.8 %**



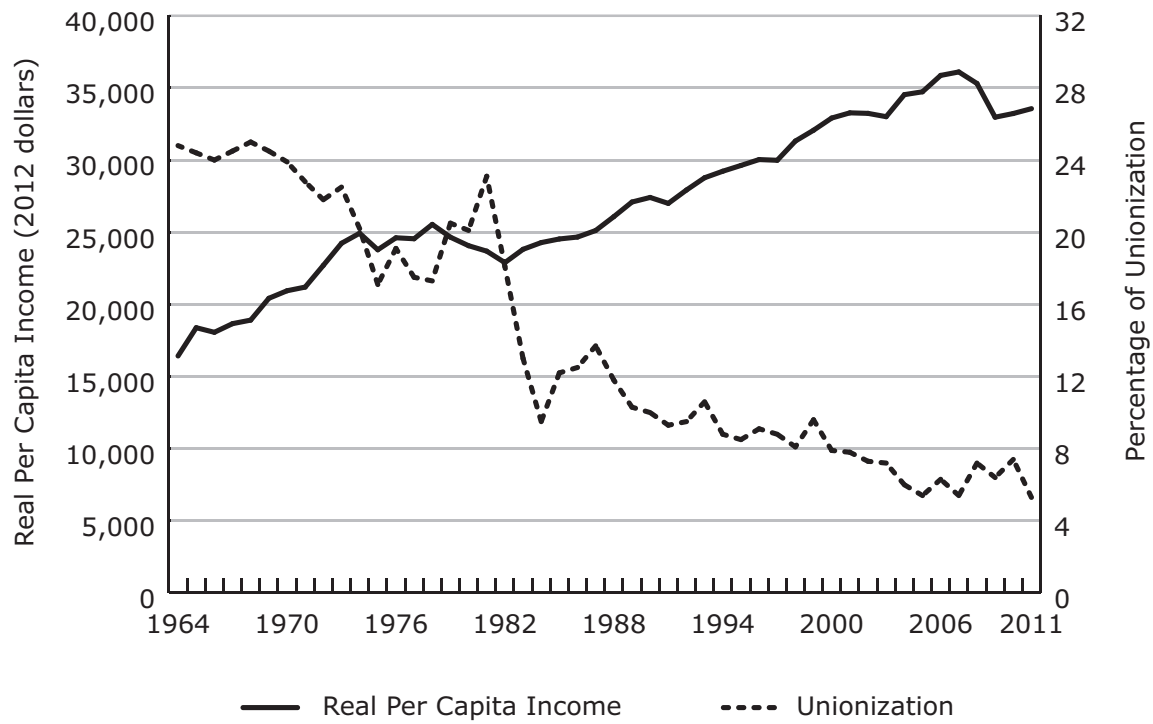
Utah

1964 Real Per Capita Income (RPCI)	$ 17,627
1964 State Income Rank	29
2011 RPCI	$ 34,202
2011 State Income Rank	47
1964 Percentage Unionized	23.8 %
2011 Percentage Unionized	5.8 %
Average Percentage Unionized (1964–2011)	13.4 %
Estimated RPCI with Zero Union Membership	$ 38,303
RPCI Lost Because of Unions	$ 4,101
Percentage of Possible RPCI Lost	**10.7 %**



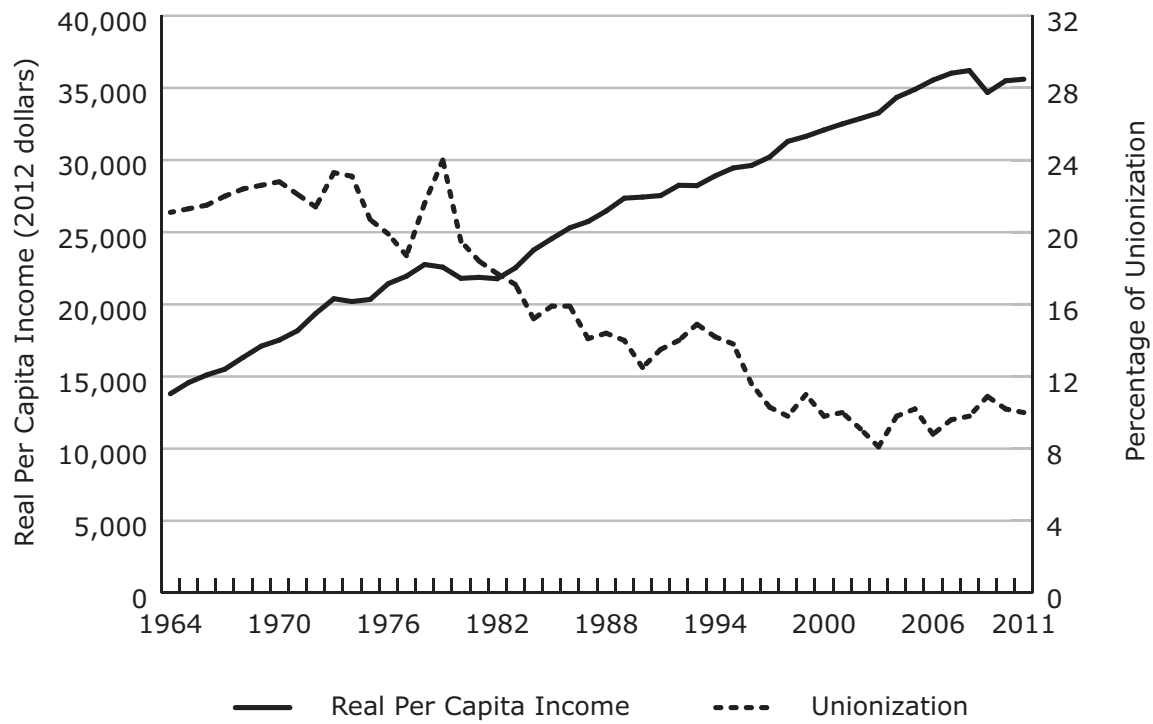
Idaho

1964 Real Per Capita Income (RPCI)	$ 16,427
1964 State Income Rank	36
2011 RPCI	$ 33,561
2011 State Income Rank	50
1964 Percentage Unionized	24.8 %
2011 Percentage Unionized	5.3 %
Average Percentage Unionized (1964–2011)	13.7 %
Estimated RPCI with Zero Union Membership	$ 37,465
RPCI Lost Because of Unions	$ 3,904
Percentage of Possible RPCI Lost	**10.4 %**



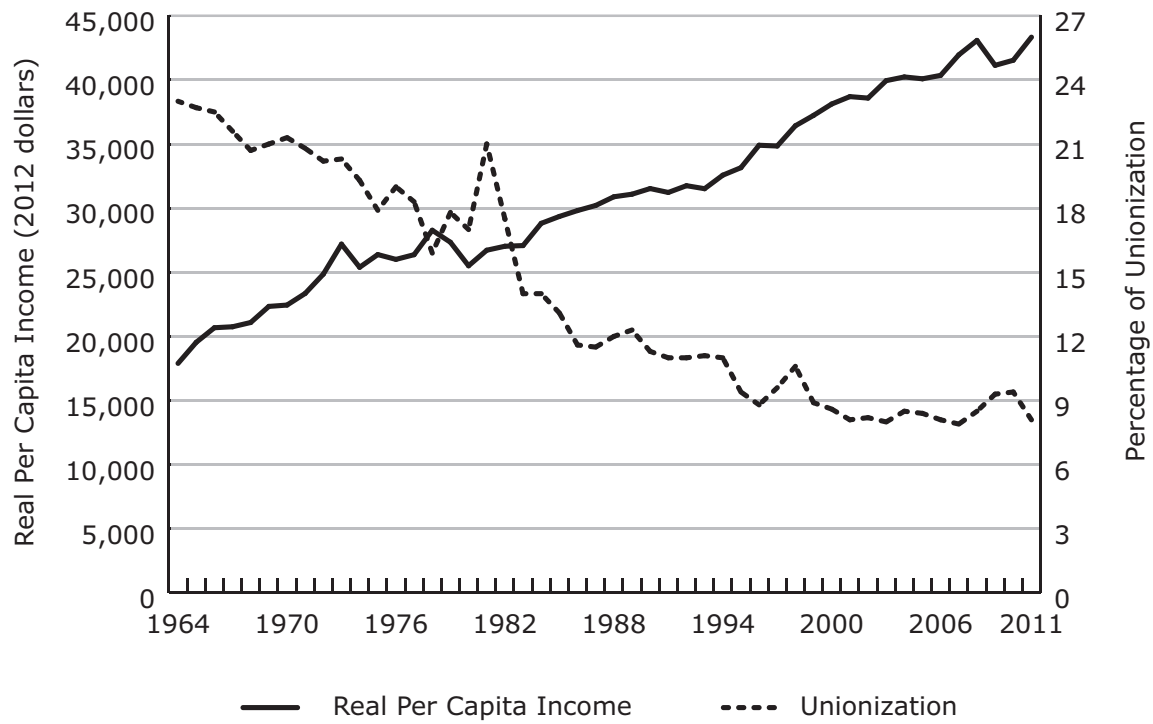
Alabama

1964 Real Per Capita Income (RPCI)	$ 13,805
1964 State Income Rank	48
2011 RPCI	$ 35,602
2011 State Income Rank	43
1964 Percentage Unionized	21.1 %
2011 Percentage Unionized	10.0 %
Average Percentage Unionized (1964–2011)	15.5 %
Estimated RPCI with Zero Union Membership	$ 39,327
RPCI Lost Because of Unions	$ 3,725
Percentage of Possible RPCI Lost	**9.5 %**



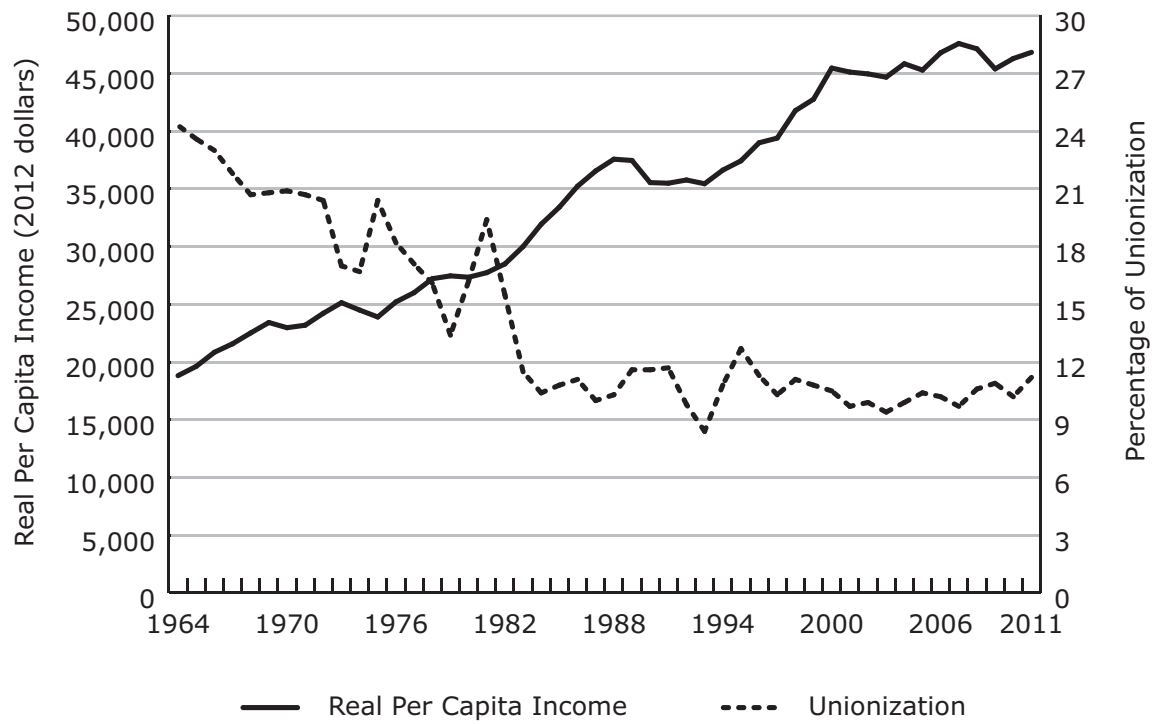
Nebraska

1964 Real Per Capita Income (RPCI)	$ 17,901
1964 State Income Rank	28
2011 RPCI	$ 43,328
2011 State Income Rank	20
1964 Percentage Unionized	23.0 %
2011 Percentage Unionized	8.1 %
Average Percentage Unionized (1964–2011)	13.8 %
Estimated RPCI with Zero Union Membership	$ 47,615
RPCI Lost Because of Unions	$ 4,287
Percentage of Possible RPCI Lost	**9.0 %**



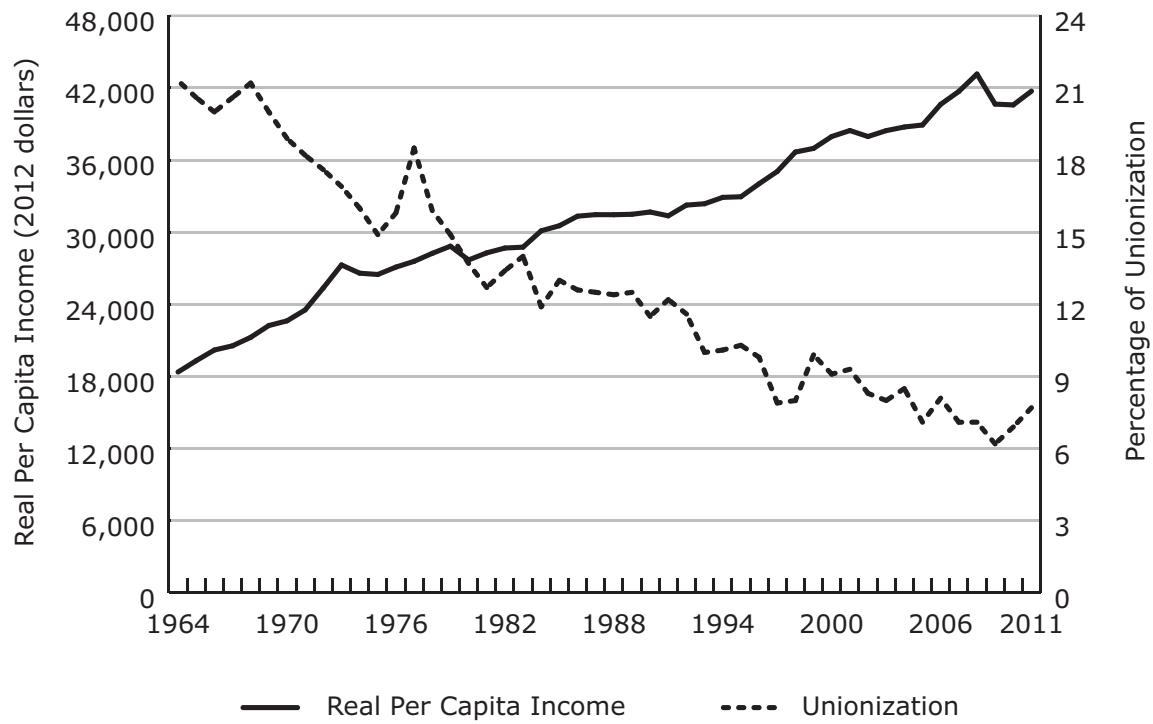
New Hampshire

1964 Real Per Capita Income (RPCI)	$ 18,827
1964 State Income Rank	25
2011 RPCI	$ 46,830
2011 State Income Rank	10
1964 Percentage Unionized	24.3 %
2011 Percentage Unionized	11.2 %
Average Percentage Unionized (1964–2011)	13.9 %
Estimated RPCI with Zero Union Membership	$ 51,388
RPCI Lost Because of Unions	$ 4,557
Percentage of Possible RPCI Lost	**8.9 %**



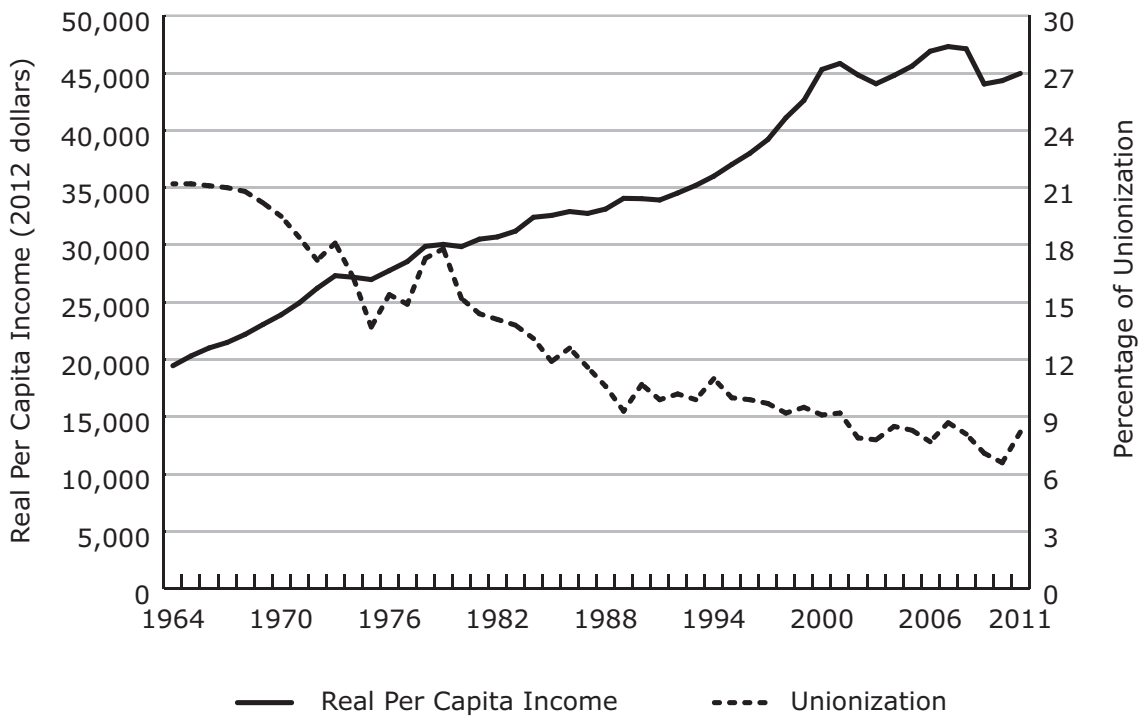
Kansas

1964 Real Per Capita Income (RPCI)	$ 18,375
1964 State Income Rank	27
2011 RPCI	$ 41,729
2011 State Income Rank	25
1964 Percentage Unionized	21.3 %
2011 Percentage Unionized	7.7 %
Average Percentage Unionized (1964–2011)	12.7 %
Estimated RPCI with Zero Union Membership	$ 45,774
RPCI Lost Because of Unions	$ 4,045
Percentage of Possible RPCI Lost	**8.8 %**



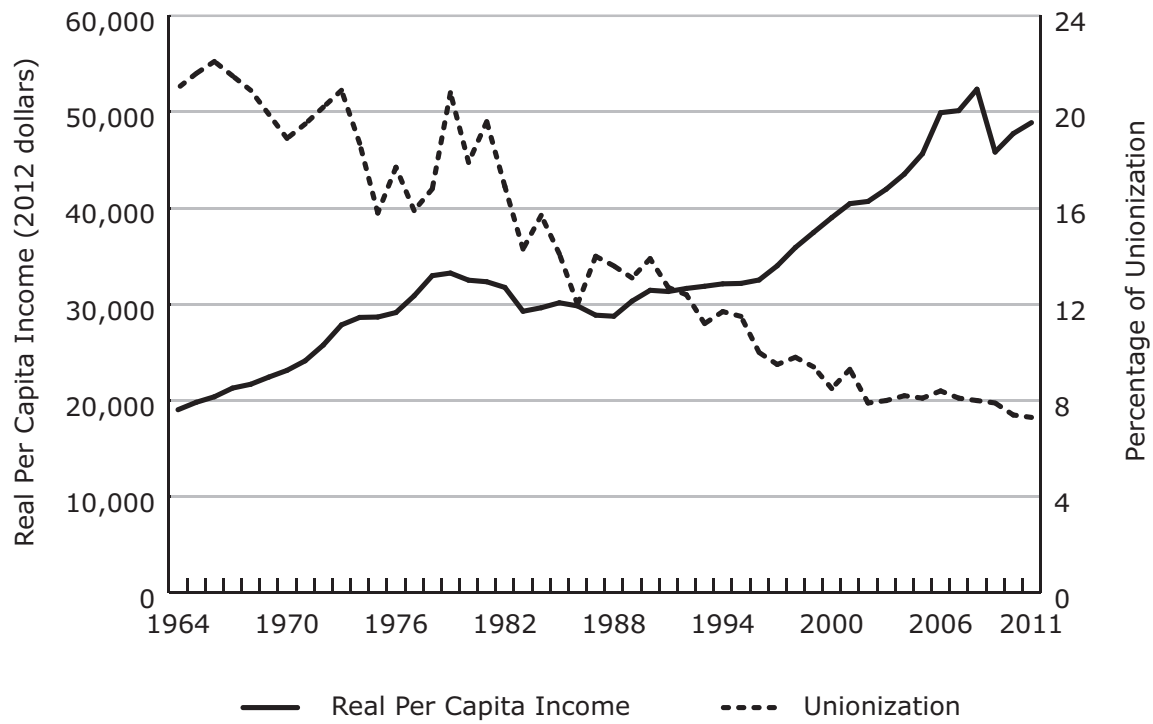
Colorado

1964 Real Per Capita Income (RPCI)	$ 19,464
1964 State Income Rank	19
2011 RPCI	$ 44,965
2011 State Income Rank	14
1964 Percentage Unionized	21.2 %
2011 Percentage Unionized	8.2 %
Average Percentage Unionized (1964–2011)	12.8 %
Estimated RPCI with Zero Union Membership	$ 49,278
RPCI Lost Because of Unions	$ 4,314
Percentage of Possible RPCI Lost	**8.8 %**



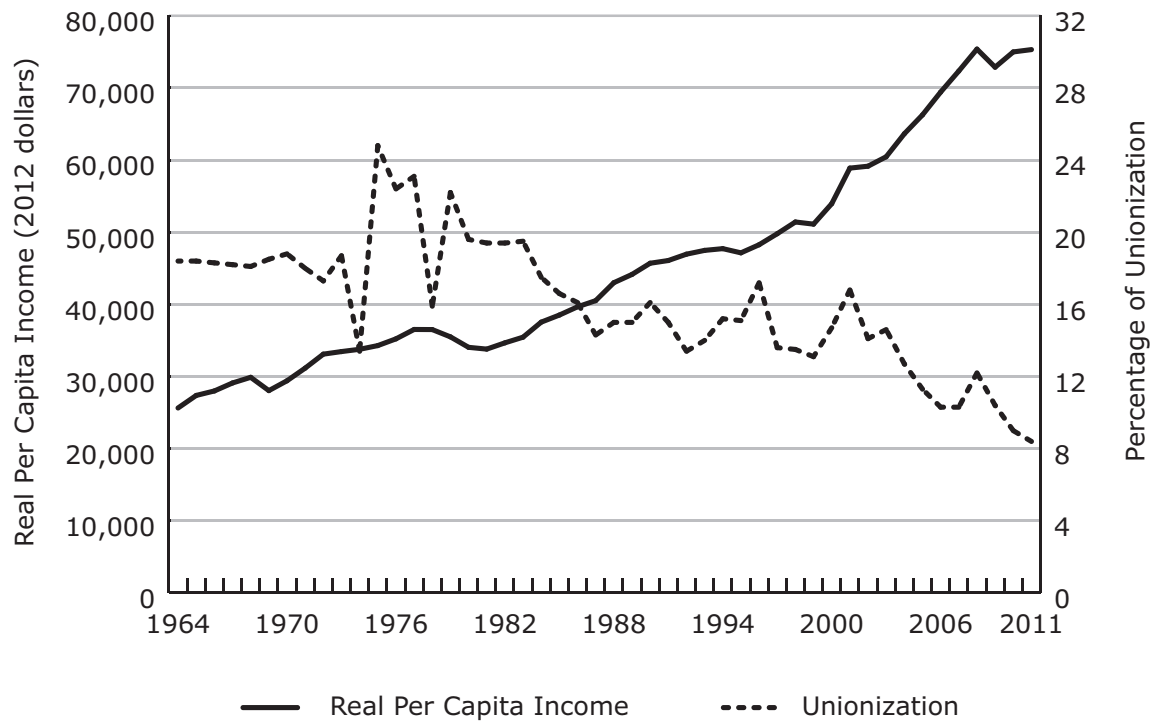
Wyoming

1964 Real Per Capita Income (RPCI)	$ 19,049
1964 State Income Rank	23
2011 RPCI	$ 48,889
2011 State Income Rank	7
1964 Percentage Unionized	21.0 %
2011 Percentage Unionized	7.3 %
Average Percentage Unionized (1964–2011)	13.9 %
Estimated RPCI with Zero Union Membership	$ 53,473
RPCI Lost Because of Unions	$ 4,584
Percentage of Possible RPCI Lost	**8.6 %**



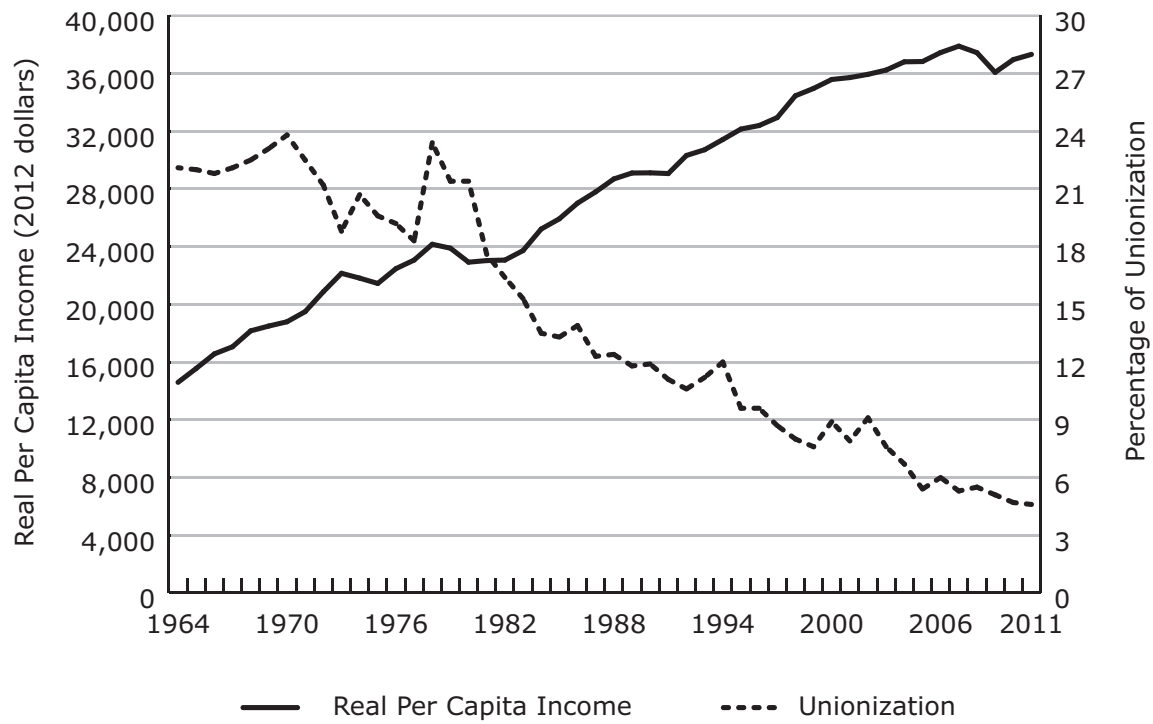
District of Columbia

1964 Real Per Capita Income (RPCI)	$ 25,640
1964 State Income Rank	1
2011 RPCI	$ 75,310
2011 State Income Rank	1
1964 Percentage Unionized	18.4 %
2011 Percentage Unionized	8.4 %
Average Percentage Unionized (1964–2011)	15.8 %
Estimated RPCI with Zero Union Membership	$ 82,361
RPCI Lost Because of Unions	$ 7,051
Percentage of Possible RPCI Lost	**8.6 %**



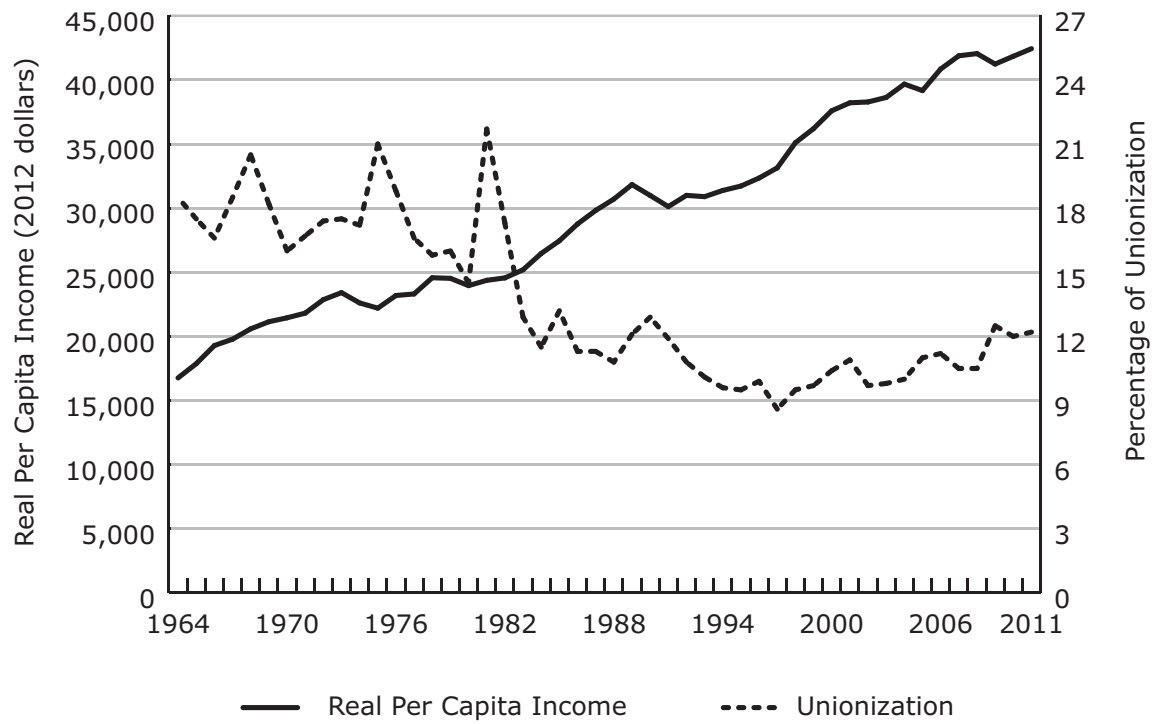
Tennessee

1964 Real Per Capita Income (RPCI)	$ 14,598
1964 State Income Rank	46
2011 RPCI	$ 37,234
2011 State Income Rank	36
1964 Percentage Unionized	22.1 %
2011 Percentage Unionized	4.6 %
Average Percentage Unionized (1964–2011)	13.7 %
Estimated RPCI with Zero Union Membership	$ 40,799
RPCI Lost Because of Unions	$ 3,476
Percentage of Possible RPCI Lost	**8.5 %**



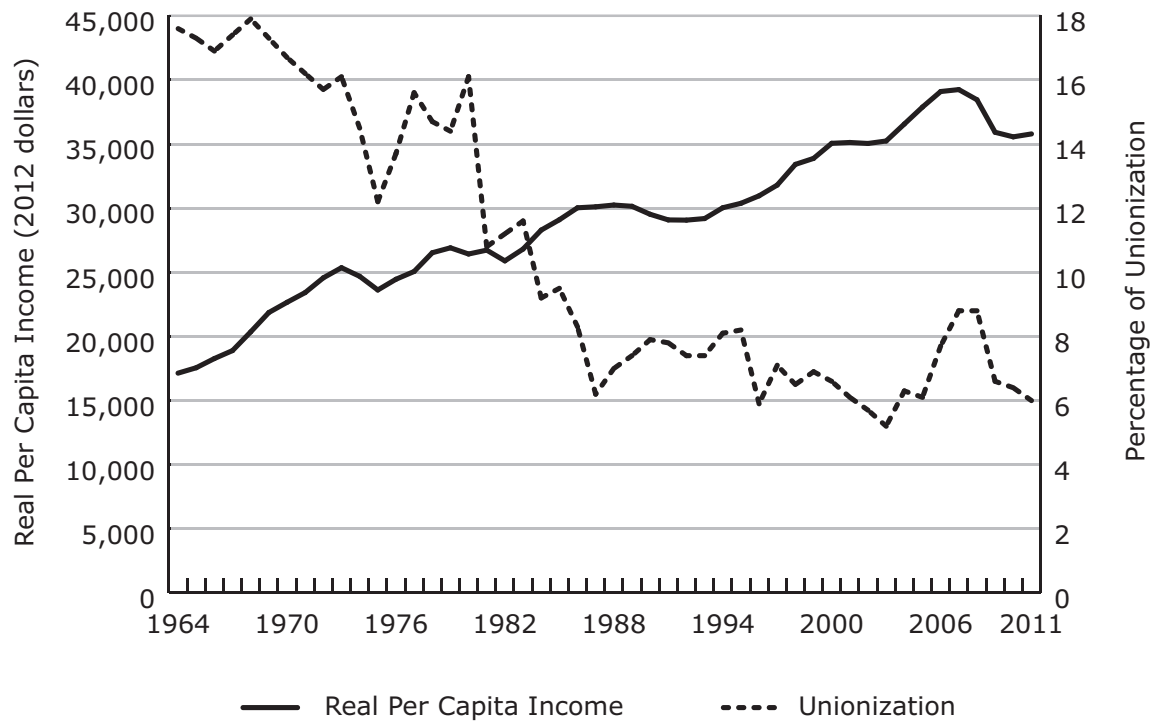
Vermont

1964 Real Per Capita Income (RPCI)	$ 16,768
1964 State Income Rank	35
2011 RPCI	$ 42,432
2011 State Income Rank	22
1964 Percentage Unionized	18.5 %
2011 Percentage Unionized	12.2 %
Average Percentage Unionized (1964–2011)	13.5 %
Estimated RPCI with Zero Union Membership	$ 46,372
RPCI Lost Because of Unions	$ 3,940
Percentage of Possible RPCI Lost	**8.5 %**



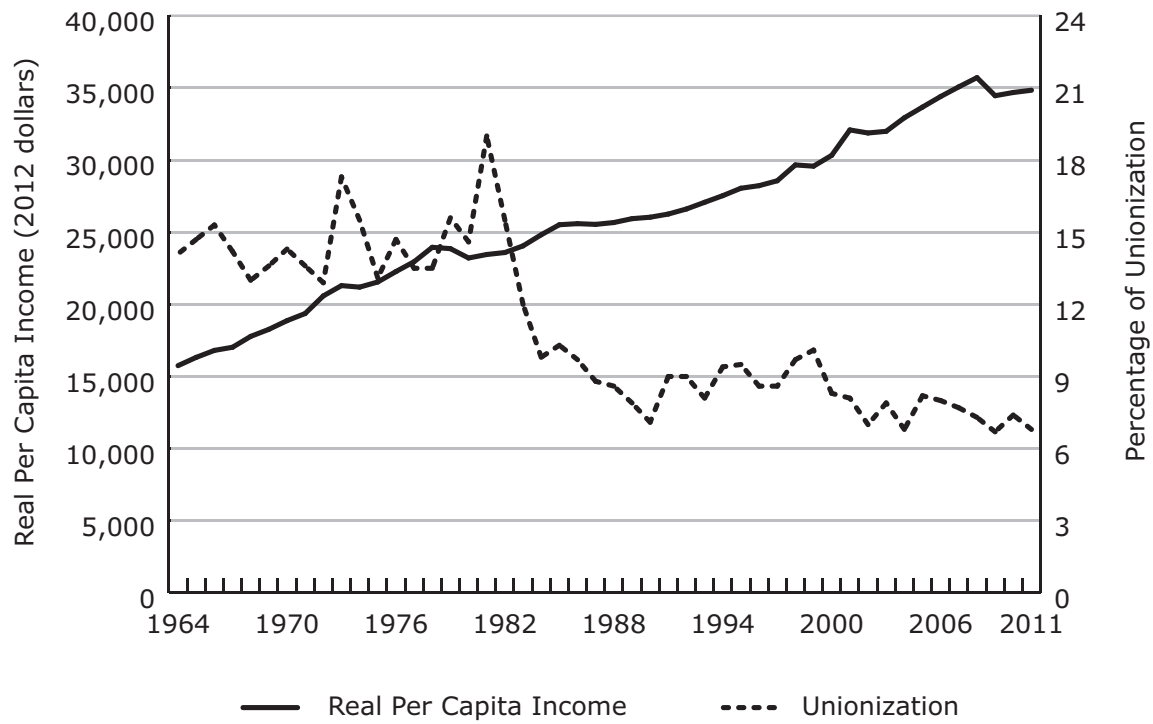
Arizona

1964 Real Per Capita Income (RPCI)	$ 17,138
1964 State Income Rank	33
2011 RPCI	$ 35,788
2011 State Income Rank	42
1964 Percentage Unionized	17.6 %
2011 Percentage Unionized	6.0 %
Average Percentage Unionized (1964–2011)	10.4 %
Estimated RPCI with Zero Union Membership	$ 38,884
RPCI Lost Because of Unions	$ 3,097
Percentage of Possible RPCI Lost	**8.0 %**



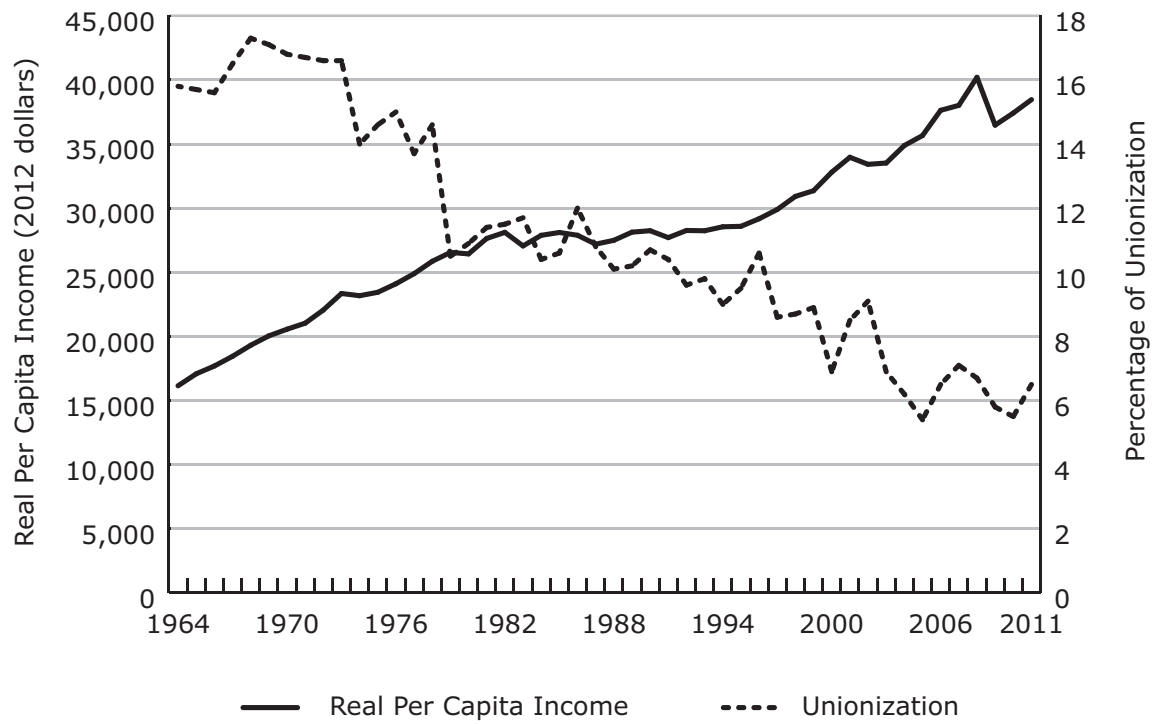
New Mexico

1964 Real Per Capita Income (RPCI)	$ 15,753
1964 State Income Rank	40
2011 RPCI	$ 34,839
2011 State Income Rank	44
1964 Percentage Unionized	14.1 %
2011 Percentage Unionized	6.8 %
Average Percentage Unionized (1964–2011)	10.8 %
Estimated RPCI with Zero Union Membership	$ 37,801
RPCI Lost Because of Unions	$ 2,962
Percentage of Possible RPCI Lost	7.8 %



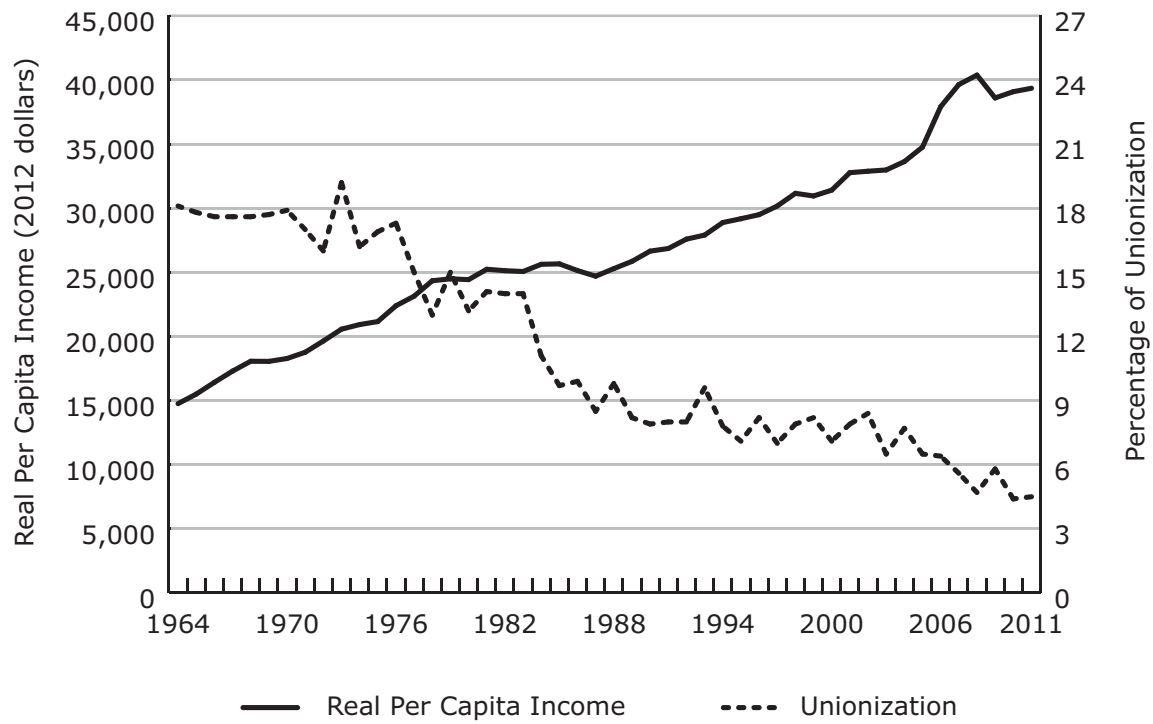
Oklahoma

1964 Real Per Capita Income (RPCI)	$ 16,153
1964 State Income Rank	38
2011 RPCI	$ 38,459
2011 State Income Rank	33
1964 Percentage Unionized	15.8 %
2011 Percentage Unionized	6.5 %
Average Percentage Unionized (1964–2011)	11.0 %
Estimated RPCI with Zero Union Membership	$ 41,554
RPCI Lost Because of Unions	$ 3,095
Percentage of Possible RPCI Lost	**7.4 %**



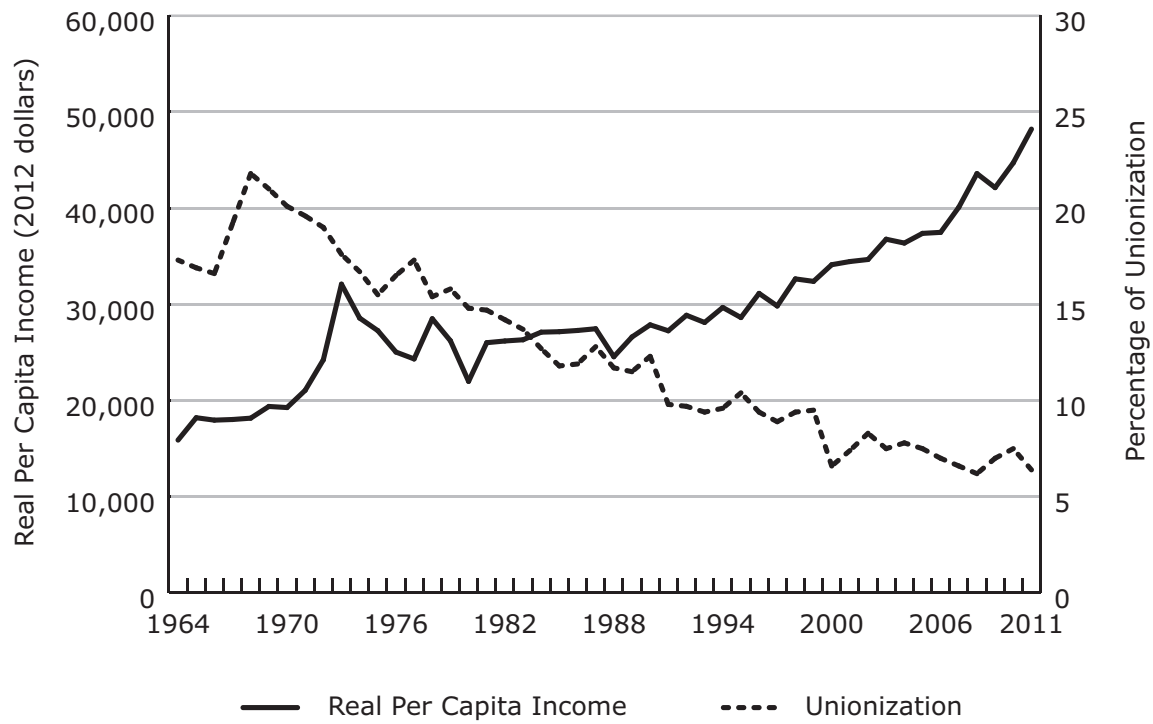
Louisiana

1964 Real Per Capita Income (RPCI)	$ 14,761
1964 State Income Rank	44
2011 RPCI	$ 39,347
2011 State Income Rank	29
1964 Percentage Unionized	18.1 %
2011 Percentage Unionized	4.5 %
Average Percentage Unionized (1964–2011)	11.1 %
Estimated RPCI with Zero Union Membership	$ 42,190
RPCI Lost Because of Unions	$ 2,843
Percentage of Possible RPCI Lost	**6.7 %**



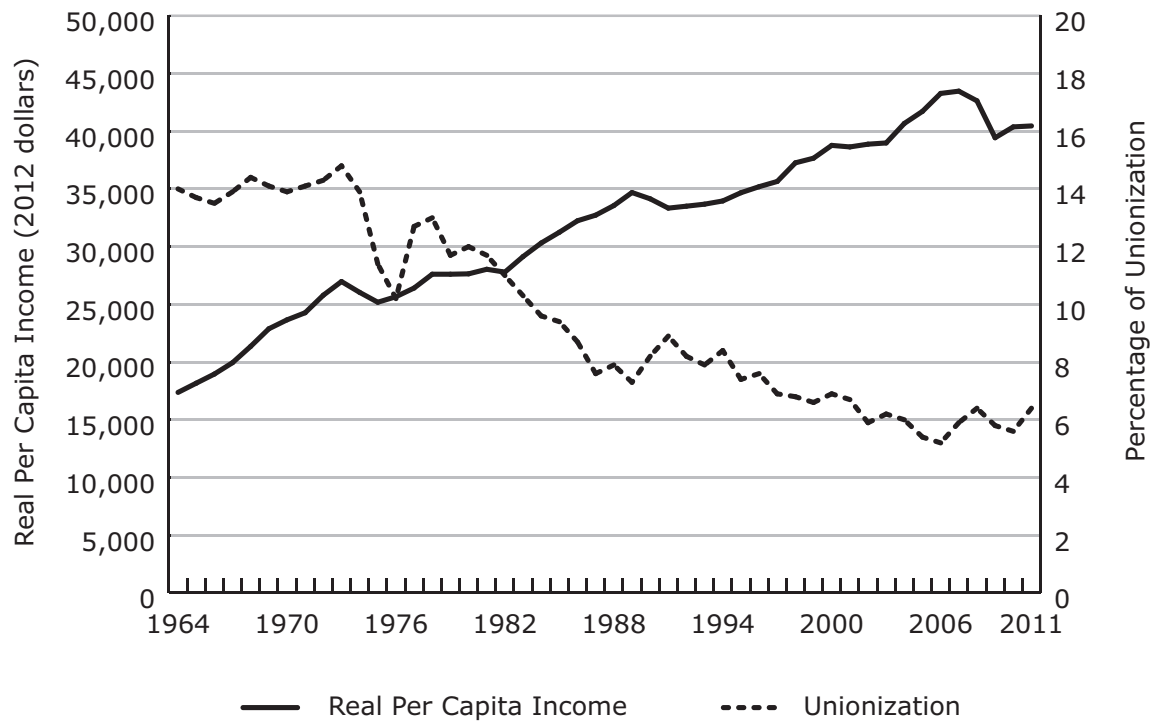
North Dakota

1964 Real Per Capita Income (RPCI)	$ 15,894
1964 State Income Rank	39
2011 RPCI	$ 48,214
2011 State Income Rank	8
1964 Percentage Unionized	17.3 %
2011 Percentage Unionized	6.4 %
Average Percentage Unionized (1964–2011)	12.4 %
Estimated RPCI with Zero Union Membership	$ 51,627
RPCI Lost Because of Unions	$ 3,414
Percentage of Possible RPCI Lost	**6.6 %**



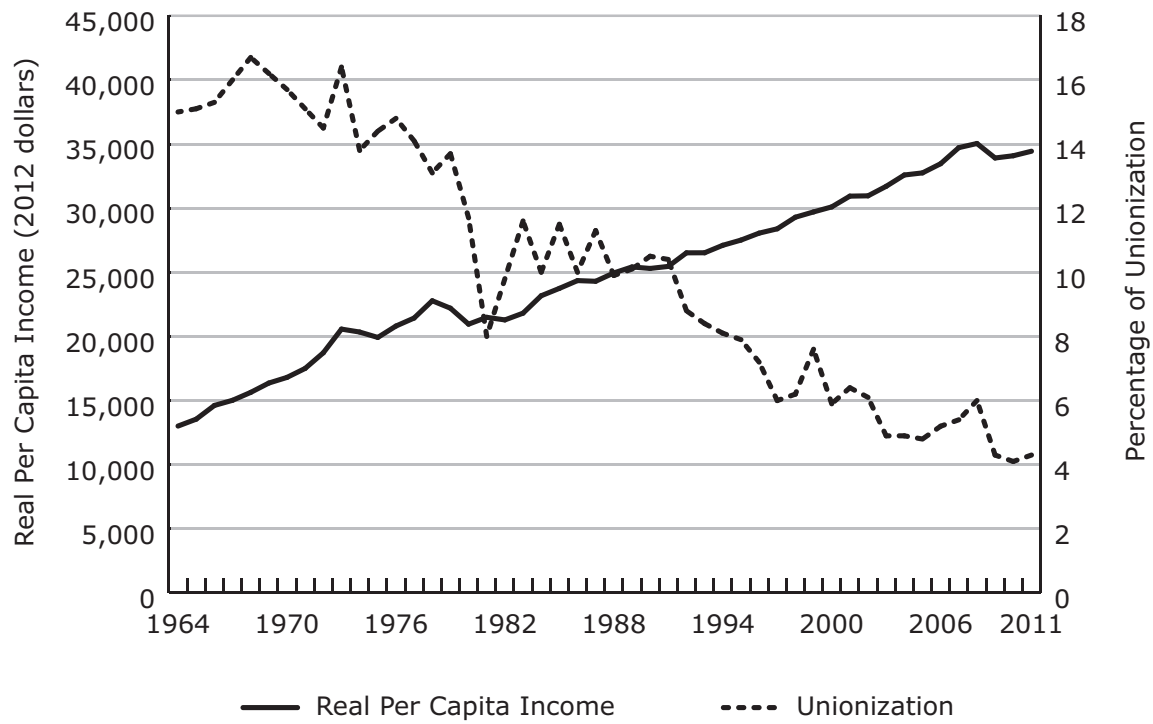
Florida

1964 Real Per Capita Income (RPCI)	$ 17,375
1964 State Income Rank	32
2011 RPCI	$ 40,456
2011 State Income Rank	27
1964 Percentage Unionized	14.0 %
2011 Percentage Unionized	6.4 %
Average Percentage Unionized (1964–2011)	9 .5 %
Estimated RPCI with Zero Union Membership	$ 43,313
RPCI Lost Because of Unions	$ 2,856
Percentage of Possible RPCI Lost	**6.6%**



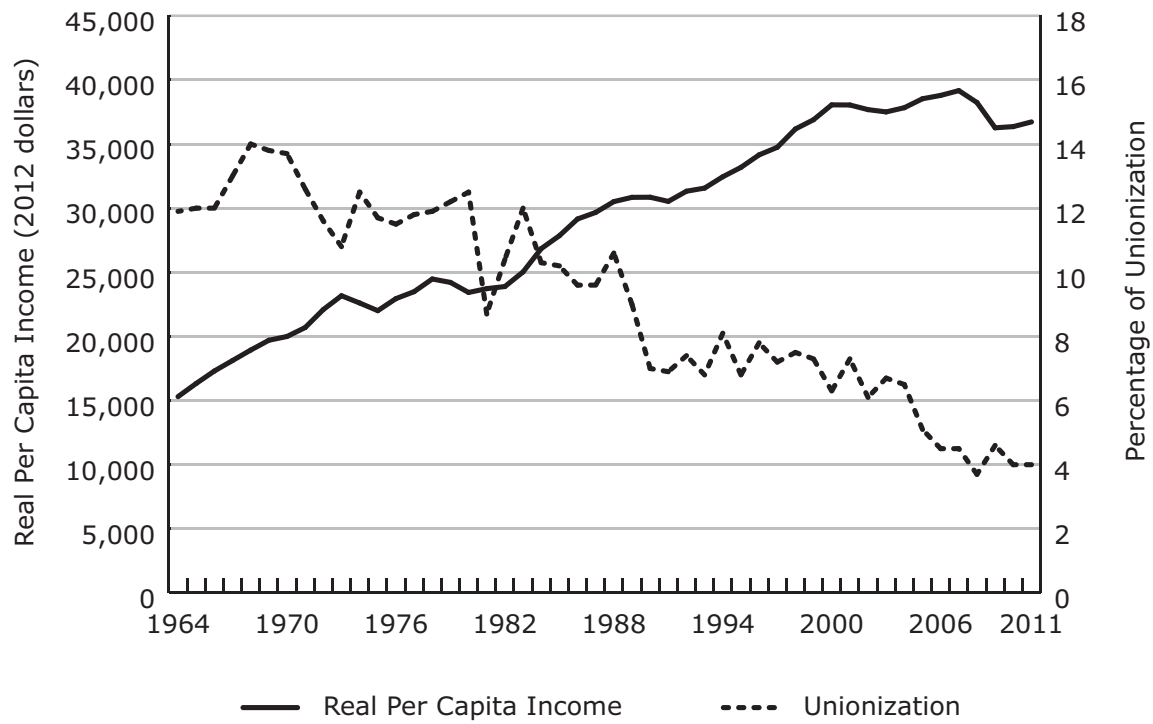
Arkansas

1964 Real Per Capita Income (RPCI)	$ 13,013
1964 State Income Rank	50
2011 RPCI	$ 34,438
2011 State Income Rank	46
1964 Percentage Unionized	15.0 %
2011 Percentage Unionized	4.3 %
Average Percentage Unionized (1964–2011)	10.0 %
Estimated RPCI with Zero Union Membership	$ 36,698
RPCI Lost Because of Unions	$ 2,260
Percentage of Possible RPCI Lost	6.2 %



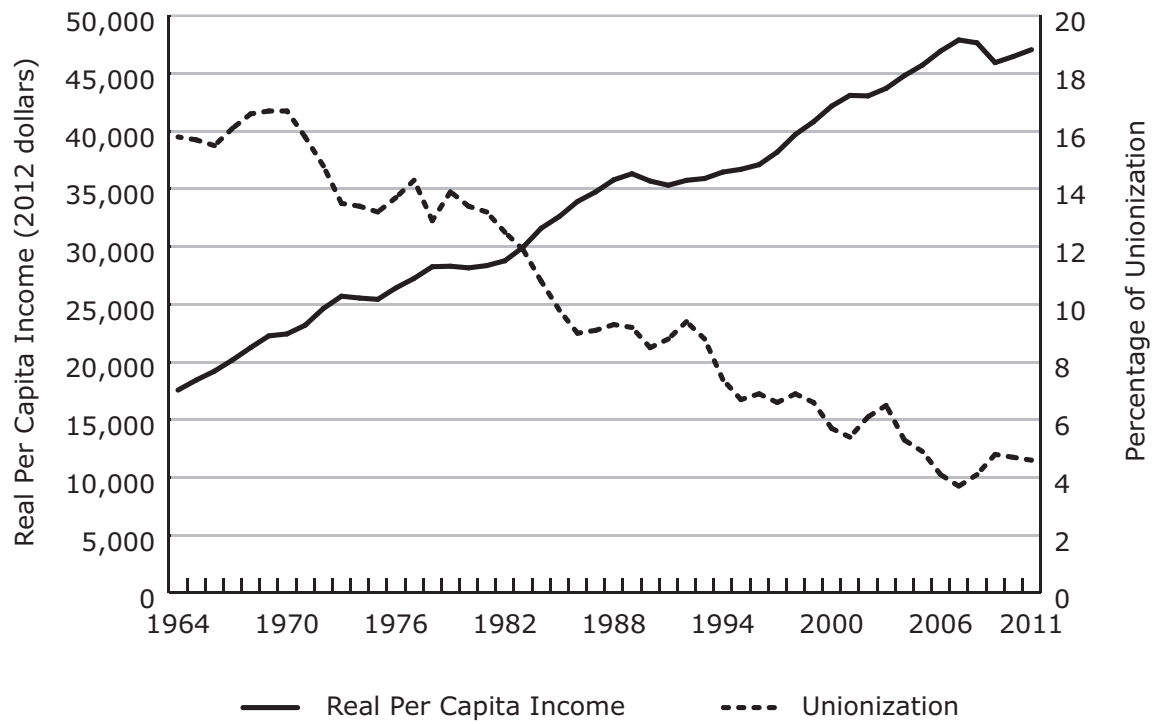
Georgia

1964 Real Per Capita Income (RPCI)	$ 15,309
1964 State Income Rank	41
2011 RPCI	$ 36,724
2011 State Income Rank	40
1964 Percentage Unionized	11.9 %
2011 Percentage Unionized	4.0 %
Average Percentage Unionized (1964–2011)	9.0 %
Estimated RPCI with Zero Union Membership	$ 39,111
RPCI Lost Because of Unions	$ 2,388
Percentage of Possible RPCI Lost	**6.1 %**



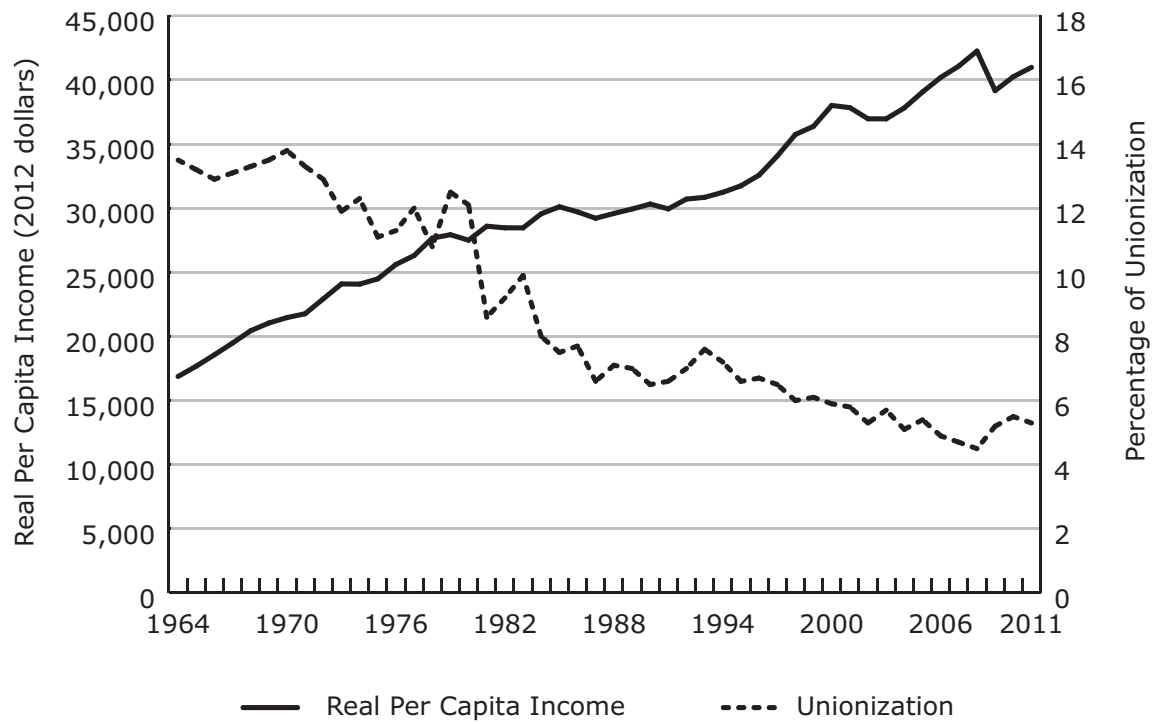
Virginia

1964 Real Per Capita Income (RPCI)	$ 17,575
1964 State Income Rank	30
2011 RPCI	$ 47,061
2011 State Income Rank	9
1964 Percentage Unionized	15.8 %
2011 Percentage Unionized	4.6 %
Average Percentage Unionized (1964–2011)	10.0 %
Estimated RPCI with Zero Union Membership	$ 50,097
RPCI Lost Because of Unions	$ 3,036
Percentage of Possible RPCI Lost	**6.1 %**



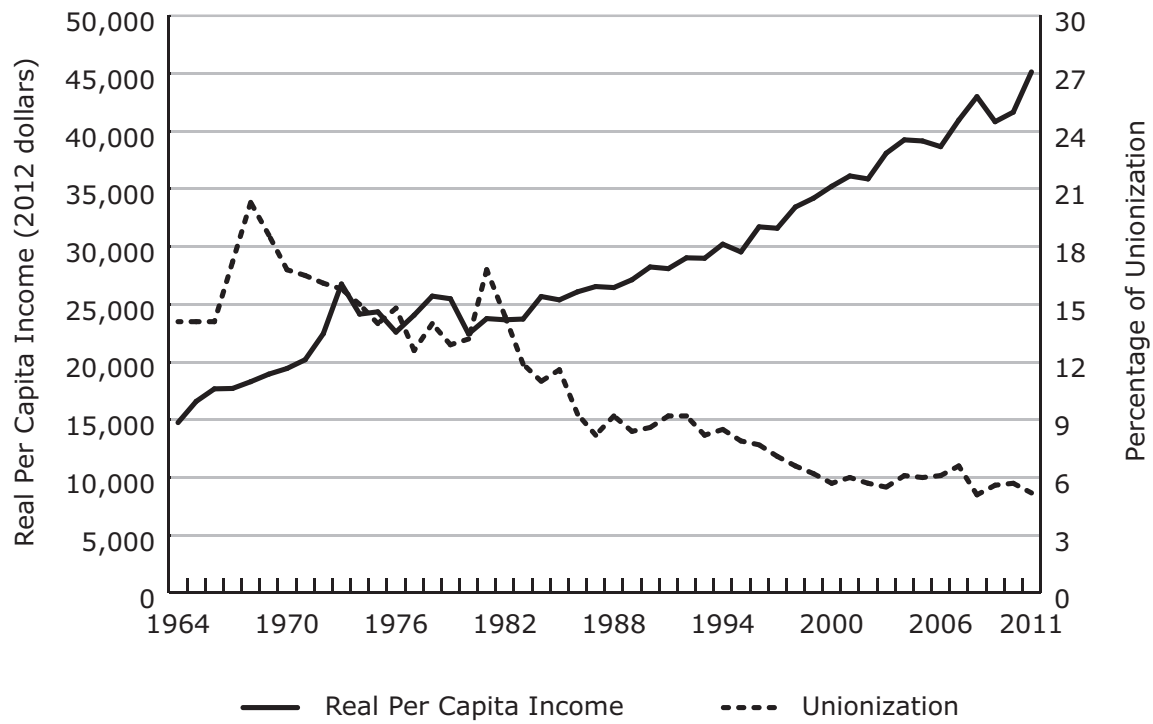
Texas

1964 Real Per Capita Income (RPCI)	$ 16,879
1964 State Income Rank	34
2011 RPCI	$ 40,978
2011 State Income Rank	26
1964 Percentage Unionized	13.5 %
2011 Percentage Unionized	5.3 %
Average Percentage Unionized (1964–2011)	8.6 %
Estimated RPCI with Zero Union Membership	$ 43,494
RPCI Lost Because of Unions	$ 2,516
Percentage of Possible RPCI Lost	**5.8 %**



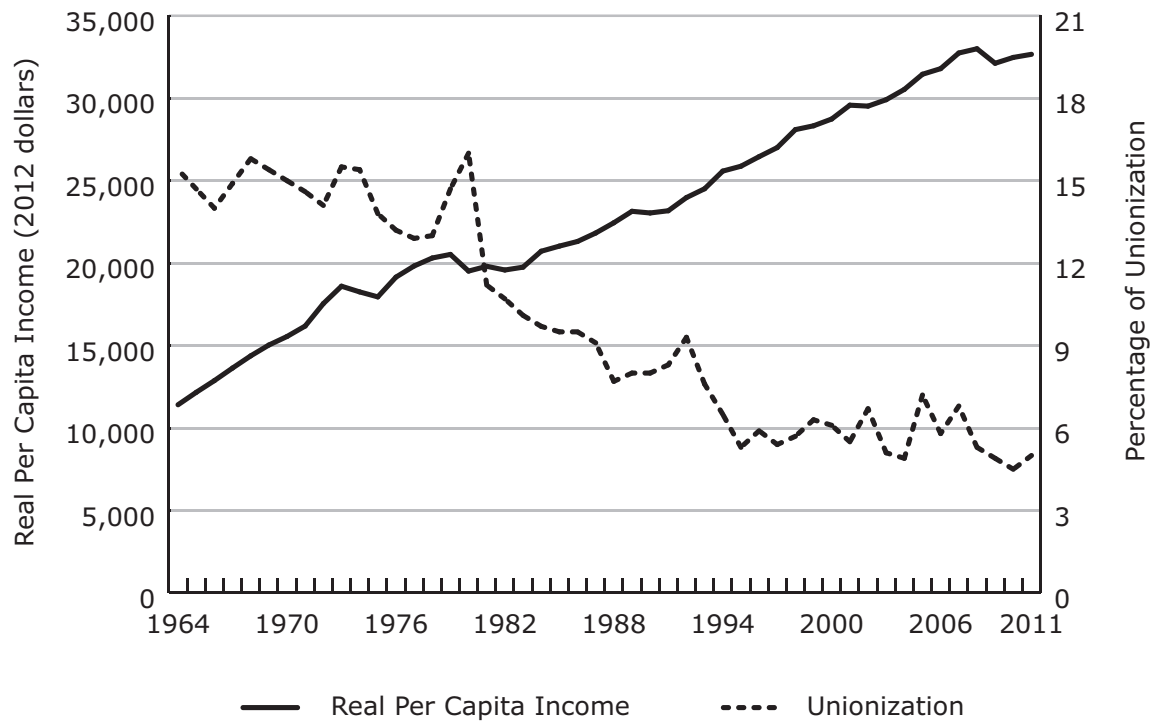
South Dakota

1964 Real Per Capita Income (RPCI)	$ 14,761
1964 State Income Rank	44
2011 RPCI	$ 45,132
2011 State Income Rank	13
1964 Percentage Unionized	14.1 %
2011 Percentage Unionized	5.2 %
Average Percentage Unionized (1964–2011)	10.5 %
Estimated RPCI with Zero Union Membership	$ 47,825
RPCI Lost Because of Unions	$ 2,693
Percentage of Possible RPCI Lost	**5.6 %**



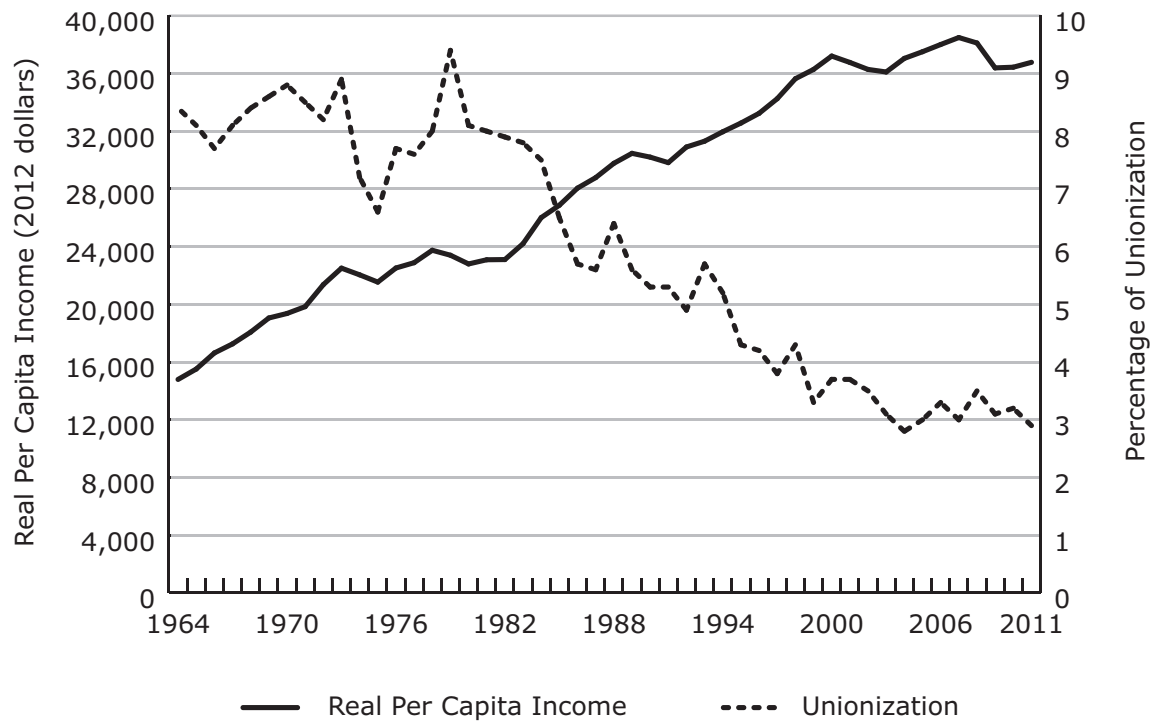
Mississippi

1964 Real Per Capita Income (RPCI)	$ 11,413
1964 State Income Rank	51
2011 RPCI	$ 32,662
2011 State Income Rank	51
1964 Percentage Unionized	15.4 %
2011 Percentage Unionized	5.0 %
Average Percentage Unionized (1964–2011)	9.7 %
Estimated RPCI with Zero Union Membership	$ 34,579
RPCI Lost Because of Unions	$ 1,917
Percentage of Possible RPCI Lost	**5.5 %**



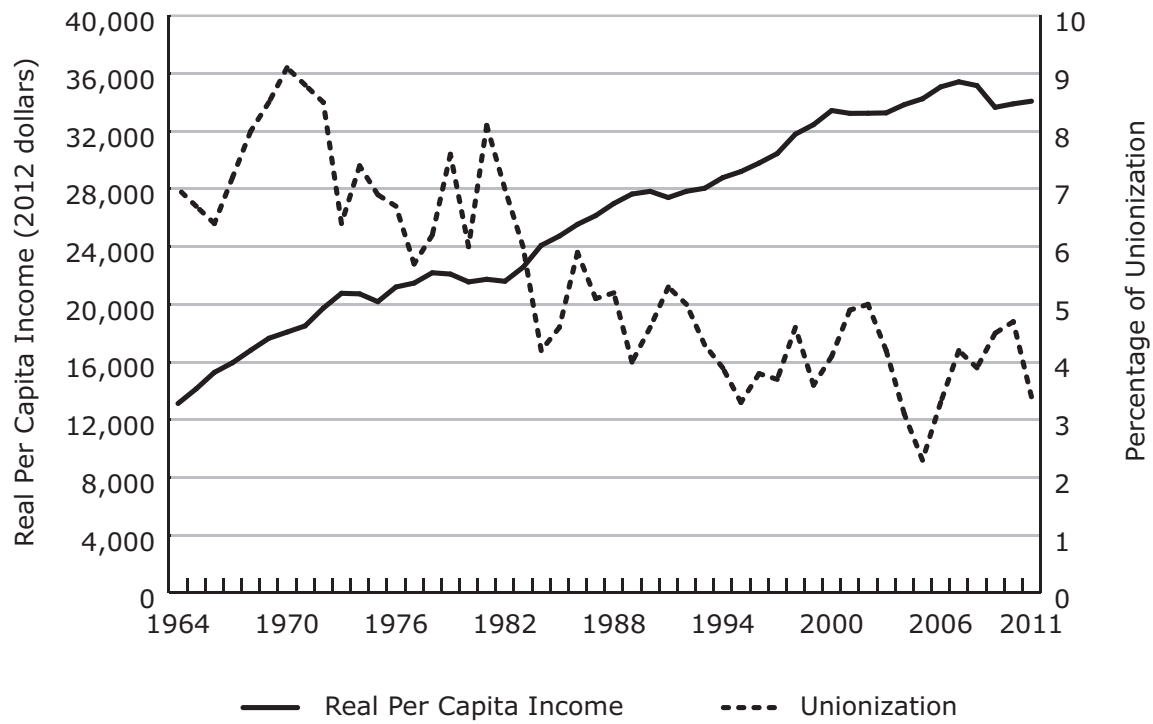
North Carolina

1964 Real Per Capita Income (RPCI)	$ 14,798
1964 State Income Rank	43
2011 RPCI	$ 36,774
2011 State Income Rank	36
1964 Percentage Unionized	8.4 %
2011 Percentage Unionized	2.9 %
Average Percentage Unionized (1964–2011)	5.9 %
Estimated RPCI with Zero Union Membership	$ 38,279
RPCI Lost Because of Unions	$ 1,506
Percentage of Possible RPCI Lost	**3.9 %**



South Carolina

1964 Real Per Capita Income (RPCI)	$ 13,131
1964 State Income Rank	49
2011 RPCI	$ 34,079
2011 State Income Rank	49
1964 Percentage Unionized	7.0 %
2011 Percentage Unionized	3.4 %
Average Percentage Unionized (1964–2011)	5.4 %
Estimated RPCI with Zero Union Membership	$ 35,317
RPCI Lost Because of Unions	$ 1,238
Percentage of Possible RPCI Lost	**3.5 %**



Notes

1. *Commonwealth v. Pullis* (Phila. Mayor's Ct. 1806), A.K.A. the *Philadelphia Cordwainers'* case.

2. 45 Mass. 111 (1842).

3. Morgan Reynolds, "A History of Labor Unions from Colonial Times to 2009," Ludwig Von Mises Institute, July 17, 2009, http://mises.org/daily/3553.

4. Bureau of the Census, *Historical Statistics of the United States: 1789–1945*, (Washington, DC: 1949), series D 1-10, D 218–223.

5. Ibid.

6. Lloyd-LaFollette Act, August 24, 1912, § 6 of the Postal Service Appropriations Act of 1912, 37 Stat. 555, 5 U.S.C. § 7511.

7. Clayton Act, Pub.L. 63–212, 38 Stat. 730, enacted October 15, 1914, codified at 15 U.S.C. §§ 12–27, 29 U.S.C. §§ 52–53).

8. Sherman Act, July 2, 1890, ch. 647, 26 Stat. 209, 15 U.S.C. §§ 1–7.

9. William Holley, Kenneth Jennings, and Roger Wolters, *The Labor Relations Process,* 10th edition (2011), p. 43.

10. Francis Russell, *A City in Terror: Calvin Coolidge and the 1919 Boston Police Strike* (1975).

11. For a more in-depth description and critique of the high-wage doctrine, see Taylor and Seglin (1999) and Lowell E. Gallaway, "Unions, the High Wage Doctrine, and Employment, *Cato Journal*, Vol. 30. No. 1 (Winter 2010), http://www.cato.org/sites/cato.org/files/serials/files/cato-journal/2010/1/cj30n1-11.pdf.

12. Gallaway (2010), pp. 199–200.

13. *New York Times*, November 22, 1929, quoted in Gallaway (2010), p. 200.

14. Ibid.

15. Real wage rates, unlike money (nominal wage rates), take into account the level of inflation and thereby determine the purchasing power of the wage earner.

16. Vedder and Gallaway (1997), Chapter 5.

17. The Davis-Bacon Act, as Amended U.S. Department of Labor Wage and Hour Division WH Publication 1246 (Revised April 2009), http://www.dol.gov/whd/regs/statutes/dbra.pdf.

18. Vedder and Gallaway, 1997, pp. 136–138.

19. 301 U.S. 1, *National Labor Relations Board v. Jones & Laughlin Steel Corp*. (No. 419), Argued: February 10, 11, 1937, Decided: April 12, 1937, 83 F.2d 998, reversed, http://www.law.cornell.edu/supct/html/historics/USSC_CR_0301_0001_ZO.html.

20. Quoted in Gallaway (2010), p. 203.

21. The elasticity of demand for labor measures how much the quantity of labor demanded by employers changes given a change in the price of labor.

22. The union wage premium refers to the differential between union and nonunion wages in the labor market.

23. For further discussion of the derivation for this expression, see Vedder and Gallaway (2002).

24. See Vedder (1997).

25. Unless otherwise noted, all statistics for state level unionization rates in this report are from Barry T. Hirsch and David A. Macpherson (2003). See http://www.unionstats.com for the most recent data.

26. Vedder and Gallaway (2002).

27. This report used the politics and college data because they are somewhat midpoints in the period analysis (but are closer to the beginning to pick up any effect that might be attributable to those factors). In doing so, this report largely follows the model in Vedder and Gallaway (2002).

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Professor Gallaway is author of 40 monographs and more than 200 articles and reviews in scholarly journals, and the books, *Manpower Economics*; *Interindustry Labor Mobility in the United States, 1957 to 1960*; *Geographic Labor Mobility in the United States, 1957 to 1960*; *Poverty in America; Poverty, Income Distribution, the Family and Public Policy* (with Richard Vedder); and *Out of Work: Unemployment and Government in Twentieth-Century America* (with Richard Vedder).

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