

## THE INFLUENCE OF LABOUR MARKET INSTITUTIONS ON THE DISEMPLOYMENT EFFECTS OF THE MINIMUM WAGE

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The effect of the minimum wage on labour markets has long been of interest to both economists and policymakers. Debates about whether to enact a minimum wage and whether to raise its level repeatedly surface in political discussions throughout the industrialised world, and economic experts are often asked for their views on the potential effects of proposed legislation in this area.

For many years, however, empirical research on this topic was limited largely to the United States and relied primarily on time-series variation to identify the employment effects of an increase in the minimum wage. After a number of US states in the late 1980s raised their minimum wage levels above the national minimum, researchers – recognising the limitations of relying exclusively on time-series evidence – began to examine the employment differences associated with this regional variation in wage floors. Interestingly, this new strain of research led to a substantially wider range of estimated employment effects than was reported in the time-series literature, leading some economists to question the consensus view that minimum wages reduce employment among lower-skilled workers.

Following on the results for the United States, researchers have also exhibited a renewed interest in reassessing the effects of minimum wages on employment in European countries. To some extent, this interest probably was stimulated by the renewed debate over the size and direction of such effects in the United States. In addition, however,

the increasing integration of European labour markets associated with the expansion of the European Community and the creation of the European Monetary Union has drawn attention to the potential impact of differing degrees of labour market rigidities across countries – the minimum wage being one possible source of such rigidities – in the context of greater labour and capital mobility and a unified monetary policy.

Although minimum wages appeared, on average, to reduce youth employment in industrialised countries<sup>1</sup>, the estimated magnitude of job loss often differed considerably across individual countries. This suggests the possibility that the effects of minimum wages on employment might be influenced by other aspects of the labour market that differ across countries. Most obviously, other provisions of the minimum wage laws themselves might influence the disemployment effects associated with an increase in the level of the minimum wage. But it is not difficult to think of other labour market policies or institutions that might strengthen or weaken minimum wage effects, including those not formally related to the minimum wage.

Recent theoretical research also points to the possibility that seemingly disparate labour market policies could interact in affecting employment. For example, Coe and Snower (1997) show that the effects of enacting a policy that reduces employment on average could be magnified or reduced depending on the restrictiveness of the existing labour market environment. In the context of minimum wages, their model predicts that the existence of stricter job security measures, more generous unemployment benefits and greater bargaining strength among incumbent workers will tend to exacerbate the negative employment effects of an increase in the minimum wage, while policies designed to increase rates of job creation will tend to mitigate those effects.

On the empirical front, there has been a growing body of literature that uses cross-country comparisons to investigate the effects of labour market policies. Among these are studies that examine the effects of job security regulations on employment and unemployment (Lazear 1990; OECD 1999; Di Tella and MacCulloch, forthcoming), broader studies of labour market rigidities and unemployment

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<sup>1</sup> See, for example, OECD (1998).

Table 1

## Minimum wages and other characteristics of minimum wage systems in selected countries

Country	Ratio of minimum wage to average wage		Other characteristics of minimum wage systems (1993)		
	1976	2000	Method for setting	Level	Youth subminimum
Italy (1991)	0.78	0.71	Negotiated	Industry	Some
Norway (1994)	–	0.64	Negotiated	Industry	No
France	0.58	0.62	Statute	National	Limited, <18
Australia	0.65 <sup>a)</sup>	0.58	Statute	National	<21
Germany (1994)	0.60	0.58	Negotiated	Industry	Some
Ireland	–	0.56	Labour Committees	Industry	<18
Denmark (1994)	0.59	0.54	Negotiated	Industry	<18
Finland (1993)	–	0.52	Negotiated	Industry, region	No
Greece	0.69	0.51	Negotiated	National	No
Sweden (1992)	0.52	0.51	Negotiated	Industry	<24
Belgium	0.58	0.49	Negotiated	National	<21
Luxembourg	0.41	0.49	Statute	National	<18
Netherlands	0.64	0.47	Statute	National	<23
New Zealand	0.57	0.46	Statute	National	<20
Canada	0.52	0.43	Statute	National, provincial	No
United Kingdom	0.43	0.42	Wages Councils	Industry	<21
Portugal	0.48	0.38	Statute	National	<18
United States	0.47	0.36	Statute	National, State	Limited
Japan	0.29	0.33	Statute	Prefecture	No
Spain	0.48	0.32	Statute	National	<18

Notes: Minimum wage ratios are from the OECD minimum wage database and Dolado et al. (1996). The OECD uses a median wage to calculate the ratios, while Dolado et al. use a mean wage. Other information is taken from Table 2.1 in OECD (1998), Table 1 in Dolado et al., and from reports by the European Commission (1998) and the United Kingdom Low Pay Commission (2001). Figures in parentheses refer to the year for which information on minimum wages was available for countries for which we did not have data for 2000.

<sup>a)</sup> Figure refers to 1985.

(Nickell 1997; Siebert 1997; Blanchard and Wolfers 2000), and studies of potential interactions among labour market institutions (Belot and Van Ours 2001).<sup>2</sup> Up until now, however, there has been little research focusing specifically on interactions of the minimum wage with other provisions of minimum wage laws or with other labour market policies more generally. Here, we review our recent research on such interactions (Neumark and Wascher 2004) and point to some implications of that research for youth labour market policies.

### A comparison of minimum wage laws across countries

Table 1 shows some of the characteristics of minimum wage laws in 20 major industrialised countries. Data are taken from the OECD for countries in which a national minimum wage is set by statute or by national collective bargaining agreement. For countries in which no national minimum wage

exists, but in which industry- or occupation-specific minimums are set by legislation or collective bargaining, the estimates are from Dolado et al. (1996). The first column displays the ratio of the minimum wage to the average wage for each country in 1976, while the second column shows this ratio in 2000; the columns are ordered by the relative value of the wage floor in 2000.<sup>3</sup> This ratio is one of the standard indicators used to gauge the “bite” of the minimum wage and is intended to measure the extent to which the minimum cuts into the wage distribution.

As can be seen in the second column, there is substantial variation in the bite of the minimum wage across countries, with the level of the minimum wage ranging from 71 percent of the average wage in Italy to only 32 percent in Spain. As is often noted, the higher minimum wage levels are almost universally found in continental Europe; in fact, Australia is the only non-European country with a minimum wage ratio above 50 percent. In contrast, the other Anglo

<sup>2</sup> See also the recent summaries in the CESifo DICE Report by Kahn (2003), Belot and Van Ours (2003) and Nickell (2003).

<sup>3</sup> Where information was not available for 2000, we have indicated in parentheses the year for which we report this ratio.

countries and Japan are toward the bottom of the distribution, with minimum wage ratios typically at about 45 percent or below in 2000.

A comparison of the first and second columns also indicates that some countries saw substantial changes in relative minimum wages between 1976 and 2000. Of the 17 countries for which figures are available in both years, 14 experienced a reduction in the minimum wage ratio, and only Luxembourg saw a meaningful increase. Particularly notable are the declines for The Netherlands, where the government implemented a cut in the nominal minimum wage in 1984 and a freeze for the remainder of the 1980s, and for Greece and Spain, where nominal minimum wage increases significantly lagged behind the overall pace of wage growth. Also, although not shown in the table, the United Kingdom abolished its system of Wages Councils in August 1993 and did not introduce a national minimum wage until April 1999.

The remaining columns of the table summarise some other provisions of the minimum wage systems in each country, which can differ across countries in important ways.<sup>4</sup> We have identified three particular areas for which specific aspects of minimum wage policies might be expected to influence the employment effects of a wage floor. The first of these is the process by which minimum wages are set. In some countries, minimum wage levels are set by statute, while in others, they are the product of a collective bargaining process involving unions, employers and the national government. As can be seen in the third column, except for France and Australia, the countries with relatively high wage ratios are those in which unions take an active role in negotiating minimum wages. In contrast, countries with low minimum wage ratios tend to be those where the wage floor is set by statute. If unions and employers have better information than legislators as to what constitutes a relevant market wage for unskilled labour and use that information in deciding on the appropriate level of the minimum wage, then one might expect the minimum wage to have a smaller distortionary effect on low-wage labour markets when unions actually participate in setting the wage floor. On the other

hand, if the presence of unions in the negotiating process tends to result in a higher minimum wage than would otherwise be set, then countries using a collective bargaining process might see larger disemployment effects than countries where minimum wages are set by legislation.

In addition, there sometimes is significant variation in minimum wages across industries or geographic regions. As indicated in the fourth column, such variation is more likely to be present in countries where the wage floor is determined through a collective bargaining process. If such regional or industry variation is a consequence of a process that better targets minimum wage levels to subgroups of workers in particular industries or geographic regions, any disemployment effects would tend to be smaller. However, if this variation represents a tendency by some regions or industries to establish a high minimum wage without regard to the relative productivity of the applicable subgroup, then the adverse consequences of the minimum wage in that country would be more severe.

Finally, as the last column shows, many countries have lower minimum wage levels that apply to workers who are younger than a specified age level. Given that youths comprise a significant share of the low-wage labour market, such provisions would be expected to reduce the disemployment effects of minimum wages.

### **The effects of minimum wage laws on employment and unemployment**

Table 2 shows the minimum wage ratios for each country in 1986 and 2000, along with the employment rates and unemployment rates for youths (ages 15 to 24) prevailing in each year.<sup>5</sup> At first glance, it is difficult to see an unambiguous pattern in the table. Nevertheless, as indicated in the second to last row, there is a negative correlation across countries between the minimum wage ratio and the youth employment rate in both 1986 and 2000, and a positive correlation between the minimum wage ratio and the youth unemployment rate

<sup>4</sup> This information was collected from various OECD reports, a report by the European Commission (1998), the UK Low Pay Commission Report (2001), and the Country Reports on Human Rights Practices from the US Department of State. Additional detail on prevailing minimum wage laws in each country is summarised in Neumark and Wascher (2004).

<sup>5</sup> In our study, the employment rate is defined as the percent of the youth population that is employed, while the unemployment rate is the percent of the youth labour force without a job and looking for work. Because it is often difficult to distinguish whether youths are unemployed or out of the labour force altogether, we view our estimates of the effect of minimum wages on youth employment rates as being more relevant than its effect on unemployment rates.

**Table 2**

**Minimum wage levels and youth labour market conditions**

Country	Minimum wage ratio		Employment rate		Unemployment rate	
	1986	2000	1986	2000	1986	2000
Italy	0.75	–	29.2	26.1	34.5	29.7
Norway	–	–	62.2	57.7	5.0	10.2
France	0.63	0.62	32.9	23.3	23.4	20.7
Australia	0.63	0.58	59.5	60.5	14.5	12.3
Germany	0.59	–	55.1	48.4	7.8	7.7
Ireland	–	0.56	41.2	48.2	25.7	6.4
Denmark	0.62	–	69.1	67.1	8.1	6.7
Finland	–	–	53.6	39.8	10.1	21.6
Greece	0.59	0.51	29.5	26.9	24.2	29.5
Sweden	0.57	--	61.7	46.1	6.8	11.9
Belgium	0.57	0.49	33.7	30.3	21.1	15.2
Luxembourg	0.46	0.49	54.4	31.8	6.2	6.4
Netherlands	0.56	0.47	39.8	68.4	20.0	6.6
New Zealand	0.47	0.46	67.0	54.7	7.8	13.2
Canada	0.39	0.42	58.9	56.3	14.8	12.6
United Kingdom	0.46	0.42	62.9	61.5	17.9	11.8
Portugal	0.47	0.38	51.3	41.9	18.5	8.6
United States	0.37	0.36	59.5	59.8	13.3	9.3
Japan	0.29	0.33	40.9	42.7	5.2	9.2
Spain	0.37	0.32	31.2	35.9	42.8	25.5
Correlation with minimum wage	–	–	–0.20	–0.21	0.20	0.08
Correlation with the change in the minimum wage	–	–	–	–0.46*	–	0.50**

Notes: The employment rate is the percent of the youth population that is employed. The unemployment rate is the percent of the youth labour force that is unemployed. Both rates refer to youths ages 15 to 24 (14–24 in Italy and 16–24 in the US, the UK, Sweden and Norway).  
 \*\* Indicates statistical significance at the 5% level.  
 \* Indicates significance at the 10% level.

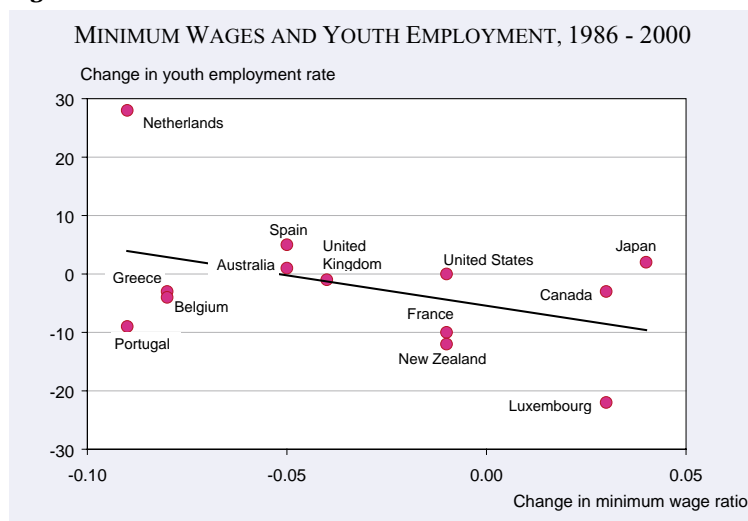
in both years. Moreover, as shown by the correlations in the last row and in Figures 1 and 2, changes in the minimum wage are clearly negatively correlated with changes in employment and positively correlated with changes in unemployment for the countries in the sample.

The result that higher minimum wages contribute to lower employment rates among youths is confirmed in more formal analyses that use time-series data for each country from 1976 to 2000 and that control for other factors likely to affect youth employment, including business cycles, demographic changes and persistent country-specific factors independent of aggregate labour market conditions. As described in Neumark and Wascher (2004), these analyses suggest that, on average, a ten percent increase in the minimum wage is associated

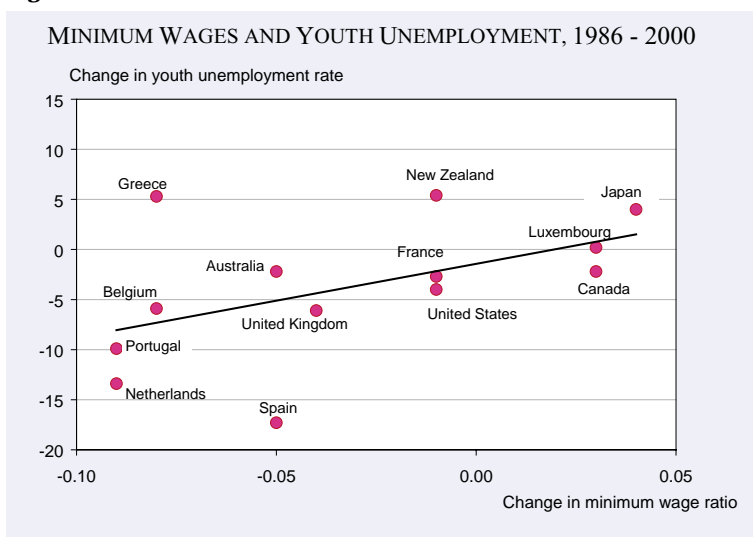
with roughly a one percent to three percent decline in the youth employment rate. This estimate is strikingly similar to the magnitude of minimum wage effects often reported for the United States.

However, our results also suggest that the size of the disemployment effects associated with the min-

**Figure 1**



**Figure 2**



imum wage can be influenced by other characteristics of minimum wage systems. In particular, countries in which the minimum wage is determined through a collective bargaining process tend to exhibit a smaller negative impact of an increase in the minimum wage, perhaps because this process helps to target a level of the minimum wage more appropriate to prevailing labour market conditions. In contrast, the presence of industry- or geographic-specific wage floors appears to increase the employment losses associated with a higher minimum wage, which might suggest that such variation is primarily used to raise the minimum wage to levels where disemployment effects set in, rather than to target minimum wages to relative productivity levels in particular industries or to living costs in particular locations. Finally, countries with a youth subminimum wage consistently show that youths experience smaller job losses from the minimum wage than do countries without such provisions, perhaps because the subminimum leads employers to substitute lower-cost youths for low-skilled adult workers who are subject to the full minimum wage.

**The sensitivity of minimum wage effects to other labour market institutions**

As noted in the introduction, economic theory predicts that the economic effects of minimum wages may also be influenced by the presence of other labour market institutions that are not directly related to the minimum wage, but that interact with it in ways that mitigate or exacerbate its dis-

tortionary effects on labour markets. In this regard, we examined whether the estimated employment losses associated with raising the minimum wage differ according to the particular types of labour market policies or institutions present in each country.

Table 3 presents information on the types of policies and institutions considered in our analysis. In general, these institutional features of labour markets span a range of factors often thought to influence labour market flexibility,

including job security legislation, unemployment benefits, job creation policies and workers' bargaining power.

The first column shows an index of labour standards, which is constructed from the OECD's characterisation of the strictness of legislated rules covering working time, flexible employment contracts and workers' representation rights. A high value of this index – as in Sweden – indicates the presence of substantial labour market rigidities in these areas, whereas low values – as in the United States – are suggestive of more flexibility. The second column shows an index of the strictness of employment protection regulations. This index, which is also constructed from information collected by the OECD, ranks countries according to the procedures and severance pay requirements associated with the dismissal of an employee. As in the first column, a high value of the index indicates that the country has a high degree of employment protection, while a low value indicates relative ease in dismissing employees.

The third column of the table summarises the extent to which governments in each country use active labour market policies to assist unemployed workers in obtaining a job; such policies could include job search assistance, training programs, employment subsidies for private job creation or public job creation programs. The figures in the table refer to the level of public expenditures on such programs in 1995 as a percentage of that country's GDP, so that a higher value indicates greater use of active policies in a particular coun-

Table 3

## Other labour market policies and institutions

Country	Labour standards	Employment protection	Active policies	Union coverage	Unemployment insurance
Italy	3	14.25	0.93	43.0	7.3
Norway	4	9.75	1.35	54.9	34.3
France	4	9.50	1.17	13.6	33.9
Australia	3	3.26	0.73	44.2	25.0
Germany	4	12.00	1.33	32.0	32.0
Ireland	2	2.75	1.48	54.0	28.9
Denmark	2	3.25	2.32	77.0	57.1
Finland	3	10.50	1.55	72.6	33.5
Greece	4	11.00	0.36	28.6	13.5
Sweden	5	8.50	3.00	83.6	27.4
Belgium	2	10.50	1.39	52.4	42.3
Luxembourg	–	–	0.26	–	–
Netherlands	4	7.25	1.06	27.9	49.0
New Zealand	3	0.72	0.69	33.6	29.2
Canada	1	1.65	0.56	36.7	28.3
United Kingdom	0	2.25	0.53	46.0	20.2
Portugal	2	12.50	0.73	45.3	24.1
United States	0	0.36	0.20	18.3	12.7
Japan	1	3.71	0.11	25.4	9.8
Spain	3	11.25	0.72	13.6	30.1
Influence on minimum wage disemployment effect	Strengthen	Weaken	Weaken	Strengthen	None

Notes: Union coverage refers to the number of total union members as a percent of wage and salary employment and is taken from Nickell and Nunziata (2001). The measure of unemployment insurance shown here is the average gross benefit replacement rate (as a percent of earnings) as defined by the OECD (1994); the figures refer to the mean replacement rate from 1976–97. The labour standards index, which refers to 1993 standards, is taken from OECD (1994) and excludes the contributions of minimum wages and employment protection policies to the index. The employment protection index is taken from OECD (1996) and refers to legislation as of 1989. The active labour market policies index is taken from OECD (1996) and is measured as public expenditures on public employment services, labour market training and subsidised employment programs in fiscal year 1995 as a percent of GDP.

try. The fourth column of the table shows the percentage of wage and salary workers who are members of a union (from Nickell and Nunziata 2001), while the final column of the table presents a measure of the generosity of each country's unemployment insurance system. This latter variable, which is published by the OECD, is defined as the gross level of unemployment benefits as a percent of previous earnings.

The bottom row of the table summarises our estimates of how these institutional features of labour markets influence the disemployment effects of the minimum wage. For each column, we indicate whether the greater presence of a particular policy or institution tends to strengthen the disemployment effect of the minimum wage or weaken it. For example, by themselves, more restrictive labour standards tend to exacerbate the negative consequences of raising the wage floor, which is consistent with the idea that the presence of strict standards on the use of hours and temporary contract workers forces more of the adjustment to a higher minimum wage to take place by way of a reduction in employment.

In contrast, stricter employment protection regulations appear to weaken the disemployment effects of minimum wages, presumably because it is more costly to dismiss workers in countries with such regulations. Similarly, greater use of active labour market policies also reduces the extent of job loss associated with the minimum wage, likely because youths displaced from private-sector jobs by a higher wage floor are absorbed by government employment or training programs. However, we would note in this regard that the consequences of a higher minimum wage may instead appear as an increase in government budget deficits. Finally, greater bargaining power among incumbent workers (as measured by the degree of unionisation) appears to strengthen the negative effects of the minimum wage on youth employment, consistent with the view that unions successfully shift the costs of the minimum wage onto non-union workers, who are more likely to be young. In contrast, the generosity of unemployment insurance benefits appears to have little influence on the size of job losses associated with the minimum wage, despite evidence that they reduce employment levels more generally.

**Table 4**  
**Minimum wage effects differentiated by degree of labour market policies and institutions**

		Employment protection/active labour market policies	
		High	Low
Labour standards	High	Germany Italy Sweden Spain France  <i>Implied average effect:</i> 0.09	Netherlands Greece Australia New Zealand  <i>Implied average effect:</i> 0.19
	Low	Belgium Portugal Denmark  <i>Implied average effect :</i> 0.11	United States United Kingdom Canada Japan  <i>Implied average effect:</i> 0.33

Note: Implied average effect refers to the percent change in employment resulting from a one percent increase in the minimum wage.

The substantial variation in labour market institutions or policies across countries, along with our evidence that the economic impact of the minimum wage can be importantly influenced by these other differences in labour markets, suggests that the effects of the minimum wage on youth employment could vary significantly across countries. However, because the policies that characterize a country’s labour market may differ from those in other countries along a variety of margins, it is not always straightforward to assess the implications of a particular set of labour market policies for the employment effects of the minimum wage. To illustrate the implications of our results, Table 4 shows the variation in minimum wage effects for groups of countries differentiated by the importance of some of the labour market policies and institutions included in our analysis. In particular, the countries shown in the table are grouped into four distinct categories according to the strictness of their labour standards and the extent of their use of both employment protection laws and active labour market policies. Also shown in each cell is the implied average effect of the minimum wage on youth employment based on the specific values for each policy-related index in the set of countries in that cell and the associated minimum wage effects taken from the analysis described above.

Focusing first on the upper left panel, countries with restrictive labour standards and generous levels of employment protection and active labour market policies – for example, Germany, Italy and France – tend to exhibit a small positive effect of the minimum wage on youth employment (although in a statistical sense, the effect is not significantly different from zero). This occurs because the influence of strict labour market standards on the minimum wage effect is outweighed by the offsetting effects of high values for the employment protection and active labour market policy indexes. Indeed, as indicated in the lower left panel, those countries with less restrictive labour standards, but that also have generous levels of employment protection and

use active labour market policies (Belgium, Portugal and Denmark) also show a small positive effect of minimum wages on youth employment (although this effect is again not significantly different from zero).

In contrast, for the panels on the right-hand side of the table, which show sets of countries with low levels of employment protection and less use of active labour market policies, the minimum wage effects are negative. For countries with relatively restrictive labour standards, such as The Netherlands, Greece and Australia, the average implied effect is – 0.19, similar to the average effect we found for the entire set of countries in our sample. For countries that have less restrictive labour standards but that also have low levels of employment protection and active labour market policies, the average minimum wage effect on youth employment is even stronger. One might expect this group of countries to exhibit a smaller negative employment effect, as the results in Table 3 indicate that less restrictive labour standards tend to be associated with weaker minimum wage effects. As it turns out, however, the countries in the lower right panel also have even less stringent employment protection laws and weaker active labour market policies than the countries in the upper right panel, which more than offsets the difference in the labour standards index.

## Conclusions

Our results indicate that, on average, minimum wages tend to reduce employment rates among the youth population. However, the evidence also suggests that the impact of the minimum wage can differ noticeably across countries because of other provisions of the minimum wage system or because of the presence of other labour market policies and institutions. Perhaps the most striking implication of our analysis is that the disemployment effects of the minimum wage are most apparent in those countries with the least regulated labour markets – namely the United States, the United Kingdom, Canada and Japan. In contrast, minimum wages seem to have had little effect in countries with either high levels of employment protection or where active labour market policies are used aggressively.

Of course, some care must be taken in interpreting these results. They should not be viewed as necessarily providing reliable estimates of the effect of minimum wages on youth employment in each country, but rather as providing some indication of how other labour market policies and institutions might influence the impact of the minimum wage on low-skilled labour markets. In this regard, our study can be viewed as highlighting the importance of accounting for institutional differences in labour markets when using data for different countries to study the effects of economic policies such as the minimum wage, and from a policy perspective, highlighting the danger of blindly applying the estimated effects of policy changes from one country to other countries with substantially different sets of policies and institutions regulating labour markets.

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