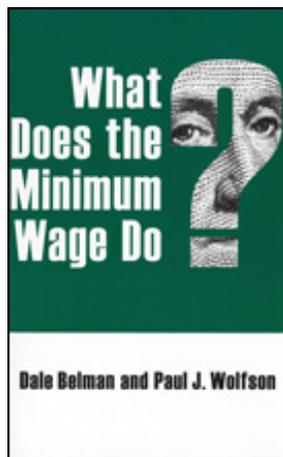

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Introduction

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What Does the Minimum Wage Do

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Introduction

The birth of the new minimum wage research (NMWR) can be dated to a conference at Cornell University held in late 1991 and the subsequent symposium that appeared in *Industrial and Labor Relations Review* (see Ehrenberg [1992] for a description of the conference and its attendees). The first period of this research came to a close nine years later. Prior to the conference, empirical research on the minimum wage had been dominated by studies that considered only the effect of the federal minimum wage on teenage employment, using aggregate time-series data. These earlier studies generally concluded that a 10 percent increase in the minimum wage is associated with a 1–3 percent decrease in teenage employment (Brown 1999). Energized by increases in the federal minimum wage in 1990, 1991, 1996, and 1997, researchers approached minimum wage issues through a variety of statistical frameworks, techniques, and data sources; explanatory economic models proliferated, as did the number of articles.

By the end of the first period in 2000, it was no longer possible to identify a dominant line of research. In this review, which primarily focuses on articles published from 2000 forward, we have considered more than 200 scholarly and policy papers relating to the minimum wage that have appeared in English since the conference. While a few are surveys, most are original analyses, and most of these are statistical in nature rather than presentations of theoretical models or survey results. This book is our attempt to make sense of the research.¹ We look at which observable, measurable variables (e.g., wages, employment, school enrollment) the minimum wage influences; how long it takes for the variables to respond to the minimum wage and the size and desirability of the effect; why the minimum wage has the results it does (and not others); and the workers most likely to be affected by changes to the minimum wage. Our emphasis is on studies that analyze data from the United States, but we also touch on studies of data from other countries: Canada, Australia, New Zealand, and the United Kingdom and other countries in Western Europe.

One set of issues revolves around who is affected by changes in the minimum wage. It is almost a given that those living in poverty are less likely to be affected than low-wage employees, since those below the poverty line, to a great extent, are not involved in the labor market (Freeman 1996). There remains an issue of who, among those who are employed and those who want to be employed, is affected when the minimum wage is increased. Among the employed, does the minimum wage affect only those who would be earning less than the minimum without it, or does it also affect those higher up the wage scale? Older minimum wage studies have generally focused on teenage workers—with their low skills and limited attachment to the labor market, it was thought that teenagers were most sensitive to the minimum wage and therefore any effect would be clearest here. While much of the NMWR examines what happens to teenagers when the minimum wage rises, many studies focus on other demographic groups with limited skills and labor market attachment, as well as workers identified specifically by their low wages, by membership in a specific demographic group (such as single mothers, young women, or immigrants), or by the industry in which they work (primarily hospitality and home care/nursing home).

Another issue relates to identifying the outcomes of minimum wage increases. As with earlier research, most NMWR focuses on the number of jobs or the probability of employment. However, there has been considerable expansion of issues, even within the realm of employment broadly defined. We review studies of the consequences for hours worked, turnover, unemployment, and labor force participation, along with studies of the effects on wages and their distribution, fringe benefits and training, prices and profitability, and the effect of the minimum wage on school enrollment.

The timing of effects of the minimum wage has become a recognized and challenging issue. How long it takes for the response to the minimum wage to play itself out is central to the effectiveness of policy. Before the NMWR, response to the minimum wage was thought to be nearly immediate. Most recent research also assumes that the response is rapid and examines only a short period immediately following an increase. Baker, Benjamin, and Stanger (1999), in a look at the Canadian experience with a minimum wage, argue that such assumptions result in missing much of the response, which can take up to six years. Studies of timing require careful attention to dynamics, which is generally

absent in the NMWR. The few analyses of this issue (including some of our own work, such as Belman and Wolfson [2010]) suggest that the response is not entirely immediate but ends well before six years.

Assessing the size of effects is also important to understanding the minimum wage. By and large, the size of the impact of an increase in a minimum wage is related only to the issue of job loss, and the observations are all over the map. For over a decade, the minimum wage elasticity of employment was widely believed to be between -0.3 and -0.1 , with greater faith in values closer to zero.² This accord no longer exists, with the range of estimates for U.S. teenagers extending “from well below -1.0 to well above zero” (Neumark and Wascher 2007, p. 107). In addition, the issue of the magnitude of the impact is composed of at least two distinct parts: 1) does the wide range of results apply to all outcomes or only to employment, and 2) are patterns in the magnitude of the response related to who is under study, the methods used in the study, measurement issues, or other factors?

Researchers have spent a great deal of effort developing models to explain the results just mentioned, but no agreement yet exists on which, if any, should replace the simple supply and demand model of the labor market that Stigler (1946) expounded. Card and Krueger (1995) devote a chapter to various theoretical models before leaning toward one in which employers have market power in the labor market, enabling them, up to a point, to set wages rather than take them as given by the market. They conclude that “this . . . is inconsistent with the proposition that the *standard* model is always correct” (p. 383). We take no stand on which model is most useful, much less settle the question. Rather, we present three general models discussed in the literature—the competitive labor market, the monopsony labor market, and search models of the labor market—and show how they relate to the issues at hand.

MINIMUM WAGE AND THE DISTRIBUTION OF HOURLY EARNINGS

As much as the minimum wage is an issue of importance in policy circles, few of those involved in the analysis or debate have had recent experience with the minimum wage. Many may have earned the

minimum wage or close to the minimum wage when in high school or college, but that was typically many years ago. To many of those involved in this issue, the minimum wage would seem very low and unlikely to affect many in the labor force.

Contrary to this view, the minimum wage and jobs that pay close to the minimum wage play an important role in the U.S. labor force. Research reviewed in this monograph indicates that changes in the minimum wage affect 20–30 percent of the labor force. As such, considering minimum wage policies and their effect is more than a scholastic exercise—they may affect a large portion of the labor force. We consider in detail the place in the earnings distribution of the minimum wage itself and near minimum wage earnings in the chapter on wages and earnings, but we briefly discuss this now.

Table 1.1 provides three views on the importance of the minimum wage in the distribution of wages and hourly earnings. The first, panel A, considers the wages associated with points in the distribution of individual wages in 2010. Panel B displays the percentiles of the wage distribution associated with specific hourly wages. Panel C considers the proportion of the employed earning no more than a percentage of the minimum wage in their state. In each panel, the left-hand column of data is for individuals who are paid by the hour, and the right-hand column adds employed salaried workers. The distributions are limited to those who report that they are not enrolled in school. Individuals who report being enrolled in school are fairly evenly distributed across family incomes. By removing this group from our data, we improve the association between being employed near the minimum wage and being from a lower-income household, and thereby improve the association between the minimum wage and economic need.

Panel A displays the association between individuals' place in the national distribution of wages and the wage they earn. Those at the 5th percentile for wages or hourly earnings are very close to the federal minimum of \$7.25 and below the minimum wage for some states. At the 10th percentile, those paid by the hour earn \$8.00, 110 percent of the federal minimum wage; for all employees the 10th percentile is \$8.50. Twenty percent of wage earners earn \$9.25 or less; 20 percent of all employees earn \$10.00 or less. Thirty percent of wage earners earn no more than \$10.25, \$3.00 per hour more than the federal minimum; the 30th percentile for all employees is \$12.00. Considering the distribu-

Table 1.1 The Distribution of Hourly Wages and Hourly Earnings in 2010 for Individuals Not Enrolled in High School or College

Panel A: Earnings by percentiles			Panel B: Percentiles by wage or hourly earnings		
Percentile	Wage of those paid hourly at this percentile (\$)	Wage at this percentile including salaried workers (\$)	Wage (\$) or hourly earnings	Percent of those paid by the hour below	Percent below including salaried workers
5th	7.50	7.50	< 7.00	1.2	1.8
10th	8.00	8.50	< 7.51 (minimum wage)	4.7	4.1
20th	9.25	10.00	< 8.00 (1.10% of federal min.)	7.3	6.0
30th	10.25	12.00	< 9.00 (1.25% of federal min.)	16.7	12.5
40th	12.00	14.00	< 10.00	24.7	17.8
50th (median)	13.50	16.34	< 11.00 (150% of federal min.)	34.9	24.9

Panel C: The distribution of hourly wages and earnings relative to the effective minimum wage in 2010		
	Percent of those paid by the hour below minimum wage	Percent below minimum wage including salaried workers
Less than the minimum wage	2.9	3.0
At the minimum wage	5.9	4.8
Less than 110% of the minimum wage	10.7	8.1
Less than 125% of the minimum wage	21.9	15.7
No more than 150% of the minimum wage	36.4	26.0

NOTE: Calculations of average hourly earnings (inclusive of salaried workers) does not include those who report variable hours.
 SOURCE: Authors' calculations from the 2010 Outgoing Rotation File of the Current Population Survey.

tion for all employees, the more complete of the two distributions, only 1 in 20 employees works at or very close to the minimum wage, but 1 out of 10 employees who are not also students earn within \$1.25 of the minimum wage, and 1 out of 5 employees who are not also students earn within \$2.75 of the minimum wage.

Panel B provides a different view of the same data. Here we calculate the percentage of our sample who work at or below particular wage levels. For example, 4 percent of all employees (the right-hand data column) work at or below the federal minimum wage (allowing for rounding). Six percent earn no more than 1.1 times the federal minimum, 13 percent earn no more than 1.25 times the federal minimum wage, and 1 out of 4 employees work for no more than \$11.00 per hour, 1.5 times the federal minimum wage. Research reviewed in this volume suggests that increases in the minimum wage affect the earnings of those in the lower quarter of the earnings distribution; and we might then expect that those earning up to \$11 per hour would see their wages rise in response to the minimum wage.

A limitation of Panels A and B is that we compared wages to the federal minimum in a period when many states have minimum wages above the federal minimum wage. In Panel C we calculate the ratio of individuals' wages and hourly earnings with respect to the higher of the federal or state minimum wage, often called the *effective* minimum wage, and then create a distribution from this ratio. Again, focusing on the more complete distribution, that for all employees (right-hand column), 8 percent of the nonstudent workforce are employed in jobs paying no more than the minimum wage, 8 percent are in jobs paying no more than 1.1 times the minimum wage, 16 percent are paid no more than 1.25 times the effective minimum, and 25 percent are paid no more than 1.5 times the effective minimum. The proportion earning no more than each of the levels above the effective minimum is, of course, substantially higher for those on hourly pay. Again, although the proportion of employees earning exactly the minimum wage is modest, the proportion earning close to the minimum wage comprises a substantial proportion of the labor force. Given evidence that increases in the minimum wage extend to some of those whose earnings are above the new minimum wage, and that the minimum wage is a benchmark for those earning above the minimum, the minimum wage can affect a substantial proportion of the employed labor force.³

Another view to consider is the ability of those earning the minimum wage to meet their basic needs. To do this, we consider a household with either one or two individuals working full time at the minimum wage, and compare its total earnings to three standards of income adequacy: 1) the poverty line, 2) the income limit for qualifying for food stamps, and 3) a basic family budget provided by the Economic Policy Institute (EPI) (Bernstein and Lin 2008). The latter measure updates a budget developed by the Bureau of Labor Statistics, which compiled the costs of essentials such as housing, transportation, food, and like items. We also consider a household with one or two members earning 150 percent of the minimum wage, a point near the upper limit at which wages respond to changes in the minimum wage.

The upper panel of Table 1.2 provides calculations of family income with one and two earners who earn either the minimum wage or 150 percent of the minimum wage. In the first row, the household has either one or two earners working full time, 2000 hours, at the current federal minimum wage. If there is only one earner, the annual earnings for a 2,000-hour work year are \$14,500; if two, \$29,000. The second row provides annual household income if a household has one or two individuals working full time in positions that pay 150 percent of the minimum wage. In this case, household earnings are \$21,750 and \$43,500, respectively.

The second, middle panel, considers two common measures of income adequacy, the poverty line and food stamp eligibility, for families of between one and four members.⁴ Poverty thresholds are used to evaluate the extent of serious economic deprivation in our society and determine eligibility for income maintenance programs. To establish the adequacy of the minimum wage in providing an income that moves households beyond this threshold, we can compare our annual earnings estimates from the upper panel to the poverty threshold for households of various sizes. For example, comparing the 2012 federal poverty threshold to our annual income calculations for households earning exactly the minimum wage, we find that a single-earner household is above the poverty line for a single-person household, at the poverty line for a two-person household with no other income, and below the poverty line for a three- or four-person household. With two minimum wage earners, the household income is well above the poverty line for even a four-person family. A household with one member employed

Table 1.2 How the Minimum Wage Relates to Measures of Income Adequacy

Family earnings if family members work 2,000 hours				
	One earner (\$)		Two earners (\$)	
Earners employed full time at minimum wage	14,500		29,000	
Earners employed at 150% of the federal minimum wage	21,750		43,500	
Measures of income adequacy				
Number of family members	1	2	3	4
Federal poverty threshold (\$, 2011)	10,890	14,710	18,530	22,350
Food Stamp eligibility (\$)	14,157	19,123	24,089	29,055
Low family budget (2007)				
	1 adult, 1 child	1 adult, 2 children	2 adults, 1 child	2 adults, 2 children
Utah (rural) (\$)	26,089	32,961	33,358	39,125
Utah (Salt Lake City) (\$)	31,898	38,769	37,933	43,499

SOURCE: Bernstein and Lin (2008). Food Stamp eligibility guidelines: <http://www.fns.usda.gov/snap/eligibility#income> (accessed March 18, 2014). Health and Human Services poverty guidelines: <http://aspe.hhs.gov/poverty/11poverty.shtml> (accessed March 18, 2014).

full time at 150 percent of the minimum wage comes close to exceeding the poverty line for a family of four, and, with two earners, household income is well in excess of the poverty line for even a family of four.

Food stamp eligibility is a second measure of whether a family is earning enough to avoid serious economic deprivation.⁵ A one-member household whose member earns the minimum wage is only \$343 above the income limit for food stamps. Larger households without additional earners are between \$4,623 and \$14,555 below the limit on food stamp eligibility. Households with the income from two people earning just the minimum wage are slightly below the limit (that is, eligible for food stamps) if they have four members, and above the limit with only three. A household with a single earner who earns 150 percent of the minimum wage (at 40 hours per week or 2,000 hours per year) is below the food stamp limit for a household of three or more. The household of

four is not eligible for food stamps if it has two full-time earners with wages equal to 150 percent of the minimum wage. Just as in the case of the poverty line, full-time earnings at the minimum wage help move a household above the threshold, and earnings of 150 percent of the minimum wage on an annual basis substantially improves the likelihood that a household would be above the threshold for food stamps.

An alternative measure is a basic family budget, the income a family needs to secure safe and decent-yet-modest living standards. The Bureau of Labor Statistics developed the basic family budget as part of a broader set of standard-of-living measures, which were published annually from 1966 to 1979 (the program was discontinued after 1979; see Johnson, Rogers, and Tan [2001]). The basic family budget is the income that a household needs for a nutritionally adequate diet, shelter, clothing, and transportation. The EPI updated this basic budget in 2007. It includes the cost of health insurance, renting shelter at the 40th percentile of the rental housing distribution in the area, child care, limited necessities, and taxes, but it does not include savings of any type, restaurant meals, emergency funds, or insurance to cover emergencies. EPI calculates this budget for rural areas and for the metropolitan statistical areas of each state. We use basic family budgets for Utah, the state that has a median income closest to the U.S. median family income. Table 1.2 provides the 2007 basic budgets for rural areas and for Salt Lake City. The budgets are calculated for one- and two-adult households; all households include at least one child.

Households in which the earners only make the minimum wage do not net enough for the basic family budget, even when there are two working adults. The maximum income earned by two adults employed at the minimum wage is \$29,000. The minimum income required for the modest but decent basic budget in Utah is \$33,358; in Salt Lake City it is \$37,933. The result is substantially better if the adults are earning 150 percent of the minimum wage. A single earner is still not able to earn a sufficient income to meet any of the basic family budgets, even in rural areas. A two-earner household earns somewhat more than the rural basic family income, and just at the level of a basic family income in Salt Lake City.

In summary, a large proportion of the labor force works at or relatively close to the minimum wage. While only about 1 in 20 nonstudent employees work at no more than 110 percent of the minimum wage,

almost 1 in 6 earn no more than 125 percent of the effective minimum wage, and better than 1 in 4 earn no more than 150 percent of the effective minimum. Having a single minimum wage earner does not assure any but the smallest households of incomes above the thresholds for economic deprivation, but having two full-time minimum wage earners moves households above this mark. With two individuals earning 150 percent of the minimum wage, the representative family of four moves into the ranks of those living at a safe and decent standard of living.

THREE LABOR MARKET MODELS USED IN NMWR

Competitive

Relying on the simplest and most widely used economic model to analyze the labor market leads to the conclusion that whenever the minimum wage results in higher wages, someone who would have been employed, in the absence of the minimum wage at a wage less than the minimum wage, must instead now be out of work. This is easily seen in

Figure 1.1 Competitive Labor Market with a Minimum Wage

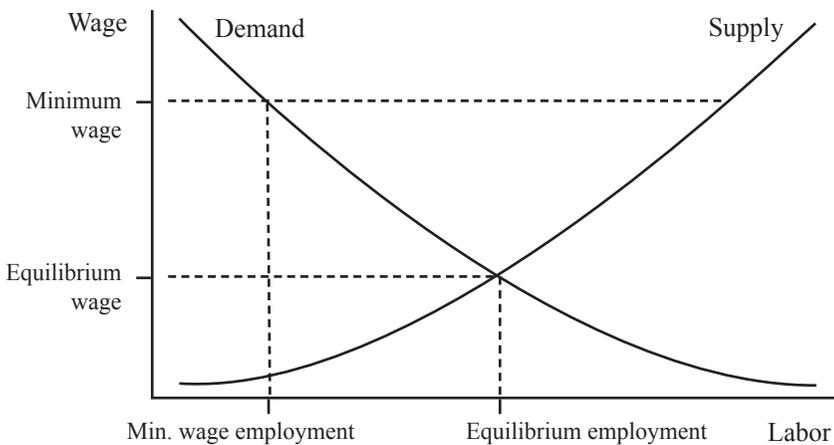


Figure 1.1, which shows the demand for labor increasing as the wage decreases, and the supply of labor increasing as the wage increases. In the absence of a minimum wage, their intersection indicates how many people will be working, indicated by *equilibrium employment*, and the wage that they will receive, the *equilibrium wage*. In this analysis there are many firms, none large enough to have a detectible effect on the labor market by itself, and there are many prospective employees, none of whom individually have any effect on the wage or employment. Each firm hires just to the point where if it employed one worker more or fewer, profits would be lower. If there is a minimum wage that exceeds the equilibrium wage, more people will want jobs, but firms will not want to employ as many. Both of these facts can be seen where the dashed line indicating the minimum wage intersects the supply and demand curves. Because there is no compulsion to hire but there is to pay at least the minimum wage, the wage will be higher, but there will be fewer jobs than in the absence of a minimum wage.

Before moving on to the next model, an explanation is required to explain the derivation of these demand and supply curves and to make the two analyses comparable. The marginal product of labor (MPL) for each firm is defined as the increase in total output that is associated with employment of the last, or marginal, worker: $MPL(N) = Q(N) - Q(N - 1)$, where $Q(N)$ is the amount of output the firm produces when employing N workers. The marginal cost of labor (MCL) is the increase in total payroll from employing the marginal worker: $MCL = W(N) - W(N - 1)$, where W is the total payroll when N workers are employed. Both must be measured in the same units if they are to be compared, so let both be measured in money terms (dollars), and let $R(N)$ be the firm's revenue when it employs N workers, net of all costs of production other than labor (materials, energy, and so forth).

Deriving the industry or aggregate demand curve requires working backward. Each firm can calculate its MPL for each level of employment, each value of N . The labor demand curve is the horizontal sum of the individual firm MPL curves. That is, for each value of the wage, we find the level of employment for each firm that equates the MPL to the wage, and add all those values of employment. Doing this for all values of the wage gives the demand curve. The equilibrium wage is the value that equates this sum, total labor demanded, to the corresponding value of the supply curve. The way the market is considered to work is

that it is already functioning when each firm enters the market. There is already an equilibrium wage that the entering firm can see, and the firm knows it must pay that wage if it is to hire any employees. It will hire employees to the point where the MPL equals the equilibrium wage.⁶ Because each firm is small, and because each firm's impact on the market is not detectible, its decisions have no effect on the equilibrium wage, and the firm can hire as many or as few workers as it wants at this wage. The equilibrium wage is its MCL; it hires to the point that $MPL = MCL = \text{equilibrium wage}$. A competitive market is at one logical extreme.

Monopsony

Another labor market model is *monopsony*, in which only one firm is in the labor market, appropriately defined: only one firm that hires teenagers, for instance. Here, the competitive assumption is replaced by the assumption that the single firm recognizes its effect on wages, and that if it wants to hire an additional worker, it must not only pay a higher wage to attract that one, it must also raise wages for all current employees.

Like the competitive firm, the monopsonist hires until $MPL = MCL$, but unlike the competitive firm, the wage necessary to attract the desired amount of labor is less than the MCL (because in raising the wage to attract an additional worker it must also raise wages to that level for all current employees), so it pays a lower wage. This is graphed in Figure 1.2. Equilibrium employment here is less than it would be if the monopsonist did not recognize its effect on wages; if the monopsonist did not recognize this effect, the equilibrium level of employment would be the same as in the competitive model, where $MPL = \text{supply}$.

Figure 1.3 shows what may happen when a minimum wage is imposed on a monopsony labor market. Because the employer must pay at least the minimum wage to all its employees, its MCL equals the minimum wage for all levels of employment less than some value (labeled minimum wage employment). The MCL exceeds the minimum wage only at employment levels higher than this, where a higher wage is necessary to attract that much labor. In Figure 1.3, the relevant MCL schedule is indicated with a solid line, and the one that is relevant only in the absence of a minimum wage is indicated with a dotted line. The

Figure 1.2 Monopsony Labor Market with No Minimum Wage

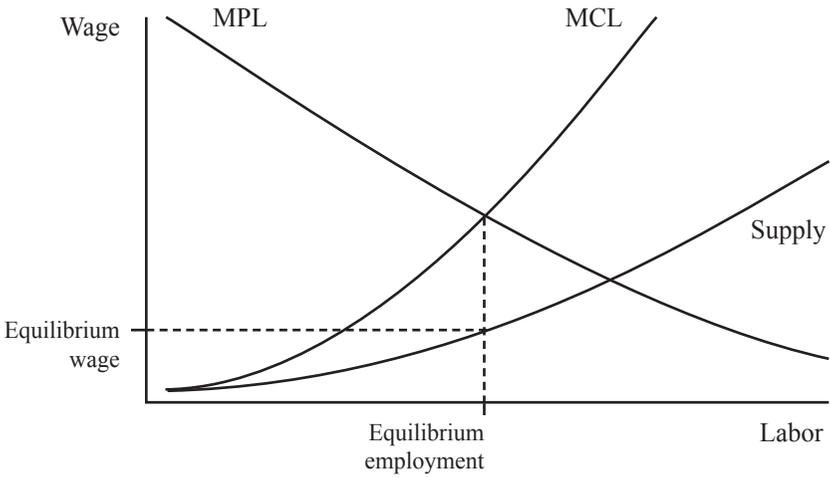
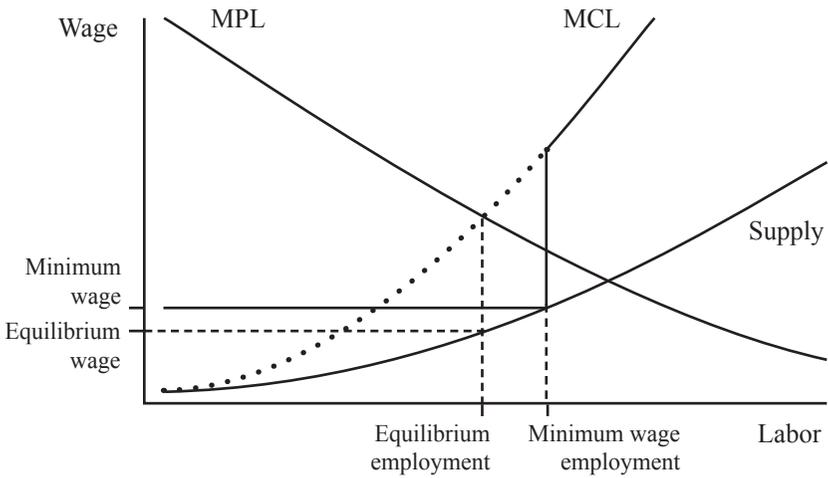


Figure 1.3 Monopsony Labor Market with a Minimum Wage



monopsony firm once again hires until the further hiring would raise the MCL above the MPL, and this is a higher level of employment than without the minimum wage.

Search Models

While the minimum wage can raise both employment and wages in the case of monopsony, the monopsony model has one important drawback. Evidence that it is relevant to low-wage labor markets where the minimum wage is relevant is scarce on the ground. Except for those living in the most isolated areas, teenagers in the United States typically have more than one fast food establishment in a small neighborhood to canvas for employment opportunities, and often possibilities exist in other sectors as well.

A more plausible but more complicated class of models that generate analytic results similar to those of monopsony is that of search models. The fundamental distinguishing feature is that prospective workers and employers cannot find each other without some cost, so that not all individuals willing to work at wages that firms are willing to pay can find employment. This is based on the observation that information is neither free nor perfect, and that individuals must use time and resources to determine who is hiring. Individuals recognize this and must decide on the basis of incomplete information whether it is worthwhile even to engage in search.⁷

Two key variables in search models are 1) the contact rate, the probability that someone who is searching for a job will be offered one in any period of time; and 2) the distribution of wage offers. In the competitive model, the contact rate equals one and the offer distribution implies that all offers equal the equilibrium wage. In search models, the contact rate is positive but less than one, and the wage distribution is not necessarily degenerate. Other important parameters include an individual's cost of searching, typically positive; the rate at which jobs disappear due to layoffs, firings, and quits; and the value of not being employed, for instance, the value of additional schooling, leisure, or unpaid work in the home.

Along with other details of model specification, it is possible to use these models to analyze not only employment but also unemployment, participation in the labor force, job vacancies, and wage distributions

within and among firms. While it is not necessarily the case that search models of the labor market generate results similar to that seen in Figure 1.3—that is, both higher wages and employment—it is a possibility when the model is appropriately specified. In Flinn (2006) and Ahn, Arcidiacono, and Wessels (2011), this is largely because the participation rate responds to the minimum wage, and within a certain range, the greater ease of hiring dominates the greater cost of employment in the response of firms to the minimum wage.

AN OVERVIEW OF THE BOOK

This review includes more than 200 articles on the minimum wage. Most date from 2000 forward but some, on topics that have not received much attention, date back to the 1980s and 1970s. Chapters are organized around narrowly defined topics. We focus on micro and market-specific outcomes in the earlier chapters and then turn to broader, macro issues toward the end of the review.

Chapter 2, the first chapter in the Micro section of the book, considers the research on employment, or more precisely, on the effect of the minimum wage on the number of employees or jobs. Chapter 3 broadens the measures of employment in considering research on the effect of the minimum wage on hours of work. Here we find strong evidence that the implementation of a minimum wage in the United Kingdom reduced hours of work, but that the evidence for the United States is inconclusive. Chapter 4 presents a meta-analysis of the employment and hours research, providing estimates of the effect of the minimum wage corrected for publication bias and article-specific effects, including specific estimates for young workers and the restaurant industry. Although estimates of the elasticity of employment/hours with respect to the minimum wage vary across estimates, most are either statistically nonsignificant or are too small in magnitude to be economically meaningful.

Starting with Chapter 5, the review considers a broader set of the labor market outcomes. Chapter 5 addresses the effect of the minimum wage on the level and distribution of wages and the provision of fringe benefits. We find almost universal agreement that increasing the mini-

minimum wage raises the wages of bound and near-bound workers, and that the effect of the minimum wage is far stronger for women than for men. Chapter 6 considers the effects on human capital formation, including education and employer-provided training. Results on education are sufficiently varied, and sufficiently problematic, to preclude a simple conclusion; the evidence on training is likewise too varied to support a straightforward summary. Chapter 7 looks at the evidence about the impact of the minimum wage on wage inequality, poverty, and the length of time individuals remain at low wages. Although the magnitude of the effect remains in play, there is universal agreement that the minimum wage reduces wage inequality, particularly among women. In contrast, the minimum wage appears to have no effect on the poverty status of individuals, possibly because so few of those below the poverty line are employed. Finally, although most employees who earn a wage at or close to the minimum rapidly move to wages considerably above the minimum, a substantial number remain at wages no more than 150 percent of the minimum wage in the initial decade of employment.

Chapters 8 and 9 return to employment-related issues, with Chapter 8 looking at gross flows in the labor market and Chapter 9 considering the effect of the minimum wage on firms' hiring and layoff behavior and unemployment. Current research finds that increases in the minimum wage reduce both hiring and layoffs almost equally; both labor force participation rates and unemployment appear to increase slightly with increases in the minimum wage. The minimum wage has a differential effect on unemployment duration, with duration declining for better-educated and rising for less-educated workers. The effect of the minimum wage on product markets is addressed in Chapter 10. Although there is too little research to reach any conclusions about the effects of the minimum wage on firm performance in the United States, research using data from the United Kingdom suggests that profitability declines with increases in the minimum wage, but this does not lead to an increase in firms leaving the market or a decrease in share prices.

Rounding things off, the conclusion attempts the yeoman's work of summarizing our review, suggesting issues that are in need of further research, and providing some thoughts on improving the quality of research on the minimum wage. The conclusion is followed by an appendix, which discusses data sources and variables and their construction.

Finally, a brief discussion on our statistical approach is in order. According to one well-known opinion, the function of cavalry in modern warfare is “to give tone to what would otherwise be a mere vulgar brawl!” (Hammerton 2011). It is our hope that this is not the role of statistics in the minimum wage debate. Our approach has been to hold the articles we discuss to reasonable standards. We typically apply a 5 percent p -value in determining whether there is an effect. Given typical sample sizes used in this research, this standard is a low hurdle. We also require that specifications be reasonably complete—that there are no grounds to be skeptical about estimated standard errors. This may lead to an apparent fetish about p -values, but with the large number of studies we consider, setting a minimum standard is a necessary screening device.

Different standards and criteria may appeal to readers. Our meta-analysis of the employment and hours studies remedies this otherwise arbitrary, discontinuous, either/or cutoff with a continuous method of weighting estimates based on their estimated standard error. The summary tables in each chapter provide fairly complete information about the studies included in this review. The reader is invited to use these to reach their own conclusions.

Notes

1. More than 600 scholarly and policy papers that mention the minimum wage have been published since 2000. The 200 that we review were selected because they included empirical research on developed countries.
2. An elasticity between -0.3 and -0.1 indicates that a 10 percent increase in the minimum wage will reduce employment by 1–3 percent.
3. We use *benchmark* to mean a guideline for assessing how satisfactory a wage or wage offer is.
4. The column for a one-person household reports only the annual income from having a single person employed at the minimum wage because it is difficult to have more than one earner in a one-person household. The balance of the columns report household earnings with both one and two individuals receiving the minimum wage.
5. Although based on both income and assets, we attend only to the income requirement since that is the only one that the minimum wage directly affects.
6. In the standard analysis, it is assumed both that the MPL is positive in the range of employment considered, and that it gets progressively smaller as N increases.

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7. This is most often modeled from the perspective of the individual looking for work. Depending on the issue of interest, it can also be viewed from the perspective of the firm, so that all firms willing to pay wages that individuals are willing to accept can find people to hire only with some cost. In this case, firms must devote resources to identifying individuals appropriate to hire and the suitable wage. Finally, both perspectives can be combined, so that firms and individuals encounter difficulty finding suitable partners for an employment relationship.