Effects of minimum wage on the Philippine economy

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Introduction

The Labor Code contains several provisions intended primarily to protect workers. Among its objectives are (1) prohibit the termination of private employees except for just or authorized causes as prescribed by Articles 282 to 284 of the code; (2) recognize the right to form a trade union expressly, and the right of a union to insist on a closed shop; and (3) allow strikes as long as they comply with the strict requirements under the code, otherwise the workers who organize or participate in illegal strikes may be subject to dismissal.

Philippine jurisprudence holds that any doubts in the interpretation of law, especially the Labor Code, will be resolved in favor of labor and against management. Due to this bias, some of these labor policies can have deleterious effects on the industry, such as increasing unemployment and eventually retarding skill formation.

In the case of minimum wages, the decentralization of wage setting (under Republic Act 6727) was expected to create multiple equilibria where the efficiency benefits of having regional wages would be potentially large relative to the costs. An underdeveloped region can set lower minimum wages to attract new investments and thus move the region from a bad equilibrium (i.e., low density of economic activity and low employment) to a good equilibrium (i.e., high density of economic activity and high employment). In effect, the short-run efficiency costs of setting minimum wages could be small compared with the potential long-run benefits of moving to a better equilibrium (Moretti 2010).

However, the number of workers at mid-range level of wages decreased under the new law, but the number of workers above the average increased. This implies that employers tend to lay off lower-skilled workers in favor of the higher-skilled and higher-paid workers. This can then result in greater unemployment.

This study is an attempt at disentangling and controlling the various factors that may confound the effects of minimum wages on employment. In doing so, one can arrive at an unbiased and more consistent measure of minimum wages' effects and their consequences on the composition of workers in the Philippine labor market. This serves as basis for examining the effects of labor market policies on employment.

The paper focuses on labor-intensive industries that are highly susceptible to minimum wages and examines the policy's impact not only on the firms but also on the workers in general. It uses panel data extracted from both the Annual Survey of Philippine Business and Industry (ASPBI), formerly the Annual Survey of Establishments (ASE), and the annual Labor Force Survey (LFS).

Main features of the Philippine Labor Code

The Philippine Labor Code can be divided into two main parts. The first pertains to employment, specifically those that govern individual contracts that determine compensation, length of trial periods, and conditions of part-time work. This includes the minimum wage law. The second part relates to collective or industrial relations laws that regulate bargaining, adoption, and enforcement of collective agreements, the organization of trade unions, and the industrial action by workers and employers.

The Philippine Labor Code, with all of its associated biases, was primarily formulated with the view of distributing the rents that employers previously gained from the various types of policy protection measures that existed during the Marcos dictatorship (Sicat 1986). With trade restrictions dismantled and new forms of social protection implemented, the rigidity of these laws has been questioned and the law has been continually modified to reflect adequately supply and demand conditions in the market.

Worker protection is clearly desirable not only for its social value but also for its potential to form skills. Securing workers' jobs creates incentives for them to learn more firm-specific skills and in the process be more productive.

However, there may be three reasons why these laws can be counterproductive. First, these laws seemingly transfer the responsibility of social protection to the firms, a responsibility which rightfully belongs to the public sector. Second, the Labor Code was developed during a period when large firms enjoyed various forms of protection from the government, thus resulting in some form of monopsony power in the labor market.

Third, the proliferation of a significant number of small- and medium-scale enterprises due in

part to globalization was not taken into account by the Labor Code. The interactions of these regulations with the minimum wages can debilitate small- and medium-sized firms. With the decline of small- and medium-scale industries, the unemployed, especially from disadvantaged groups in society, are excluded from the benefits arising from general economic growth. Because of these laws, firms and workers find it difficult to arrange varied forms of compensation that may include training.

Conceptual framework

The study developed a conceptual framework (Figure 1) to estimate the impact of minimum wages on employment. In economic theory, any form of government intervention in a perfectly competitive market results in either surpluses or shortages. In this case, labor market policies, such as the minimum wage, results in labor market failure or distortions and lower social welfare, in the form of deadweight losses. It must be noted though that there are other sources of intervention aside from labor policy. These include other national (nonlabor) policies affecting industry and also globalization and other external factors. Such policies can either exacerbate or attenuate the effect of labor policies since these will also affect the labor market.

Minimum wages, more than other forms of regulation, are more directly associated with unemployment. Maloney and Mendez (2004) pointed out that minimum wages could impose a restriction on the amount of benefits offered

Figure 1. Conceptual framework
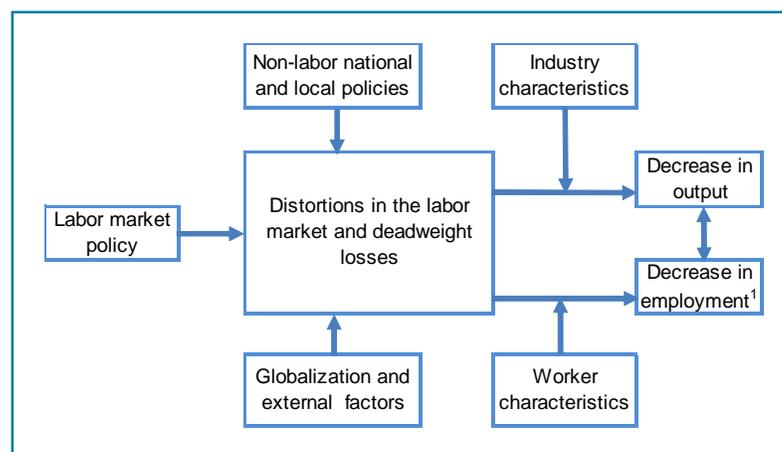
[1] Pertains to overall employment as well as employment of various demographic subgroups
Source: Author

by firms. Workers carry part of the burden of higher minimum wages in the form of lower benefits (though somewhat mitigated by mandatory benefit restrictions) and reduced worker security. Both of these effects may result in greater incidence of unemployment or lower participation in the formal sector.

If ever such distortions exist, employment and output will be reduced. Nevertheless, it should also be stated that these distortions affect industries and workers differently. Large, highly capitalized firms are more able to absorb these distortions or costs and may be largely unaffected by the policies. Small firms can face greater costs, and are more adversely affected by these policies. In the same way, workers who have attended higher formal schooling may not be affected by these policies, while workers with lower skills may be affected more harshly.

Because of this, the effect of minimum wages is not known theoretically; instead, this is an

empirical issue. Furthermore, to isolate the effect of minimum wages on employment, one needs to control the effects of other extenuating factors, including firm and worker characteristics. Because of this, the approaches used must be able to fix such other factors.

Data and methodology

The sample consisted of labor-intensive manufacturing industries with at least 10 employees (at the three-digit Philippine Standard Industry Classification level) for the years 1980–2008 following the 1990 regional configuration. However, there were no data available for 1999, 2000, 2002, 2004, and 2007 because no survey was conducted as a result of limited national budgets during those years. In addition to the national-level information, panel data of firms between 1998 and 2008 were available. Shifts in the classification of firm sizes can be noted in the data. It is possible to determine whether firms with an initial 10 workers later employed more or less workers. Regionally disaggregated data were also available but these may not be independent of the regional factors used in determining minimum wages.

Finally, a panel data set of workers extracted from the annual LFS was also gathered. This data set, consisting of the same group of workers observed over time, allowed the study to analyze the demographic implications of the minimum wage policy. Hence, the effect of minimum wages on the subgroup of workers could be determined.

Fixed effects (FE) estimates were conducted for all ASPBI/ASE data to control for the unobserved heterogeneity at the industrial-national and regional and firm levels. Random effects (RE) models were tested to determine if the conclusions made in the FE models could be generalized for their particular grouping. An FE analysis can only support inference about the group of measurements (subjects, etc.) of the actual subject pool examined. If the FE model differs significantly from an RE, one cannot make inferences outside of the data set, but it is more efficient than RE because of its ability to control for heterogeneity.

Finally, because of the wide time coverage for the national and regional data, the estimates for these data sets could be used to perform difference-in-difference analysis as these covered the period before the minimum wage policy change in 1990. This means the effects of minimum wages can be compared across affected and unaffected industries as well as between the periods before and after the policy change. For the LFS data, a panel logit model following Montenegro and Pages (2004) was considered where the variable estimated was the probability of employment of an individual worker residing in the region and belonging to a subpopulation at a specific time.

The panel data sets in general were not expected to represent the population. For instance, to control for other factors, the panel data tracked the establishments across time from 1996 to 2008. While the data might not be

representative of the population of establishments, this allowed the study to control the other factors more closely and see the dynamics between large and small firms more clearly. For the worker analysis, data for the same group of workers were observed from 2003 to 2010 in the Philippine labor force, allowing the study again to perform an FE model, that is, controlling for time-invariant effects.

Empirical results

Table 1 shows the difference between large and small industries, based on ASPBI/ASE data. Large industries are defined as those having a greater capital base. Also as expected, the number of workers was higher for larger industries than the smaller industries. Production workers are those that are involved directly on the production of output, as opposed to nonproduction workers engaged in other operations of the establishment, such as those in the supervisory levels.

More importantly, small industries apparently pay higher daily wages than large industries for production workers who are often hired on a short-term contractual basis. However, total compensation per worker was seen to be higher for large firms. This high compensation, however, cannot be attributed only to the monetary benefits that are viewed in the table as only slightly higher for large industries. The higher compensation given by large firms can be traced to position and

experience, i.e., the higher wages given to nonproduction workers. (The data unfortunately do not have a separate item for salaries and wages for nonproduction workers. However, since there are only two types of workers, the last point that nonproduction workers are paid more can be reasonably inferred.)

At the industry level, the so-called Kaitz (1970) index was used to measure the effect of minimum wages. This index is the effective minimum wage in relation to the industry average wage and multiplied by the proportion of production workers to total workers. A minimum wage that is close or higher than the industry average is expected to have a larger impact on the industry and so will an industry

Table 1. Mean comparisons of small and large industries

	All	Small Industries	Large Industries[1]
Total number of workers	72,121.69	71,207.77	75,217.23
	(59,501.96)	(62,656.58)	(48,059.82)
Total production workers	56,149.85	55,132.07	59,597.16
	(49,506.95)	(51,393.13)	(43,092.57)
Real value of output per year	45,573.74	44,698.43	51,835.56
	(42,234.25)	(43,263.39)	(34,776.12)
Land	138,785.80	66,823.04	382,530.50
	(345,340.00)	(116,880.80)	(640,150.80)
Capital expenditures (PHP billion)	2.873	1.008	9.511
	(10.80)	(0.93)	(22.10)
Real daily production wages	100.56	101.69	92.50
	(63.31)	(64.84)	(52.44)
Total daily compensation per worker	128.12	126.91	132.22
	(68.02)	(64.83)	(78.90)
Daily benefits per worker	5.67	5.57	6.03
	(2.78)	(2.82)	(2.65)
N	136	105	31

Source: National Statistics Office (NSO) - Annual Survey of Philippine Business and Industry (ASPBI)/Annual Survey of Establishments (ASE), 1980–2008 with gaps
Notes: Figures in parentheses are standard deviations.
[1] Refers to industries that have real value of assets worth PHP 1.125 billion and above per year.

that has a larger proportion of production workers. This index normalizes the minimum wage when applied to more aggregative data.

Table 2 gives the mean and standard deviation of selected variables by industry. The following observations were made. First, industries that were more labor intensive in terms of labor cost share were those that had higher Kaitz indices, indicating that these firms were more affected by minimum wages. Second, industries that appeared to be more capital intensive, as indicated by the smaller share of labor cost to total costs, were also those with lower Kaitz indices, suggesting that either they were not affected by the minimum wage policy or that they may have

adjusted their production mix away from labor to minimize the impact of minimum wages. Third, firms that had low output per labor ratio and, equivalently, those with higher unit labor cost, were also those with a higher Kaitz index. These suggest that certain firms, particularly those that are labor intensive, are affected more by the minimum wage. This is contrary to the view that minimum wages are affecting industries that are capital intensive and have lower labor cost share. Hence, the results here can indicate a significant impact of minimum wages on output and employment.

The results showed that overall minimum wage had a significant negative effect on

Table 2. Means and standard deviations[1] of key variables, by industry, 1980–2008

	Textiles	Wearing Apparel[2]	Paper and Paper Products	Industrial Chemicals	Other Chemicals	Other Industries[3]
Real value of output (PHP billion)	13.3 (4.4)	14.3 (4.8)	9.0 (1.8)	11.0 (1.8)	26.6 (8.3)	22.6 (4.5)
Share of labor cost	0.12 (0.02)	0.34 (0.11)	0.06 (0.01)	0.03 (0.01)	0.04 (0.01)	0.10 (0.70)
Total employment	72,981 (31,397)	149,032 (40,162)	17,659 (4,060)	11,551 (2,213)	30,579 (4,866)	132,324 (23,841)
Total production workers	60,341 (26,816)	120,888 (27,512)	12,762 (3,715)	6,085 (1,754)	14,888 (3,631)	105,981 (19,933)
Output per labor	229.7 (36.2)	117.0 (31.1)	839.9 (717.4)	1,934.1 (571.3)	1,800.5 (396.9)	216.0 (39.5)
Unit labor cost[4] (PHP)	0.34 (0.06)	0.64 (0.19)	0.16 (0.04)	0.09 (0.03)	0.13 (0.02)	0.36 (0.05)
Kaitz index	0.53 (0.11)	0.62 (0.11)	0.32 (0.07)	0.15 (0.03)	0.10 (0.02)	0.53 (0.07)

Source: NSO - ASE/ASPBI, 1980–2008 with gaps
Notes:
[1] Figures in parentheses are standard deviations.
[2] Footware is excluded from wearing apparel.
[3] Other industries include the following: furniture, footwear, leather, wood, rubber, and plastic products.
[4] Unit labor cost is defined as the ratio of average industry wages and output per labor.

employment. This was particularly true for small enterprises. For large enterprises, a positive effect was found for the industry-level data. This measurement, however, was not robust or could not be fully attributed to minimum wage alone since the FE estimate that controlled for industry variances was insignificant. Hence, it was crucial to consider the panel data on the enterprise level.

Again, negative effects of minimum wages were observed, especially for small enterprises. Conversely, a positive effect was seen for larger firms. The classic explanation here is that firms are monopsonies in nature, and they intend to decrease wages to maximize profits. Minimum wages, in effect, force them to behave as competitive firms, hence resulting in higher employment. Nevertheless, monopsonies seem rather rare these days. An alternative explanation may be needed.

As noted in the previous data, it would seem that large firms attract workers by offering them not higher wages but chances of promotion to nonproduction (mainly supervisory) levels with corresponding increases in compensation, something that the small firms cannot offer because of their smaller scale of production. The small firms can then attract workers only by offering higher wages than the larger firms, indicating some premium for the workers for joining a smaller firm. Poorer and less experienced workers who are in need of immediate cash will probably accept the offer of smaller firms, instead of taking a chance with larger firms.

However, once the minimum wages increase, this differential between small and larger firms is reduced as smaller firms cannot further raise their offered wages, causing a decline in the premium. More workers then move to the larger firms as some of the smaller firms close.

In terms of welfare, society is still made worse off since those laid-off in small enterprises are rehired by large enterprises, and workers are forced to accept contracts that they may not find to be better off.

As already mentioned, data for the same group of workers observed from 2003 to 2010 in the Philippine labor force were collected, allowing us again to perform FE and RE estimations. For all workers, a negative is found. Controlling for demographic factors, younger and less educated workers were those laid off with the increase in minimum wages. Also, female workers showed a lower probability of getting employed with higher minimum wages.

These indicate that the disadvantaged groups or those that are likely to be poor are those who will have a lower chance of getting employed as a result of minimum wages. It needs to be stressed though there is a significant difference between the FE and the RE. This means that the results may apply only to this sample, and not necessarily to the population. In any case, for this type of analysis, it is crucial to control for worker-specific effects to isolate the impact of the minimum wage.

Conclusion

By means of various econometric methods, the study was able to establish a causal relationship between minimum wages and employment. In particular, the analyses based on both national and regional pooled data and panel data showed that minimum wage policy reduces employment.

The study also found that minimum wages caused firms to reduce their production workers. Theory predicts that minimum wages can adversely affect employment because of scale effects. The negative impact of minimum wages emanates from scale effects, which predict that such outcomes are a consequence of greater marginal costs.

Because of this, it is difficult for small firms to mature into larger-scale firms. In the process, the production and the demand for production workers decline. Because small-scale firms have started to decline, larger firms are able to acquire more production workers, presumably at starting wages lower than what experienced workers would have received in smaller firms. These firms are not able to rehire all the laid-off workers, and the poorer workers who may need cash in the short term may find these arrangements inferior to their previous jobs.

Furthermore, because of the minimum wages, firms are reluctant to hire younger, less educated, and female production workers. To minimize costs, increasing training for these younger and less educated production workers may no longer be an option as minimum wages rise.

Finally, these findings may have serious consequences in the way the Labor Code affects production efficiency, as well as social protection. There is thus a need to coordinate these policy areas in a way that reinforces one another.

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