The winners and losers of minimum wage policies in the Philippines and Thailand[1]

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Abstract

Degree of labor market competition and level of minimum wage enforcement have significant implications for the optimal minimum wage. Less enforcement and greater market imperfections imply that a much higher minimum wage can be optimal such that it leads to improvements in efficiency and welfare. Undertaking new empirical analysis for Philippines and Thailand using a model that accounts for minimum wage changes and differential enforcement rates on employment and wage dynamics finds evidence consistent with the predictions of economic theory. Despite the Philippines having a minimum wage set over 25% of the estimated living wage the less competitive labor market environment and greater levels of noncompliance result in a greater positive effect of increases in minimum wage laws on overall employment and employment in the private sector ranging from 0.13 to 0.64 increase from a 10 percent increase in minimum wages. In contrast, Thailand with a minimum wage set about 13% higher than the living wage, but with a more competitive labor market and better enforcement finds that increases in the minimum wage resulted in reductions in employment ranging from 0.4 to 0.7 percent from a 10 percent increase in minimum wages. Examination to movement toward a national minimum wage policy that increased the minimum wage to nearly double the living wage suggest that the minimum wages may have been set too low with greater employment creation occurring both in public and private sector. This can in part be explained by market imperfections that may have introduced higher labor costs, but also greater entry of candidates into the market that improved ease of hiring. These effects are shown to vary over different types of individual and worker characteristics.

1. Introduction

Minimum wage legislation exists throughout a wideset of developed and developing countries.[2] When sophistically implemented, minimum wages can be a powerful tool to improve efficiency, welfare and income inequality by helping to redistribute earnings to low-wage workers (Freeman 1996). Nevertheless, the debate over whether they help or hurt economic development and inequality remains a hotly contested issue because variations in how minimum wages have been set and enforced have resulted in a range of outcomes varying from positive to negative. Moreover, even when the aggregate effects of minimum wage policies are positive there still often remains winners and losers. This could range from specific workers where minimum wages bind losing their jobs while other see a bump up in their wages that improves their consumption power. New firms and firms employing less skilled workers may find

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[1] Jude David Roque and Christine Ablaza provided research assistance for this paper.
[2] Wikipedia suggests that modern minimum wage laws goes back to England's King Edward III decree on the Ordinance of Labourers in 1349. As of 2016 current documentation suggests that 139 countries have some form of minimum wage laws.

labor costs high resulting in reduced firm survival or even lower firm entry probabilities. Minimum wages are especially controversial in developing countries where low labor-costs often are the main motivation driving foreign investments in tradable manufacturing and services that have helped countries to structurally transform their economies and promotion of economic growth.

This article aims to synthesize the theoretical and empirical literature on minimum wages especially within the context of developing countries. It shows that a variety of outcomes can arise from raising minimum wages depending on imperfections in the labor market, job informality, and levels of enforcement. Moreover, there are often winners and losers from minimum wage laws depending on the method through which enforcement occurs that in some cases can have long-term negative implications on the quality of the labor force. This highlights the difficulties that developing countries face in being able to set, but also effectively implement a minimum wage that can promote firm efficiency and social welfare.

To place the theoretical literature into more concrete terms, the paper undertakes empirical analysis of the minimum wage effects on employment and wage dynamics in the Philippines and Thailand from 2001 to 2014. The empirical analysis incorporates not only lagged changes in minimum wages, but variations in levels of minimum wage enforcement. It also examines the winners and losers of minimum wage policy to better understand whether complementary policies could be utilized to offset any negative effects. Both countries have primarily used a decentralized wage setting process where provinces had scope and latitude to decide minimum wage policy with real minimum wages moderately declining over the time period. However, in the Philippines the minimum wages were set around 25% higher than the living wage rate while in Thailand they were set only 13% higher on average until 2011 when a national minimum wage policy was implemented that more than doubled the minimum wages across the region resulting in a wage rate that was around 100% higher than estimated living wage rates.[3] Compliance with minimum wage laws differs significantly among the countries with Thailand showing clear progress in reducing the number of non-compliers over time resulting in roughly 12 percent of all wage workers having wages below the minimum wage in 2014. On the other hand, the Philippines has significant non-compliance in the minimum wage laws ranging from 35 to 45 percent of the population. This could in part arise due to the application of exceptions to the minimum wage rules as well as difficulties in implementing minimum wage laws that depend both on industry and firm size.

The empirical analysis finds that raising minimum wage laws generally have positive effects on overall employment as well as private wage employment in the Philippines. In contrast, rises in minimum wages in Thailand resulted in declines in employment over the period 2001 to 2011. These effects still are quite small ranging from 0.13 to 0.64 percent increase in Philippines to a 0.4 to 0.7 percent decrease in Thailand from a 10 percent rise in minimum wages. While there are small declines in overall wage dispersion in the Philippines there is a significant rise in wage dispersion in Thailand. In both Philippines and Thailand additional enforcement of minimum wages results in small declines in employment. The net effect of raises in minimum wages and increased compliance and enforcement, however, is estimated to be positive in the Philippines and negative in Thailand that could contribute to declines in overall wage dispersion in the Philippines and increases in Thailand. Including the 2012-2014 time period in Thailand that shifted to the significantly high national minimum wage policy tends to indicate that Thailand in fact may have provided benefits in terms of efficiency and welfare even while enforcement somewhat stayed the same. The findings are consistent with theoretical models suggesting that higher minimum wages and more lax enforcement could in effect be a more optimal solution from the perspective of a social planner

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[3] Estimated daily living wage rates were estimated at PHP 224 for the Philippines in 2013 and THB 141 for Thailand in 2010 (Martinez et al. 2016).

(e.g. Basu, Chau, Kanbur 2010). However, the aggregate effects of the minimum wage policies and enforcement are so small to the point that there are seemingly many other policies that should be considered more important and more effective in improving worker welfare and efficiency whereby more productive people enter and are hired for jobs in the labor market.

The rest of this paper is organized is follows: Section 2 summarizes predictions of the theoretical literature and findings from the empirical literature on minimum wages. Section 3 describes the labor force data used for analysis and presents some basic summary statistics and provides background on minimum wage setting, enforcement and labor market context for the two countries of study. Section 5 details the empirical methods and the results. Finally, section 6 concludes.

2. Related literature
2.1 Theoretical literature

Setting a minimum wage that improves efficiency and welfare requires sophisticated institutions that have the latitude to set a minimum wage, but also capabilities to assess the labor market environment and its ability to enforce the minimum wage. Often times, however, countries have little ability to fully control the minimum wage setting process that maximizes social welfare. In particular, (Boeri 2012) suggests that minimum wages arising in the context of stronger collective bargaining institutions could be set too high in relation to the optimal minimum wage that would be set strategically by a social planner who intends to optimize social welfare. The theoretical literature can broadly be synthesized as follows: i) in labor markets with greater degree of market imperfections or more monopolistic power a higher minimum wage is optimal ii) in an institutional environment with lower ability to perfectly enforce the minimum wage a higher minimum wage is optimal iii) when a higher minimum wage significantly raises consumption power and consumption of domestically produced products a higher minimum wage is optimal.

2.1.1 Minimum wages and labor market competition

The standard model of a perfectly competitive labor market with homogeneous firms and workers, a binding minimum wage always creates falls in employment. This prediction can easily be seen from graphs of simple supply and demand curves where setting the wage above the equilibrium wage outcomes results in involuntary unemployment and decreases in welfare. However, this model is much too simplistic to capture the actual realities of labor markets. Even by just extending this model to two types of workers and two types of occupations, Lee and Saez (2012) show that there can be a binding minimum wage that improves welfare. By assuming there is efficient rationing, meaning that low-skilled workers lose their jobs in the low skilled sector, the optimal minimum wage which increases social welfare to maximize the utility of all individuals can be one in which minimum wages are set above the perfectly competitive wage outcome even when it creates losses in employment.

In a labor market with a monopsonistic employer there exists values for which a binding minimum wage creates rises in total employment. This is because the employer artificially restricts labor supply to maximize profits such that the marginal revenue of the product equals the marginal factor costs. In this type of labor market small rises in the minimum wage therefore can push the monopsonistic employer to hire more labor. In effect, in this type of labor market if the objective of the government is to maximize worker welfare having a sufficiently binding minimum wage can be viewed as optimal.

2.1.2 Minimum wages and productivity

The more simplistic models investigating the effects of minimum wages also tend to forget that labor costs and particularly imposing certain levels of minimum wages can have strong effects on the types of firms that enter. For example, the imposition of economy wide minimum wage could result in encouraging the exit of low-productivity firms over time improves the competitiveness of firms in the labor market (Eckstein and Wolpin 1990). Minimum wages can also be justified when it results in efficiency gains where rises in wages result in returns to effort and productivity by workers that outweigh the higher labor costs (e.g. Owens and Kagel 2010). This in effect shifts the labor demand side curve outward as it raises the returns to employing additional units of labor.

2.1.3 Minimum wages and imperfect competition

Both the perfectly competitive market and the monopsonistic market are extreme cases. However, they also ignore the reality that many labor markets are imperfect as they are characterized by search frictions due to informational asymmetries in where to search for jobs and transaction costs to hiring and firing. Models of labor market search with Nash bargaining provide an alternative explanation for why unemployment or informal sector employment exists and why differential wages might be observed among seemingly homogeneous workers (Rogerson, Shimer and Wright 2005; Zenou 2008; Ulyssea 2010). In these models, optimal minimum wages that bind can result in increases in wages, employment levels and firm welfare. In the most basic model by Hosios (1990) optimal in this framework is setting the minimum wage to the unemployment-payoff plus the difference between output and unemployment pay-off multiplied by the elasticity of the matching function with respect to labor market tightness (Hosios 1990). The minimum wage in this context essentially works to increase the effective bargaining power of the worker leading to increases on the search activity on the side of the workers even while it potentially results in small declines in the posting activity of firms. In these type of labor markets theoretical models show that some binding minimum wages could result in positive rather than negative effects (Lang 1987).

However, the assumption that a social planner can have complete control over the search and job posting rates of firms is quite strong. As a result, Flinn (2006) considers the case where there are endogenous contact rates and labor market participation decisions resulting in the minimum wages only being used as a second best tool to help improve labor market efficiency. He finds that within the context of this model that unemployment may not increase even when the minimum wage does. In this model the only factor of production is labor and total output of firm is the sum of productivity levels of all of its employees. The effect of a minimum wage set above the effective bargaining power is that there are fewer firm to worker matches. With endogenous contact rates, however, both employment and unemployment decreases.

While the literature has been more limited in looking at how the existence of an informal sector affects outcomes, Ulyssea (2010) model that considers firm entry into the formal or informal sector and a labor market governed by search frictions and Nash bargaining implies that raising the entry costs too much through labor regulations such as minimum wages contributes to rises in the informal sector and reductions in welfare. Nevertheless there still tends to be values in which minimum wages could bind and be optimal. It should also be noted that in the presence of efficient rationing where more skilled individuals enter the formal sector while less skilled individuals enter the informal sector, higher minimum wages that results in reductions in employment in the formal sector could result in rises in the average skill employed in the informal sector. The resulting effect is that it could cause rises in the average wages in the informal covered sector even though it is uncovered (Boeri et al 2011). This implies that rises in informal sector wages may arise not from the "lighthouse effect" that some have claimed

where minimum wage setting in the formal sector serves as a reference point of appropriate wages in the informal sector, but simply from a selection effect.

The importance of considering the dynamic effects of minimum wages adds an extra dimension of difficulty in understanding long-term consequences to minimum wage setting. These models tend to underscore the importance of understanding how minimum wage setting affects the behavior or incentives of different individuals who enter the labor market and search for a job particularly the behavior of youth who may be weighing the trade-offs between continuing in school or entering the labor market (Neumark and Nizalova 2007). These models find that higher minimum wages could contribute to lower lifetime mobility and greater social inequality. The presence of search frictions could also lead to reductions in on-the-job training opportunities and decrease the aggregate investment of human capital in the economy due to more people entering the labor market rather than continuing to invest in education (Flinn and Mullins 2015).

The presence of search frictions means that the optimal minimum wages would be set in such a way that it increases worker labor market participation rates and raises bargaining power. This results in more labor market matches being consummated even while firms may reduce the number of vacancies which they post (Flinn 2007).

2.1.4 Minimum wages and imperfect enforcement

The search and matching models tend to capture important features of labor markets transactions that underscore that binding minimum wages can be optimal as long as they are not set too high. However, these models still miss out on a critical feature of minimum wage implementation in developing countries that often result in large shares of wages that are not in compliance with minimum wage laws. Basu, Chau and Kanbur (2010) consider a model where the social planner must both choose a minimum wage level and enforcement intensity. In this model with heterogeneous workers and differing costs to employment, the social planner faces a transaction costs to enforcement while trying to maximize the social welfare of the workers. Their study finds that under some conditions greater enforcement of minimum wages lowers the expected marginal cost of hiring relative to no intervention, but in other cases lowers it. The model considered suggests that when minimum wages are imperfectly enforced they can only be justified on the basis of improvements to social welfare, but not overall efficiency (Basu et al. 2010). Empirical analysis suggests that there are a variety of factors affecting both the share and depth of violations including local unemployment rates that might represent the extent to which the labor market is competitive. However, their analysis finds that the number of labor inspectors is insignificantly related to determining non-compliance (Bhorat, Kanbur and Mayet 2012).

Gindling et al. (2014) found that a campaign to increase minimum wage compliance resulted in large increases in compliances with labor standards ,but little impact on employment of full-time workers. Moreover, it increases the wages of women, younger workers and less educated workers the most suggesting that increased compliance does not always uniformly result in worse outcomes.

2.1.5 Differentiated Minimum Wages

In a world in which there is perfect information and perfect enforcement minimum wages which are differentiated based on certain characteristics of firms or individuals could be useful in improving efficiency and welfare. However, these type of wages in practice may be much more difficult to enforce and implement.

Larrain and Poblete (2007) examine the effects of age-differentiated minimum wages that have been utilized by some countries with the intent of counteracting the youth unemployment problem by allowing firms to higher younger workers at lower wages. Within the context of their model they find that age-differentiated minimum wages does reduce youth unemployment, it forces less skilled workers to remain in the uncovered sector. These age-differentiated wages are seen as sub-optimal compared to a single minimum wage as it contributes to greater life-time inequality.

It is possible that if countries are able to effectively screen firms or workers on observable characteristics, minimum wages setting that differentiates along key characteristics could result in more optimal outcomes than a single wage that is applicable to all firms or workers. In particular, minimum wages set by observable industry characteristics that are tied to levels of productivity and worker-firm bargaining power could potentially better ensure that certain industries are not disproportionately placed at a disadvantage from the minimum wage setting process. Indeed these practices are being utilized by a number of developing countries. These questions still remain to be examined completely in terms of how efficiency and welfare differ compared to a single wage. The trade-offs to more complex wage setting features versus setting a single standard wage across a country or region need to be more fully analyzed. The more exceptions and rules that need to apply, the greater the cost and difficulty there may need to be in enforcing compliance.

2.1.6 Minimum wages and consumption

The structure of production could also play a significant factor in the effects of minimum wages on employment. If minimum wages raise consumption power for locally produced products, this could generate incentives for domestic firms to industrialize and expand leading to rises in employment. However, the key is that the additional consumption power mainly goes toward the purchase of locally produced goods and services rather than purchase of imported goods (Murphy et al. 1989; Magruder 2012).

2.2 Empirical literature

The existing theoretical literature provides a useful framework for thinking about the minimum wage setting institutions, enforcement and ultimately their impacts on employment, broader social welfare and efficiency. However, as the predictions tend to differ vastly depending on the model and context with no clear and consistent findings, it is ultimately an empirical exercise that must be undertaken to reveal the resulting impacts of minimum wage setting within a country's context.

In general, most of the empirical literature has found that increases in minimum wages have led to reductions in employment. The effects arise both because of reductions in hiring and lay-offs among those working in private formal sector jobs (e.g. Nicaragua: Alaniz et al. 2011; China: Long and Yang 2016; South Africa-Agriculture: Bhorat et al. 2014; US: Neumark and Wascher 2007). In the UK minimum wages were found to significantly reduce firm profitability and new firm entry (Draca et al. 2011).

Nevertheless, a few studies have found positive employment effects. In particular, in Indonesia minimum wages set during the 1990's were found to be associated with significant increases in formal employment in non-tradeable sectors, but reductions in employment in tradeable sectors consistent with theory that it provided some incentives for firms to industrialize (Magruder 2013). However, studies have suggested that small firms were affected the most by minimum wage policies in Indonesia during the early 1990's with larger firms seeing a bigger increase in employment (Rama 2001). More recent analysis of minimum wages in Indonesia during 1997-2007 has found very little evidence suggesting that minimum

wages were detrimental to employment (Hoghberg and Lay 2015). Nevertheless simulations of minimum wage laws in Indonesia during the 1990's suggested that minimum wage laws hurt more people on aggregate than it helped with 79% of individuals worse off compared to 21% being better off (Bird and Manning 2008) Ambiguous employment effects have also been found in the case of Brazil (Lemos 2009).

Theory predicts the presence of an informal sector could have ambiguous effects on overall welfare. Indeed some argue that minimum wage setting in fact could improve informal sector wages thereby diminishing some of the negative formal employment effects that occur when there are higher minimum wages. In South Africa minimum wage laws resulted in increases in wages of domestic household labor with no observable effect on employment or hours worked providing evidence of lighthouse effects where the minimum wage laws could serve a reference point for fair wages in the informal sector (Dinkelman and Ranchhod 2012). Nevertheless, findings of rises in wages in the aggregate economy could in part be driven by employment losses in the formal sector and entry of these workers into the informal sector which Boeri et al (2011) estimated to account for a third of observed rises in informal sector wages in Brazil.

In general, the consequences of minimum wage must take into account the perspective of firms is the providers of jobs that are typically covered by minimum wage laws. In China, rises in minimum wages was found to have significant negative effect on export behavior of firms with a 10% rise in minimum wages resulting in a 1% decline in exports and a 1.7% decline in value of exports conditions on the firm exporting (Gan et al. 2016). Moreover, the effects could potentially be underestimated from the perspective that the analysis cannot account for the fact that there could be firms that may have decided not to relocate their production to China due to higher low-skilled labor costs unless the government was able to off-set these higher expected labor costs with other policies. Firms can undertake a host of actions due to increases in minimum wages. They can increase their investments in capital that improve worker productivity and hence firm profits over the long-run. This potentially results in ambiguous effects on employment depending on whether capital is a substitute or complement for labor. It also may have differential effects depending on enforcement policies. While minimum wages are often more binding for small firms that are less productive and employ lower-skilled labor, minimum wage policies may be more likely to be enforced among larger firms. In Honduras, it was found that employment reductions were especially large among medium and large-scaled firms because minimum wage enforcement was more likely to apply to large firms compared to small firms (Gindling and Terrell 2009).

The empirical literature also tends to emphasize that the implications of minimum wages could have significant differential effects on different groups of workers and firms that alter how one must evaluate the consequences of minimum wage laws. In particular, in the US minimum wage laws often are found to disproportionately bind and affect youth causing a disproportionate shed-off of employment among this group of students it could actually result in no change or reductions in unemployment (Nizalova and Neumark 2007). As they are trading off work and investments in human capital the negative consequences are far less than if employment shed-offs were among the primary working-age population. This is consistent with the theoretical literature of Flinn and Mullins (2015), Flinn et al. (2016) and Nizalova and Neumark (2007). As such, minimum wage analysis is not complete without evaluating the winners and losers of the minimum wage policy.

3. **Data and Background**

3.1 Labor force survey data

Quarterly data from the Philippines labor force survey and Thailand labor force survey 2001-2014 are utilized. The data are representative of the labor force within the country down to the province level. These survey collect basic details on the working age population including age, education, and labor market status. For employed workers details on industry, occupation, nature of employment (e.g. casual, self-employed, private employee, government employee, and employer) and monthly wages of wage and salaried workers are collected.

The surveys face several limitations. In particular, they do not capture tenure in job that could provide an indication of whether an employed person is in a new job or has remained in an existing job. This limits the ability to assess labor market churn which can help in assessing the different mechanisms through which minimum wages are affecting employment and provide more pointed policy recommendations. For example, if minimum wages were negatively impacting minimum wages by reducing job creation, governments could potentially off-set the policy by providing incentives to foster creation of new jobs. The Philippines data also does not collect indicators on the type or size of firm. This makes it more difficult to assess whether a worker should be covered by minimum wage policy in actual practice and can introduce some measurement error into the assessment. While Thailand does collect indicators of firm size for workers that are employed by private enterprises, the nature of employment that an individual engaged in that conveys permanency of a job is not collected even though these are useful measures to examine the stability and quality of wage employment.

3.2 Minimum wages

Both the Philippines and Thailand used a decentralized minimum wage setting process over the time period of 2001-2014. The two-stage wage setting process set minimum the minimum first based on living standards followed by adjustments based on inputs from a regional tripartite wage and productivity board. However, there are significant differences in the rules governing minimum wages and the levels at which they set in the Philippines and Thailand that appear to subsequently affect the ease of implementation and enforcement. A summary of the key features of the minimum wages in the two countries is summarized in Table 1.

This table shows that minimum wage setting in the Philippines is differentiated not only by region, but also industry and firm size. While minimum wages covers nearly the universe of wage workers in Thailand, minimum wage coverage is far less in the Philippines with household helpers, small retail and distressed businesses all excluded from the minimum wage laws. The consequences to employers for not complying with minimum wages is fairly small in terms of monetary terms in the Philippines with fines up to at most $4000 while in Thailand the fine is nearly $30,000. However, maximum jail terms are far more at up to 4 years compared to at most 6 months in Thailand. Nevertheless the quality of the legal system and actual practice may play a significant role in whether the consequences for noncompliance are actually considered serious enough by businesses to ensure that they comply with the minimum wage laws. However, it is clear that the high degree of differentiation of minimum wage laws in addition to a large number of exceptions may make it far more difficult and costly to adequately enforce minimum wages in the Philippines compared to Thailand.

3.2.1 Philippines

Minimum wages have existed in the Philippines since the Marcos era (1985-1986). Minimum wages have consistently differentiated between agriculture and non-agriculture industries with non-agricultural industries facing a higher wage than agricultural industries. In 1989, wage setting became formalized with the Republic Act No. 6727 that created the National Wage and Productivity Commission (NWPC) and regional tripartite wage and productivity boards that are comprised of government, industry and

worker stakeholders. The 1989 law implemented a two tiered wage system with the first tier based on a poverty threshold and the socioeconomic indicators, while the second tier was determined by the regional boards that evaluated real income, revenue and profits of enterprises. Minimum wages in the Philippines are largely differentiated on the basis of broad industries (agriculture, industry and services) and firm size (small, medium, large). Analysis suggest that non-agriculture wages are largely correlated with CPI, regional GDP and employment rates (Bersales and Lucago 2014). Since 1990 to 2014 minimum wage there have been 273 changes to minimum wages.

In general, minimum wage policy covers only private sector workers, non-household helpers and persons in the personal employment of others. However, minimum wage laws tend to exclude distressed establishments, new businesses, retail or services with no more than 10 workers and establishments affected by calamities. Non-compliance with minimum wages in 2014 indicated that it could result in fines of P25 thousand to P100 thousand (~$500-$4000) or up to a four year jail term.

Minimum wage data for the Philippines was obtained from the National Wage and Productivity Commission (NWPC) which reports values for different minimum wage laws. Minimum wages in the Philippines are set by broad industrial sector and by firm size. Monthly indicators of minimum wages over the minimum and maximum value by province and broad industry (covering agriculture, industry, and services) were constructed. While wages also differ by firm size we could only obtain a wage range due to the absence of an indicator on firm size in the labor force survey. In instances where the minimum wage changed part way through the month, the monthly minimum wage is the weighted value of the minimum wages across the respective days in that month. Minimum wage values were deflated by regional consumer prices indices to obtain values of the real minimum wage for the 2001 base year.

Figure 1 shows minimum wage changes over 2001-2014 weighted by industrial sector of employment. It shows that real minimum wages were largely stagnant or tended to slightly decline over time. However, real minimum wages are about 20% higher compared to the (2012) estimated living wage of PXXX that have raised some concerns that the minimum wages were set too high. In general the trends by industry are similar over time and the gap between minimum and maximum values of the minimum wage have narrowed slightly over the time period. Moreover, we find that the average wages of wage workers slightly declined over the time period or were flat. Moreover, the average wages in private enterprises was on average below the average level of minimum wages (Figure 2). This reflects a combination of weak labor markets that are not extremely competitive or productive and noncompliance with minimum wages.

The degree to which minimum wage laws are enforced can have significant implications on the resulting employment effects. Figure 3 provides a proxy for the degree to which minimum wages are enforced capturing the share of minimum wages that are not in compliance with the minimum wage laws. Despite initiatives to increase the number of inspections in the Philippines, particularly in 2014, there is no clear evidence that this has significantly resulted in declines in the share of workers receiving wages below the minimum. If anything there has been rising shares of workers that are receiving wages below the minimum over time. The statistics show that there is large share of workers who receive wages below minimum wages representing 35-45% of all wage workers over the years examined. Non-compliance tends to be affected by changes in minimum wages with rises in minimum wages being associated with rises in the share of wage workers receiving below minimum wages. Moreover, in 2012 the share of workers below minimum wage rose substantially to 45% of all wage workers even while the real minimum wage was disproportionately lower than the period from 2001 to 2010.[4] . The results indicate

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[4] [xxx] shows that…

that there is a lag effect in the implementation of minimum wage laws in the Philippines and that many employers do not respond immediately in terms of raising wages. To the best of our knowledge there has not been any thorough analysis of the impacts of minimum wage laws in the Philippines.[5]

3.2.2 Thailand

Minimum wage laws in Thailand have been implemented since 1973. Thailand has used a gradual policy for implementing minimum wage laws starting with coverage for only Bangkok and three adjacent provinces in 1973 to expansion of minimum wage laws to all provinces by 1998. Differentiating in minimum wages between provinces up to 1998 was rather small with only 3 different minimum wages and a centralized minimum wage setting process. However, in 1998 the Asian financial crises transformed minimum wage setting into a process that was more decentralized and involved a two-tier system. The initial intent was to differentiate minimum wages by province and industry, however, industry minimum wages were never implemented as they were viewed as too difficult to administer (Del Carpio et al. 2014).

Minimum wages in Thailand are also determined by a tripartite system of workers, employers and government. However, worker representatives are often appointed by firms leading some to suggest that in fact worker views may account for a very minimal portion of the wage determination equation (Phongpaichit and Benyaapikul 2013). As such minimum wages are thought to have been kept low from 2000-2010 to support export-drive growth based on cheap labor despite relative increases in productivity.

Minimum wage laws are intended to cover all wage workers. In 2013 minimum wage policy indicated that employers would face 6 months in jail or a 100,000 baht fine ($30,000) for non-compliance with minimum wages. Prior examinations of minimum wages over 2001-2011 found that rises in minimum wages had small effects on the employment probabilities of females, elder, and less educated workers and positive effects on prime-age male workers Del Carpio et al. (2014). However, the net effect appeared to be positive as it was associated with increases in per capita consumption. In addition, Leckcivilize (2015) found that minimum wages from 1985 to 2010 may have led to some compression in minimum wages in large business, but had no effect on the wage distribution of those in small medium firms.

Figure 4 shows the nominal and real minimum wages in Thailand. It indicates that real minimum wages were marginally declining over 2001 to 2011. However, with the implementation of the national minimum wage policy in 2011 both nominal and real minimum wages rose substantially with real minimum wages rising by nearly 70%. While average real wages have not increased dramatically they have shown some small rises over time despite real minimum wages largely being flat between 2001-2011 (Figure 5). Moreover, in contrast to the Philippines average wages in private enterprises are above the average minimum wage threshold. This seems to reflect that Thailand may have a slightly more competitive labor market that has seen productivity gains which have driven rises in average wages. Figure 6 shows that noncompliance with minimum wage laws has steadily declined over time from a high of 30% in 2001 to only 12% in 2011. However, the implementation of the 2011 national minimum wage policy resulted in a steep rise in noncompliance to 30% in 2012, but returned to nearly 12% by the end of 2014.

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[5] While Paqueo et al. (2014) analyzed minimum wages in the Philippines finding negative and significant employment effects over the time period (XXXX)-(XXXX). However, their analysis had unclear empirical specification, exploited average wages in the region independent of the industry sector or firm size distribution and conducted inadequate robustness checks. This implied that significant measurement error was potentially introduced into the model and the models likely suffered from omitted variable bias.

3.3 Labor market and minimum wages

Table 2 shows patterns in labor force employment by different worker characteristics in Philippines and Thailand. Unemployment in the Philippines is much larger than in Thailand. This is in part could be due to a much higher share of workers engaged in non-wage employment. The share of workers receiving wages greater than 10% of the minimum wages in Thailand is 26% compared to only 15% in the Philippines. Moreover, Thailand has only 8% of the total labor force for which wages are below the minimum wage and 5% of the population for which minimum wages are within 10% of the minimum wage line. This contrasts with the Philippines where 15% of the total labor force has wages below the minimum wage and 8% of the population for which wages are within 10% of the minimum wage line. In short, wages in the Philippines are both binding or not compliant with minimum wage laws for a disproportionately higher share of wage workers than Thailand. This may reflect a combination of a weak labor market, imperfect enforcement of minimum wage laws and broad interpretation of exceptions to the Philippines minimum wage law.

Younger individuals are more likely to have wages that are just above or below the minimum wage line. In the Philippines, unemployment is more prevalent among tertiary educated graduates compared to those with only a primary or secondary education indicating that could be driven by higher entry rates of lower educated population into non-wage employment. While large share of the tertiary educated enter jobs for which they receive minimum wages above 10% of the minimum wages the share in the Philippines is only 37% compared to 67% in Thailand. Similarly while 41 percent of the urban labor force receives wages at least 10% above the minimum the share is only 22 percent in the Philippines. Nevertheless, urban labor markets in Thailand have a much higher share that is in non-wage employment at 41 percent compared to 30 percent in the Philippines.

While industry and services have similar rates of non-wage labor in the Philippines and Thailand, the share of industry labor for which wages are non-compliant or wages are binding is far higher in the Philippines than Thailand. However the service sector in the Philippines is both more likely than the industrial sector to have wages that are non-binding (above 10% of minimum wages) and are less likely to have labor that receive wages below the minimum with a similar pattern observed for Thailand.

Firm size could matter in relation to compliance with minimum wage laws or levels of enforcement. In Thailand it is observed that workers employed by large firms are more likely to have wages which are compliant even though a disproportionately higher share has minimum wages that are just above the minimum wage line.

4. Methods and Results

Variations in minimum wages across regions, industry,and over time are exploited to identify the effects of minimum wages on different employment outcomes. This allows for examining whether effects are heterogeneous across all types of workers and to better understand who gains and who loses from minimum wage policies.

The standard panel fixed effects specification used in the literature, estimate the relationship between levels of minimum wage changes and employment outcomes for each region *i* at time *t*:

(1)

$$E_{it} = \beta MW_{it} + \gamma N_{it} + \theta MW_{it}N_{it} + \delta X_{it} + \mu_r + \mu_t + \varepsilon_{it}$$

In this equation E is log employment or the level of wage dispersion for different types of formal wage work, MW is log minimum wages and X includes controls for the population, real regional GDP, share of university educated, share of labor force 55-64 and young workers 15-24. The population is considered important as it accounts for supply side behavior that could result in employment effects due to migration patterns or new entrants into the labor market. μ_i and μ_t are region and time fixed effects. In contrast to prior studies, however, there is interest in understanding how the enforcement of minimum wages N and the interaction between levels of minimum wages and enforcement effects employment. This specification assumes that minimum wage changes results in an immediate impact on employment with no adjustment period.

However, the full-effects of minimum wages may not be realized immediately. In the Philippines and Thailand it appears that there are some delays in adjustments to wages even when there is a clear stipulation on the effectivity of new minimum wage laws. Moreover, even when these adjustment occur immediately stickiness in the market could cause significant delays for the full set of adjustments to be made in response to new minimum wages. For example, firing policies may prevent firms from immediately shedding-off labor or firms could find it difficult to immediately re-optimize their input strategies to replace labor with capital that could substitute for labor in non-competitive markets, but also enhance the productivity of labor. As such, it is possible that there could be a delays in the effects of minimum wage changes on employment outcomes.

To better account for differences in minimum wage setting and the dynamic effects of these changes over time equation (1) is first differenced using 1-year time gaps. As a result, we implement a similar specification to Meer and West (2016) that capture differences between time period t and t-1, where r lags of minimum wage changes are included in the specification. In our primary analysis a 1-year period of changes is evaluated.

$$(2)$$

$$\Delta E_{it} = \sum_{r=0}^{s} (\beta_r \Delta MW_{it-r} + \gamma_r \Delta N_{it-r} + \theta_r \Delta MW_{it-r} \Delta N_{it-r}) + \delta \Delta X_{it} + \rho_i + \rho_t + \Delta \varepsilon_{it}$$

In this model, r represents the length of the time period of 1-year. In this equation N represent the share of wage workers who have wages that are in compliant with minimum wage laws. This serves as a proxy for the degree of enforcement of the written labor regulations in the different regions. Our coefficients of interest are then β_r, γ_r, θ_r. We are primarily interested, however, in how the elasticity of employment of wage dispersion changes with changes in the degree of enforcement or compliance with the minimum wages as this could have either positive or negative effects according to (Stanwix et al. 201X).

The current identification of the impacts of minimum wage policy on employment outcomes is unbiased only if we can truly assume that deviations of the minimum wage setting behavior from economic factors is exogenously determined across the different regions. If minimum wage setting occurs in response to how other provinces or regions are setting their minimum wages, this could bias the results either downward or upward. Alternatively if different regions set minimum wages higher as a result of expected upward trends in employment or wages it could bias the estimated effects of minimum wages upward overestimating the positive impacts of minimum wages or overestimating the negative impacts of minimum wage policies. Some of the empirical analysis on minimum wage setting has come to different conclusions on the determinants of minimum wage setting. In China, Xing and Xu (2016) find little evidence that minimum wages is set by competition of the political reasons or officials. However, the analysis undertaken did relatively little to account for regional competitive effects of minimum wage

setting. Work by Dreger, Kosfeld, and Zhang (2016) find that the economic factors of minimum wage setting decline when regional variations or spillovers are taken into account.

The concern that spillovers across borders could be driving some of the adoption in minimum wage policies drives us to examine the effects of minimum wages drives us to additionally examine the effects of changes based on an identification strategy using spatial comparisons. This better controls for concerns that similar economic conditions could potentially be driving the results. As a result we undertake a spatial-temporal fixed effects model to estimate a spatial discontinuity at the provincial level as more refined district level data was not available (e.g. Magruder 2013). This allows minimum wages to be related endogenously to to observations, but requires the endogeneity to be similar among spatially proximate districts. Due to the size of provinces the smallest radius that we could use without getting to sparse was 50 kilometers. Spatial differencing is potentially controversial due to (Neumark et al. 2014). Spatial differencing technique in our case seems to drive estimates toward zero if negative or away from zero if positive. That is we subtract the average population weighted value of variables in provinces within a certain radius $R(i)$ of each province i at time t. More specifically we estimate equations of the follow form:

$$(3)$$

$$
\begin{aligned}
E_{it} - \overline{E_{R(\iota)t}} = {}& \beta(MW_{it} - \overline{MW_{R(\iota)t}}) + \gamma(N_{it} - \overline{N_{R(\iota)t}}) + \theta(MW_{it}N_{it} - \overline{MW_{R(\iota)t}N_{R(\iota)t}}) + \delta(X_{it} - \overline{X_{R(\iota)t}}) \\
& + \mu_r - \overline{\mu_{R(\iota)}} + \mu_t + \varepsilon_{it} - \overline{\varepsilon_{R(\iota)}}
\end{aligned}
$$

However, as we have a longer time panel we can potentially better exploit both the spatial varying effects as well as the time varying effects. As a result, estimations focus on modifications to equation (2) to have both spatial as well as time differencing as follows:

$$(4)$$

$$
\begin{aligned}
\Delta(E_{it} - \overline{E_{R(\iota)t}}) = {}& \sum_{r=0}^{s}(\beta_r\,\Delta(MW_{it-r} - \overline{MW_{R(\iota)t-r}}) + \gamma_r\Delta(N_{it-r} - \overline{N_{R(\iota)t-r}}) + \theta_r\Delta(MW_{it-r}N_{it-r} \\
& - \overline{MW_{R(\iota)t-r}N_{R(\iota)t-r}})) + \delta\Delta(X_{it-r} - \overline{X_{R(\iota)t-r}}) + \mu_r - \overline{\mu_{R(\iota)}} + \mu_t + \Delta(\varepsilon_{it} - \overline{\varepsilon_{R(\iota)}})
\end{aligned}
$$

Testing the inclusion of lags we find that inclusion of lags of up to 3 years provided a balance between examining the dynamic effects and coefficient bias that arises from sample selection caused from inclusion of too many lags. Initial analysis also indicated that minimum wage differences were significant only up to the third or fourth year for most types of employment. The analysis suggests that minimum wages do have a dynamic effect on employment and wages over time.

The optimal model for each type of employment or wage dispersion outcomes based on the inclusion of various lag values of minimum wages and compliance where the optimal model was identified based on the set of wage and compliance variables that had the smallest p-value indicating joint significance. The various models estimated are summarized in Table 3. The optimal model was used to conduct three types of simulations as follows: (i) the effect of a 10% increase in minimum wages (ii) the effect of a 10% increase in the share of wage workers that were in compliance (iii) the effect of a 10% increase in minimum wages and a 10% increase in the share of wage workers that were in compliance. These simulations allows us to better examine the differential effects that minimum wages and compliance can have on the predicted changes in employment and wage dispersion that measures wage inequality using

the log variance of wages. Table Appendix 1 and Table Appendix 2 provided coefficient estimates for models that include up to three year lags. The main analysis is observed in Tables 4 and 5. For Philippines we investigated the years 2001-2014 while in Thailand the main analysis was restricted to the years 2001-2011 when there was decentralized wage setting procedures.

Despite having a minimum wage set 25% higher than the living wage in the Philippines, raising the minimum wage is expected to result in increases in employment not only overall, but also among private sector enterprises ranging from 0.1% overall to 0.6% in private enterprises due to a 10% rise in minimum wages. In contrast, in Thailand where the minimum wage is set on average only about 13% higher than the living wage over the 2001-2011 time period, increases in the minimum wage are expected to result in significant declines in employment. A 10% increase is expected to result in a 0.5 percent decline in overall employment and a 0.7% decline in private enterprise employment. These declines, are larger among both agriculture and industry sectors. They also hit managerial and low-skilled jobs as well as jobs in medium sized firms. While rises in minimum wages negatively affect most types of employment in Thailand, it is marginally offset by increases in employment in large sized firms. Surprisingly non-wage employment also tends to decline suggesting that higher wages may be causing more individuals to search for wage employment. These results were roughly similar even when estimates were restricted to inclusion of only up to 2 lags for Thailand over concerns of sample selection.

In both countries, greater enforcement of minimum wage laws tended to be associated with small declines in employment estimated to be 0.02% overall and 0.1% in private enterprises in the Philippines, while Thailand is estimated to be 0.03% and 0.07% respectively from a 10 percent rise in minimum wage enforcement. In general, rises in minimum wages in the Philippines are predicted to have a slightly greater positive effect on males, secondary educated individuals and those ages 15-54 versus ages 55-64 in terms of employment in private enterprises. In Thailand, males, tertiary education, and younger populations aged 15-24 are predicted to be more likely to lose employment in private enterprises due to rises in minimum wages.

Rises in minimum wages, however, appear to contribute relatively little to decreases in wage dispersion in the Philippines. A 10% rise in minimum wages is estimated to account for only a 0.01% decline in wage dispersion. In contrast, greater enforcement contributes more to declines in wage dispersion at 0.6%. Indeed for most specific industries and job categories, rises in minimum wages is associated with increases in wage dispersion. Similarly in Thailand rises in minimum wages is associated with increased levels of wage dispersion. In contrast, though estimates are bigger with a 10% rise in minimum wages associated with increases of 3% rise in wage dispersion in all types of jobs. This largely appears to be driven by changes in agriculture wage employment. Only for employment in private households is there an observed decline in wage dispersion. Greater enforcement of minimum wage laws in Thailand suggest that it has relatively little change on overall wage dispersion. This suggests that minimum wages may not be an optimal policy from the perspective of ensuring lower levels of wage inequality.

In Table 6 we investigated examining minimum wages through 2001-2014 time period in Thailand which incorporates the move toward the national minimum wage and where minimum wages doubled. The results are surprising from the perspective that it largely results in a reversal in the sign of estimates of the effects of minimum wages on employment and wage dispersion. That is rises in minimum wages are estimated to result in increased levels of employment and decreases in wage dispersion once including the 2001-2014 time period. The effects are still smaller though compared to the Philippines. It is a bit more difficult to analyze and understand these effects and how it may play out in the long-term. In part the changes may be largely capturing the immediate adjustment as well as the greater number of people willing and interested to work under the new wage laws. In fact statistics over time show that in Thailand

that there were more people overall in the labor market from 2011 onward. Moreover, while there were high rates of unemployment there were more people actively seeking jobs and duration of job seeking slightly declined (with the exception in 2012 and 2014).

Robustness Checks

Alternative measures could include measuring not just the share of violations, but the depth of minimum wage violations. In particular Bhorat, Kanbur and Mayet (2013); suggest that depth matters not just the share in the context of South Africa. Moreover, Bhorat, Kanbur and Stanwix (2015) there are suggestions that those least in compliance tend to disproportionately raise their wages more when introducing a new minimum wage law to at least get closer to the level of compliance (this may explain results of the national minimum wage law introduction in Thailand).

[Might try to include measures of ease of job seeking among unemployed constructed at the region level and other items..]

4.1 Changes from decentralized wage setting to a national minimum wage in Thailand

National minimum wage aims to remove poverty. We examined inclusion of the 3 additional years into the standard regressions we found that it tended to change the estimated employment effects from negative to positive using the standard differencing specification. Both the time and spatial differencing while there was a seemingly negative decrease in wage dispersion. However, to better investigate the effects of the minimum wage policy we did the following…. Given the arguments for and against the identification of various methods of estimating the effects of minimum wages this simulation may serve as the best exogenous effect to investigate the effects of a minimum wage policy (Neumark et al 2014). Estimates are biased upward……It is that controlling for heterogeneity changes in the identifying variation can exacerbate other biases and in the particular case the upward endogeneity bias that migh come from inclusion of more local controls.

Two schools of thought underlie minimum wage setting at a decentralized versus a national level. Those that believe in decentralized wage setting recognize that allowing for minimum wages to be set at a decentralized level could devolve responsibility of minimum wage setting to local levels that take responsibility for their wages and implementation. This allows freedom of control and resources to flow to areas that have better policy implementation and could lead to more optimal minimum wages overall. On the other hand, the arguments for having a national minimum wage policy can help improve issues related to migration that could arise because of large differences in the minimum wages between different regions or areas. It also provides a base living wage or reference point that is seen to apply across regions. It also further simplifies the process monitoring and implementing the imposition of minimum wages.

In 2011, Thailand implemented a national minimum wage policy from decentralized wage setting that essentially went against many common notions of minimum wage setting process. This wage was driven by the governments view that ….. It also nearly double the minimum wage in many regions with Bangkok who had higher minimum wages prior to the policy observing the smallest increase in wages. This wage could have the unfortunate effect however of potentially making it more difficult for some regions with less infrastructure to provide cost advantages in the form of lower wages. It also made Thailand less of a cost advantage overall in terms of having low wages which was said to have driven its development during the 2000s. As noted before stickiness in the minimum wage means that it is not a foregone conclusion that this is bad especially if there are difficult search costs.

The national minimum wage policy was essentially an exogenously predetermined from industry's point of view as it was committed to prior to political parties adoption (Pavcnik and Goldberg 2004). This suggests that minimum wage increases were proportionately large in regions that historically lower minimum wage levels. Therefore we interact pre-2011 minimum wage levels with .

We investigate the short-term changes of the national minimum wage policy by interacting the imposition of the 300 national minimum wage policy with average change in the minimum wage. This is seen as potentially an exogenous source of change since neither industry nor workers were seen as the major determinant of these minimum wage changes. What we find is that change in the minimum wages have on average a positive effect, but the national minimum wage policy caused a decline in overall employment in the short-term resulting in a 12% drop in employment on average. However, regions that saw a larger rise in the minimum wages from the national minimum wage policy were on average better off providing some evidence that it may have reduced spatial inequality differences in employment. In general however there was no significant negative effect of the minimum wage policy on private enterprises,. However regions with larger increases in the minimum wage saw slightly smaller declines on average in private sector employment. In general there is no evidence that the national minimum wage policy had a significant negative effect on employment in small firms and medium sized firms. However, there is some evidence that it had a significant negative effect on employment in large firms. If we include additional lags we find that the national minimum wage policy is offset by counteracting effects. In particular there is a rebound from the implementation in the longer run with two years of national minimum wage implementation have effects that are more or less canceled out after 2 years. In general, there is no evidence that the national minimum wage laws were on average negative on the economy. Moreover the effects were seemingly positive for employment in small enterprises which could be driven by smaller enterprises in outside regions having an easier time finding and hiring good labor at the new minimum wage law rates.

were not significantly more like to see declines in employment. Moreover, while there was a negative effect of .09% change in employment due to the implementation of the minimum wage law on private enterprises this affect did not disproportionately hurt regions that saw larger rises in minimum wages. However the story changes when one looks at employment in different enterprises. In particular, those that saw higher rises in minimum wages with the national minimum wage policy were far less likely to be employed in small sized firms; On the other hand the national minimum wage policy equally affected medium sized firms across the different provinces with no larger effect on regions that saw greater rises in minimum wages. On the other hand there was no explicit effect on large sized firms from the national minimum wage policy.

5. Conclusions

Minimum wages by sophisticated governments can be strategic policy tools used to improve welfare and firm efficiency. Optimal minimum wage setting requires capable governments that understand the degree of labor productivity, underlying labor market structure and market imperfections, degree of monoposony power, and quality of institutions that can enforce compliance with minimum wage legislation. As such, few governments often end up being able to successfully implement minimum wage laws that improves efficiency and welfare resulting to significant reductions in overall employment.

New analysis of labor force survey data of Philippines and Thailand show that decentralized minimum wage setting has dynamic effects on employment suggesting first negative, but then positive responses to minimum wages. This suggests that more standard analysis that does not take the dynamic effect into

place may be providing an overly negative picture of the effects of minimum wage laws in these countries.

Secondly, we show that while there may be some effects of minimum wages on employment these effects are extremely small when placing them into the perspective of the larger labor market. Moreover, there are significantly differing effects among the countries with positive effects on employment being observed overall and in private enterprise employment in the Philippines despite having a minimum wage set 25% higher than the living wage rate. In contrast, Thailand faces significant declines in employment and particularly employment in private enterprises even though the lower wage rate is less binding as it is only set 13% higher than the living wage rate over the observed time period. Consistent with economic theory of minimum wages, it suggests that higher minimum wages could be optimal in environments where there is greater monopsony power, greater market imperfections and a lower degree of enforcement.

Further research may better delve into particular differences of the labor market environment, degree of market imperfections, and obtain measures of actual costs and manpower dedicated to ensuring enforcement of labor regulations. There is also a need to investigate the trade-offs between minimum wage setting that is differentiated by industry and firm sizes versus more standard wage setting mechanisms that may be easier and less costly to enforce in the presence of imperfect observability.

From January 1 of 2013 Thailand's employers started having to pay all employees at least 300 baht a day across the country. Prior to that they had announced the policy in early 2012 with implementation taking effect first in Bangkok and other parts of central Thailand. The wage policy was part of a fulfillment pledge by the ruling Pheu Thai Party. Concern was over the impact it would have on small and medium sized enterprises and inequality.

For employees, government and labor unions is that the wages would increase income for workers which would boost consumption and force productivity gains and innovation. It also was that it would help Thai workers to raise their own skills to prepare for the increased labor competition that could compe from the opening of the ASEAN economic community in 2015. Advocates of policy hope that it will modernize Thai businesses and increase productivity leading to reductions in geographical disparity and fewer workers force to move to Bangkok for higher wages. The downside is that it will negatively affect SMEs that are already struggling to survive and could lead to large employee layoffs and force some SMEs out of business (undoubtedly unproductivie ones). This could negatively impact unskilled workers and raise the cost of living and worsen poverty. It also could negative effect Thailand's international and regional competitiveness. Policy raised minimum wages from [xx] – [xx] across provinces. Policy driven policy is likely to affect industries and businesses differently.

Alternative model is to estimate

https://www.dartmouth.edu/~npavcnik/Research_files/colombia_gp.pdf

[complete story not captured because of minimum wages]

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Figure 1
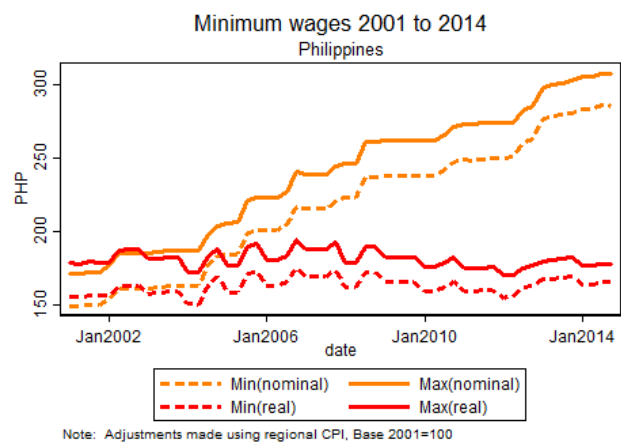
Figure 2

Figure 3

Figure 4

21

Minimum wages 2001 to 2014
Thailand

Note: Adjustments made using regional CPI, Base 2001=100

Figure 5

Minimum wages and average wages 2001 to 2014
Thailand

Note: Adjustments made using regional CPI, Base 2001=100

Figure 6

Minimum wages and compliance 2001 to 2014
Thailand

Note: Adjustments made using regional CPI, Base 2001=100

22
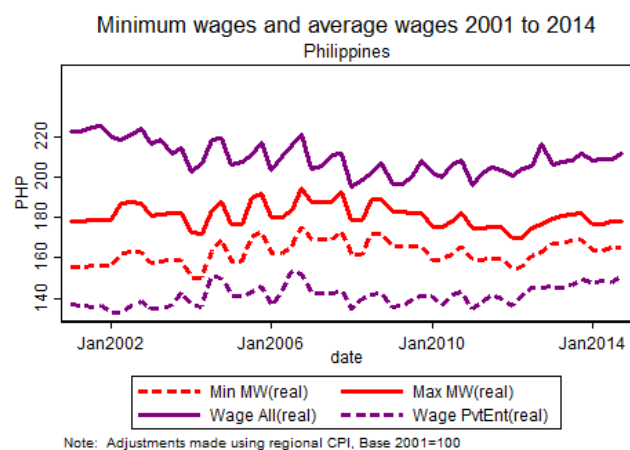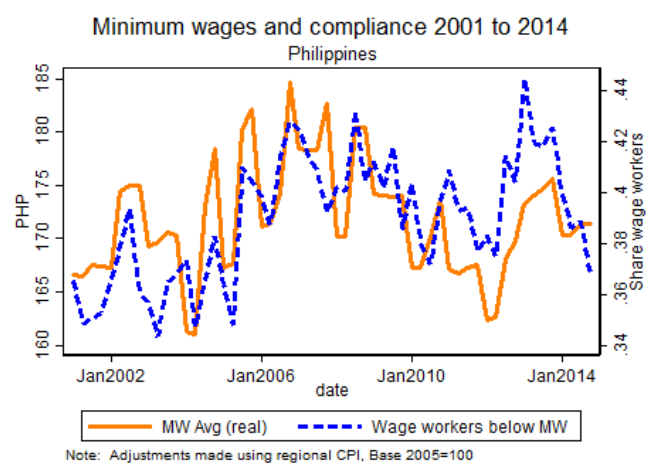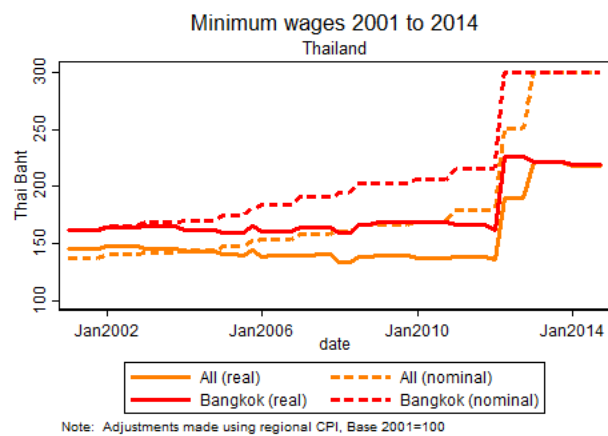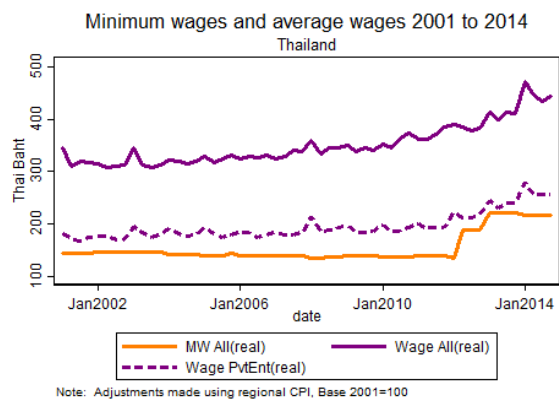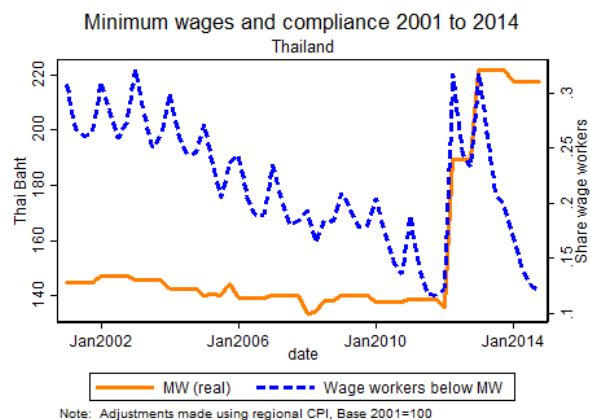
Table 1: Comparison of minimum wages

	Philippines	Thailand
Setting		
Regional (wage board)	√	√ (up to 2011)
Industry	√	
Firm size	√	
Coverage		
Private sector workers	√	√
Government workers	√	√
Household helpers		√
Small retail (< 10 workers)		√
Distressed businesses		√
Noncompliance (fines OR jail)		
Fines	P25K-100K ($4000)	100K baht ($30K)
Jail	<= 4 years	<= 6 months

Table 2: Patterns in labor market employment

Group	Type	Philippines (2001-2014)							Thailand (2001-2014)						
		Sh. labor force	Unemp.	Non-Wage	PT Wage or Employer	Wage > MW + 10%	Wage < MW	MW ≤ Wage ≤ MW + 10%	Sh. labor force	Unemp.	Non-Wage	PT Wage or Employer	Wage > MW + 10%	Wage < MW	MW ≤ Wage ≤ MW + 10%
All	All	1.00	0.10	0.37	0.13	0.15	0.17	0.08	1.00	0.01	0.52	0.07	0.26	0.08	0.05
Sex	Male	0.61	0.10	0.36	0.14	0.14	0.17	0.09	0.54	0.01	0.50	0.09	0.28	0.07	0.05
	Female	0.39	0.10	0.40	0.10	0.16	0.18	0.06	0.46	0.01	0.55	0.06	0.23	0.09	0.06
Age	15-19	0.09	0.19	0.36	0.10	0.02	0.29	0.04	0.04	0.05	0.49	0.07	0.12	0.17	0.09
	20-24	0.14	0.22	0.22	0.08	0.13	0.24	0.11	0.10	0.04	0.41	0.06	0.27	0.12	0.10
	25-54	0.67	0.07	0.38	0.13	0.17	0.16	0.08	0.74	0.01	0.51	0.08	0.29	0.07	0.05
	55-59	0.06	0.07	0.50	0.16	0.13	0.10	0.04	0.07	0.00	0.69	0.08	0.16	0.05	0.02
	60-64	0.04	0.05	0.58	0.18	0.09	0.08	0.03	0.04	0.00	0.80	0.08	0.05	0.05	0.01
Education	Primary	0.30	0.06	0.52	0.14	0.03	0.20	0.05	0.56	0.01	0.64	0.08	0.13	0.10	0.05
	Secondary	0.41	0.11	0.36	0.13	0.08	0.22	0.09	0.29	0.02	0.47	0.07	0.29	0.08	0.08
	Tertiary	0.28	0.13	0.22	0.11	0.36	0.09	0.08	0.15	0.02	0.20	0.08	0.67	0.01	0.01
Area	Rural	0.45	0.07	0.49	0.14	0.08	0.18	0.05	0.67	0.01	0.60	0.08	0.18	0.08	0.05
	Urban	0.49	0.13	0.26	0.12	0.21	0.17	0.10	0.33	0.01	0.37	0.07	0.41	0.07	0.06
Emp. Type	Private Ent.	0.41	-	-	0.26	0.25	0.32	0.17	0.37	-	-	0.18	0.49	0.19	0.14
	Government	0.07	-	-	0.18	0.63	0.12	0.06	0.09	-	-	0.06	0.88	0.04	0.02
	Private HH	0.05	-	-	0.18	0.05	0.72	0.04	0.01	-	-	0.14	0.33	0.43	0.10
Sector	Agriculture	0.30	-	0.66	0.16	0.01	0.15	0.02	0.40	-	0.82	0.08	0.03	0.06	0.01
	Industry	0.14	-	0.15	0.07	0.21	0.28	0.29	0.20	-	0.14	0.09	0.46	0.12	0.18
	Services	0.47	-	0.34	0.15	0.25	0.20	0.07	0.38	-	0.43	0.06	0.40	0.07	0.03
Occupation	Managerial	0.03	-	0.00	0.50	0.45	0.02	0.04	0.03	-	0.36	0.58	0.06	0.00	0.00
	Profess/Tech	0.07	-	0.06	0.13	0.70	0.05	0.06	0.08	-	0.06	0.06	0.85	0.01	0.02
	Mid-Skill (R)	0.11	-	0.15	0.06	0.29	0.22	0.28	0.18	-	0.18	0.06	0.50	0.10	0.16
	Mid-Skill (NR)	0.29	-	0.53	0.13	0.14	0.14	0.06	0.29	-	0.68	0.04	0.21	0.05	0.02
	Low-Skill	0.36	-	0.48	0.14	0.03	0.28	0.06	0.39	-	0.70	0.07	0.09	0.11	0.05
Firm size	Small		-	-	-	-	-	-	0.25	-	0.26	0.26	0.39	0.26	0.09
	Medium		-	-	-	-	-	-	0.05	-	0.03	0.03	0.68	0.11	0.17
	Large		-	-	-	-	-	-	0.08	-	0.02	0.02	0.64	0.08	0.26

Source: Philippines and Thailand labor force surveys. Statistics are pooled across the years 2001-2014.

Note: Non-wage employment = all workers categorized as self-employed or family workers. PT wage = are part-time wage workers meaning the worker workers less than 35 hours a week. For the Philippines wage workers who are above the minimum wage line, but lower than the minimum wage + 10% is based on the minimum value of the minimum wages for the lower bound and the maximum value of the minimum wage for the upper bound.

Table 3: Summary of Different Models Estimated where x in {0,1,2,3}

Notation	Definition
m0x	current year MW change plus x lag(s) of this variable
m1x	current year MW change and MW enforcement change plus x lag(s) of these variables
m2x	current year MW change, MW enforcement change, plus interaction of MW change and MW enforcement plus x lag(s) of these variables

Table 4: Simulated employment and wage changes from changes in minimum wages and compliance in the Philippines

	Philippines (2001-2014)									
	Employment (1 year change)					Wage dispersion (1 year change)				
	Optimal Model	Optimal P-value	Simulation 1	Simulation 2	Simulation 3	Optimal Model	Optimal P-value	Simulation 1	Simulation 2	Simulation 3
All	m20	0.09	0.013	-0.002	0.014	m10	0.013	-0.002	-0.064	-0.018
Private Ent.	m21	0.08	0.065	0.000	0.065	m22	0.000	0.108	0.067	0.136
Private HH	m22	0.05	0.033	-0.062	0.021	m20	0.022	0.040	0.082	0.061
Agriculture	m10	0.15	-0.014	-0.015	-0.018	m00	0.077	0.084	0.000	0.084
Industry	m21	0.01	0.015	-0.004	0.016	m22	0.018	0.114	0.071	0.134
Services	m21	0.02	0.023	-0.008	0.023	m22	0.028	0.244	0.098	0.272
Services HH	m21	0.01	0.019	-0.011	0.018	m21	0.017	-0.019	0.011	-0.011
Occ: Managerial	m12	0.17	0.019	-0.011	0.022	m12	0.001	0.263	0.108	0.289
Occ: Profess.	m23	0.43	-0.007	-0.017	-0.011	m22	0.001	0.077	-0.001	0.083
Occ: Mid-Skill (Routine)	m20	0.09	0.070	0.008	0.075	m22	0.049	0.030	0.019	0.042
Occ: Mid-Skill (Non-routine)	m21	0.02	0.001	-0.006	0.001	m22	0.000	0.179	0.018	0.192
Occ: Low-skill	m03	0.05	0.047	0.000	0.047	m20	0.067	0.057	0.039	0.068
Non wage	m03	0.22	0.024	0.000	0.024					
Private enterprise										
Female	m01	0.17	0.054	0.000	0.054	m22	0.014	0.106	0.051	0.127
Male	m22	0.08	0.059	-0.012	0.056	m22	0.000	0.104	0.085	0.134
Primary educated	m03	0.06	0.079	0.000	0.079	m22	0.053	0.120	0.090	0.141
Secondary educated	m21	0.05	0.062	0.000	0.062	m22	0.012	0.106	0.073	0.125
Tertiary educated	m22	0.07	0.063	-0.006	0.064	m22	0.000	0.133	0.067	0.162
Age 15-24	m03	0.00	0.069	0.000	0.069	m22	0.000	0.196	0.128	0.235
Age 25-54	m21	0.04	0.070	0.000	0.070	m22	0.000	0.082	0.055	0.106
Age 55-64	m21	0.07	0.080	0.000	0.080	m22	0.045	0.055	0.087	0.083

Simulation 1: 10 percent change in employment only; Simulation 2: 10 percent change in wage compliance; Simulation 3: 10 percent change in wage compliance and employment.

Table 5: Simulated employment and wage changes from changes in minimum wages and compliance in the Philippines using Spatial Differencing at provincial level (50 km radius)

	Philippines (2001-2014)									
	Employment (1 year change)					Wage dispersion (1 year change)				
	Optimal Model	Optimal P-value	Simulation 1	Simulation 2	Simulation 3	Optimal Model	Optimal P-value	Simulation 1	Simulation 2	Simulation 3
All	m11	0.03	0.086	0.007	0.088	m10	0.011	-0.041	-0.082	-0.061
Private Ent.	m12	0.03	0.229	-0.019	0.225	m01	0.065	-0.183	0.000	-0.183
Private HH	m10	0.10	0.143	-0.052	0.130	m22	0.000	0.101	0.014	0.136
Agriculture	m12	0.04	-0.169	0.021	-0.164	m12	0.250	0.270	0.104	0.296
Industry	m12	0.01	0.221	-0.007	0.220	m21	0.038	0.111	-0.001	0.127
Services	m12	0.06	0.196	-0.024	0.190	m22	0.056	0.120	-0.024	0.160
Services HH	m12	0.02	0.172	0.000	0.172	m10	0.032	-0.028	-0.036	-0.037
Occ: Managerial	m12	0.07	0.267	-0.029	0.260	m21	0.034	0.135	-0.213	0.166
Occ: Profess.	m12	0.03	0.140	0.018	0.144	m01	0.160	-0.079	0.000	-0.079
Occ: Mid-Skill (Routine)	m12	0.00	0.333	0.005	0.334	m21	0.149	0.033	0.009	0.044
Occ: Mid-Skill (Non-routine)	m01	0.07	0.080	0.000	0.080	m21	0.029	0.106	0.008	0.123
Occ: Low-skill	m22	0.11	0.044	0.001	0.051	m12	0.089	0.157	0.064	0.172
Non wage	m00	0.26	-0.023	0.000	-0.023					
Private enterprise										
Female	m12	0.05	0.182	-0.006	0.181	m12	0.082	0.179	0.070	0.197
Male	m12	0.03	0.244	-0.022	0.239	m21	0.030	-0.052	0.038	-0.024
Primary educated	m11	0.08	0.139	-0.023	0.133	m12	0.083	0.050	0.089	0.071
Secondary educated	m12	0.05	0.249	-0.024	0.243	m10	0.035	0.046	0.051	0.058
Tertiary educated	m11	0.06	0.191	-0.016	0.187	m22	0.038	0.248	0.062	0.295
Age 15-24	m11	0.08	0.173	-0.034	0.165	m20	0.003	0.114	0.105	0.147
Age 25-54	m12	0.00	0.265	-0.006	0.264	m01	0.095	-0.157	0.000	-0.157
Age 55-64	m11	0.03	0.237	-0.035	0.228	m22	0.059	0.092	0.108	0.171

Simulation 1: 10 percent change in employment only; Simulation 2: 10 percent change in wage compliance; Simulation 3: 10 percent change in wage compliance and employment.

Table 6: Simulated employment and wage changes from changes in minimum wages and compliance in Thailand (2001-2011)

	Thailand (2001-2011)									
	Employment (1 year change)					Wage dispersion (1 year change)				
	Optimal Model	Optimal P-value	Simulation 1	Simulation 2	Simulation 3	Optimal Model	Optimal P-value	Simulation 1	Simulation 2	Simulation 3
All	m21	0.02	-0.048	-0.001	-0.051	m12	0.041	0.384	0.002	0.385
Private Ent.	m20	0.07	-0.063	-0.005	-0.068	m10	0.273	0.148	0.017	0.154
Private HH	m10	0.18	-0.109	-0.032	-0.119	m00	0.063	-0.291	0.000	-0.291
Agriculture	m11	0.01	-0.059	0.001	-0.059	m12	0.001	0.588	-0.007	0.585
Industry	m20	0.03	-0.045	-0.003	-0.048	m22	0.305	0.113	0.003	0.082
Services	m12	0.39	0.034	0.004	0.036	m22	0.386	-0.065	-0.005	-0.089
Services HH	m20	0.06	-0.033	-0.001	-0.035	m12	0.043	0.302	0.002	0.302
Occ: Managerial	m10	0.00	-0.531	-0.006	-0.533	m11	0.117	-0.320	-0.044	-0.335
Occ: Profess.	m11	0.20	-0.039	-0.003	-0.040	m12	0.004	0.409	-0.006	0.408
Occ: Mid-Skill (Routine)	m22	0.03	-0.003	0.005	-0.014	m22	0.022	0.098	-0.018	0.037
Occ: Mid-Skill (Non-routine)	m00	0.32	0.019	0.000	0.019	m20	0.105	0.107	0.013	0.130
Occ: Low-skill	m20	0.04	-0.051	-0.003	-0.055	m12	0.006	0.386	0.022	0.394
Firm size: Small	m11	0.01	-0.068	-0.016	-0.074	m10	0.085	0.259	0.006	0.261
Firm size: Medium	m02	0.07	-0.214	0.000	-0.214	m12	0.084	0.280	0.024	0.288
Firm size: Large	m21	0.11	0.034	0.023	0.011	m01	0.164	-0.235	0.000	-0.235
Non wage	m11	0.06	-0.038	0.000	-0.038					
Private enterprise										
Female	m11	0.03	-0.070	-0.009	-0.073	m11	0.234	0.175	0.020	0.182
Male	m20	0.05	-0.064	-0.003	-0.069	m10	0.124	0.191	0.014	0.196
Primary educated	m11	0.10	-0.053	-0.011	-0.057	m12	0.035	0.283	0.026	0.292
Secondary educated	m20	0.04	-0.087	0.000	-0.092	m20	0.048	0.299	0.004	0.317
Tertiary educated	m22	0.03	-0.110	0.015	-0.128	m22	0.507	0.026	0.004	0.040
Age 15-24	m11	0.00	-0.123	-0.008	-0.126	m11	0.095	0.192	0.042	0.207
Age 25-54	m11	0.08	-0.057	-0.003	-0.058	m21	0.175	0.005	0.010	-0.016
Age 55-64	m20	0.12	-0.093	-0.007	-0.108	m10	0.022	0.396	0.004	0.398

Simulation 1: 10 percent change in employment only; Simulation 2: 10 percent change in wage compliance; Simulation 3: 10 percent change in wage compliance and employment.

Table 7: Simulated employment and wage changes from changes in minimum wages and compliance in Thailand (2001-2011) using Spatial Differencing at provincial level (50 km radius)

	Thailand (2001-2011)									
	Employment (1 year change)					Wage dispersion (1 year change)				
	Optimal Model	Optimal P-value	Simulation 1	Simulation 2	Simulation 3	Optimal Model	Optimal P-value	Simulation 1	Simulation 2	Simulation 3
All	m20	0.14	-0.004	-0.002	-0.010	m01	0.086	0.535	0.000	0.535
Private Ent.	m22	0.09	-0.112	-0.002	-0.091	m02	0.335	0.604	0.000	0.604
Private HH	m12	0.03	-0.695	0.012	-0.691	m02	0.186	0.874	0.000	0.874
Agriculture	m10	0.07	-0.052	-0.003	-0.054	m10	0.028	0.431	0.035	0.443
Industry	m22	0.17	-0.064	0.002	-0.050	m02	0.106	1.040	0.000	1.040
Services	m20	0.01	0.040	-0.002	0.062	m01	0.296	-0.355	0.000	-0.355
Services HH	m00	0.11	0.055	0.000	0.055	m11	0.010	0.681	-0.001	0.681
Occ: Managerial	m20	0.02	0.021	-0.009	0.072	m10	0.157	-0.729	-0.052	-0.746
Occ: Profess.	m11	0.05	0.186	0.003	0.187	m12	0.065	0.581	-0.006	0.579
Occ: Mid-Skill (Routine)	m22	0.05	-0.042	0.011	-0.019	m02	0.095	0.955	0.000	0.955
Occ: Mid-Skill (Non-routine)	m12	0.00	0.153	0.009	0.156	m10	0.096	0.368	0.016	0.373
Occ: Low-skill	m12	0.01	-0.166	0.000	-0.166	m11	0.177	-0.446	-0.019	-0.453
Firm size: Small	m12	0.00	-0.245	-0.005	-0.247	m20	0.167	0.309	0.032	0.372
Firm size: Medium	m21	0.12	0.111	0.003	0.063	m22	0.054	1.037	0.005	1.097
Firm size: Large	m20	0.06	0.025	0.032	-0.009	m12	0.080	1.123	-0.001	1.123
Non wage	m12	0.57	0.030	0.007	0.032					
Private enterprise										
Female	m20	0.09	-0.012	-0.008	-0.026	m20	0.157	-0.122	0.025	-0.061
Male	m22	0.09	-0.147	0.002	-0.124	m10	0.270	0.231	0.019	0.238
Primary educated	m12	0.08	-0.173	-0.006	-0.175	m11	0.060	-0.644	-0.034	-0.656
Secondary educated	m22	0.07	0.017	0.005	0.040	m21	0.070	0.094	0.027	0.161
Tertiary educated	m02	0.34	-0.173	0.000	-0.173	m22	0.089	1.546	0.003	1.605
Age 15-24	m22	0.04	-0.003	-0.003	0.031	m20	0.071	0.453	0.042	0.507
Age 25-54	m12	0.08	-0.150	-0.002	-0.150	m02	0.339	0.629	0.000	0.629
Age 55-64	m21	0.04	-0.030	0.009	-0.062	m22	0.274	-0.136	0.067	-0.039

Simulation 1: 10 percent change in employment only; Simulation 2: 10 percent change in wage compliance; Simulation 3: 10 percent change in wage compliance and employment.

Table 8: Simulated employment and wage changes from changes in minimum wages and compliance in Thailand (2001-2014)

	Thailand (2001-2014)									
	Employment (1 year change)					Wage dispersion (1 year change)				
	Optimal Model	Optimal P-value	Simulation 1	Simulation 2	Simulation 3	Optimal Model	Optimal P-value	Simulation 1	Simulation 2	Simulation 3
All	m12	0.01	0.010	0.001	0.010	m21	0.033	-0.103	-0.012	-0.111
Private Ent.	m12	0.09	0.017	-0.003	0.016	m01	0.081	-0.069	0.000	-0.069
Private HH	m10	0.16	-0.017	-0.023	-0.024	m02	0.063	-0.085	0.000	-0.085
Agriculture	m13	0.33	-0.006	-0.006	-0.008	m02	0.143	0.056	0.000	0.056
Industry	m23	0.15	0.006	-0.002	0.006	m20	0.122	-0.015	0.007	-0.016
Services	m03	0.45	0.011	0.000	0.011	m23	0.288	-0.007	-0.005	-0.003
Services HH	m22	0.57	0.000	-0.001	0.000	m12	0.027	-0.068	-0.003	-0.069
Occ: Managerial	m13	0.00	0.153	-0.019	0.146	m12	0.010	-0.098	-0.034	-0.109
Occ: Profess.	m11	0.14	-0.010	-0.003	-0.011	m20	0.137	0.014	0.006	0.011
Occ: Mid-Skill (Routine)	m11	0.03	0.009	0.006	0.011	m20	0.010	-0.009	0.005	-0.014
Occ: Mid-Skill (Non-routine)	m12	0.07	0.010	0.002	0.011	m03	0.058	-0.060	0.000	-0.060
Occ: Low-skill	m01	0.09	0.007	0.000	0.007	m13	0.028	0.080	0.021	0.088
Firm size: Small	m20	0.01	-0.001	-0.012	-0.007	m03	0.007	-0.121	0.000	-0.121
Firm size: Medium	m11	0.09	0.031	0.020	0.037	m01	0.075	-0.065	0.000	-0.065
Firm size: Large	m10	0.11	0.030	0.022	0.037	m20	0.199	-0.018	0.006	-0.021
Non wage	m11	0.07	0.009	0.001	0.010					
Private enterprise										
Female	m02	0.06	0.017	0.000	0.017	m12	0.196	0.032	0.022	0.039
Male	m12	0.08	0.016	-0.002	0.016	m01	0.150	-0.054	0.000	-0.054
Primary educated	m02	0.17	0.013	0.000	0.013	m03	0.231	-0.051	0.000	-0.051
Secondary educated	m12	0.02	0.022	0.005	0.024	m23	0.018	0.008	0.016	0.020
Tertiary educated	m12	0.11	0.017	0.013	0.022	m23	0.187	-0.008	0.000	-0.003
Age 15-24	m02	0.17	0.017	0.000	0.017	m13	0.050	0.035	0.033	0.046
Age 25-54	m12	0.07	0.017	-0.001	0.017	m01	0.070	-0.063	0.000	-0.063
Age 55-64	m03	0.05	0.045	0.000	0.045	m03	0.048	-0.115	0.000	-0.115

Table 9: Simulated employment and wage changes from implementing national minimum wage laws

		Thailand (2001-2014)					
		Employment (1 year change)			Wage dispersion (1 year change)		
	Lagged values	Optimal P-value	Simulation 1 (25% MW inc)	Simulation 2 (31% MW inc)	Optimal P-value	Simulation 1 (25% MW inc)	Simulation 2 (31% MW inc)
All	0	0.00	0.00	0.00	0.91	0.14	0.14
All	1	0.01	0.06	0.09	0.67	-0.15	-0.03
Private Ent.	0	0.73	0.00	0.00	0.18	-0.20	-0.26
Private Ent.	1	0.01	0.19	0.14	0.46	-0.21	-0.39
Firm size: Small	0	0.37	-0.04	-0.04	0.18	-0.29	-0.36
Firm size: Small	1	0.00	0.28	0.17	0.02	-0.79	-0.87
Firm size: Medium	0	0.25	-0.09	-0.10	0.88	-0.17	-0.19
Firm size: Medium	1	0.53	-0.13	0.06	0.09	0.36	0.25
Firm size: Large	0	0.52	-0.14	-0.16	0.69	-0.08	-0.11
Firm size: Large	1	0.81	0.11	-0.11	0.27	0.08	0.12

Notes: Simulation 1 = effect of national minimum wage policy with wage changes generating rises in the real minimum wage at the 25th percentile of provinces (20% increase). Simulation 2 = effect of national minimum wage policy with wage changes generating rises in the real minimum wage at the 75th percent of provinces (31% increase).

Appendix Table 1: Effects of minimum wages on employment in the Philippines

	Philippines (Employment)												
	All	Private Ent.	Private HH	Agriculture	Industry	Services	Services HH	Occ: Managerial	Occ: Profess.	Occ: Mid-Skill (Routine)	Occ: Mid-Skill (Non-routine)	Low-skill	Non wage
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
MW	0.090	0.458**	0.377	-0.144	0.135	0.229*	0.146*	0.481	0.083	0.360**	-0.041	0.157	-0.092
	(0.094)	(0.233)	(0.260)	(0.235)	(0.088)	(0.120)	(0.089)	(0.334)	(0.174)	(0.179)	(0.097)	(0.118)	(0.132)
L1.MW	0.078	0.278**	0.014	0.067	0.064	-0.040	0.025	-0.595***	0.054	0.035	-0.021	0.188***	0.117
	(0.050)	(0.116)	(0.205)	(0.214)	(0.040)	(0.063)	(0.049)	(0.209)	(0.093)	(0.087)	(0.079)	(0.068)	(0.102)
L2.MW	-0.031	-0.034	-0.071	0.042	-0.004	0.022	0.042	0.020	-0.006	-0.049	0.042	0.045	0.037
	(0.053)	(0.113)	(0.157)	(0.134)	(0.047)	(0.076)	(0.053)	(0.222)	(0.094)	(0.108)	(0.070)	(0.060)	(0.087)
L3.MW	0.041	-0.018	-0.055	0.118	-0.027	0.056	-0.078	-0.018	-0.213**	0.109	0.026	0.005	0.162**
	(0.042)	(0.129)	(0.141)	(0.104)	(0.041)	(0.052)	(0.048)	(0.168)	(0.089)	(0.080)	(0.064)	(0.075)	(0.076)
Compliance	-0.017	-0.219*	-0.608***	-0.141*	-0.050	-0.064	-0.097	-0.234	-0.015	0.154	-0.052	-0.144**	0.004
	(0.041)	(0.116)	(0.150)	(0.073)	(0.045)	(0.063)	(0.066)	(0.192)	(0.102)	(0.108)	(0.060)	(0.066)	(0.058)
L1.Compliance	-0.005	0.018	0.006	-0.063	0.042	-0.092	-0.052	0.089	-0.112	-0.002	-0.048	-0.046	-0.004
	(0.038)	(0.121)	(0.118)	(0.064)	(0.037)	(0.070)	(0.039)	(0.139)	(0.082)	(0.055)	(0.046)	(0.085)	(0.050)
L2.Compliance	-0.053*	-0.018	-0.073	-0.075	-0.025	0.005	-0.042	-0.333**	0.011	-0.023	-0.045	-0.045	-0.066
	(0.032)	(0.086)	(0.106)	(0.059)	(0.032)	(0.055)	(0.029)	(0.161)	(0.070)	(0.091)	(0.056)	(0.037)	(0.054)
L3.Compliance	-0.049*	-0.119	-0.149	-0.058	-0.002	-0.009	0.071*	0.050	0.210**	0.107	0.034	-0.124**	-0.013
	(0.026)	(0.089)	(0.118)	(0.044)	(0.030)	(0.047)	(0.043)	(0.145)	(0.087)	(0.090)	(0.071)	(0.054)	(0.039)
L1.Compliance	0.625*	0.502	0.477	-0.067	0.718**	0.852**	0.906**	1.164	0.445	0.778	0.712**	0.473	0.656
	(0.366)	(0.653)	(0.893)	(1.175)	(0.326)	(0.410)	(0.356)	(1.276)	(0.467)	(0.519)	(0.315)	(0.601)	(0.509)
L1.MW*L1.Compliance	0.056	1.182	1.169	0.602	-0.046	0.703*	0.200	0.865	-0.584	-0.280	0.328	0.330	-0.261
	(0.277)	(0.794)	(0.828)	(1.051)	(0.239)	(0.370)	(0.281)	(0.840)	(0.454)	(0.498)	(0.343)	(0.457)	(0.434)
L2.MW*L2.Compliance	-0.226	-0.459	1.054	-0.271	-0.074	-0.476	-0.551	1.082	-0.584	-0.262	-0.316	-0.519	-0.414
	(0.387)	(0.475)	(0.869)	(0.831)	(0.376)	(0.433)	(0.376)	(0.945)	(0.425)	(0.512)	(0.452)	(0.465)	(0.558)
L3.MW*L3.Compliance	-0.530*	-0.398	-0.938	-0.102	-0.480**	-0.507*	-0.559*	-0.578	-0.478	-0.317	-0.741**	-0.459	-0.616*
	(0.273)	(0.497)	(0.591)	(0.963)	(0.223)	(0.297)	(0.311)	(0.737)	(0.530)	(0.411)	(0.301)	(0.455)	(0.345)
Observations	3,723	3,714	3,606	3,713	3,723	3,703	3,723	3,533	3,719	3,714	3,723	3,723	3,723
Number of regvar	85	85	85	85	85	85	85	85	85	85	85	85	85
Regional FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix Table 2: Effects of minimum wages on wage dispersion in the Philippines

	Philippines (Wage Dispersion)												
	All	Private Ent.	Private HH	Agriculture	Industry	Services	Services HH	Occ: Managerial	Occ: Profess.	Occ: Mid-Skill (Routine)	Occ: Mid-Skill (Non-routine)	Low-skill	Non wage
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
MW	-0.028	0.484	0.184	0.791*	0.733**	0.905**	0.007	-0.084	0.026	0.007	0.705***	0.424*	0.786*
	(0.284)	(0.326)	(0.366)	(0.429)	(0.302)	(0.442)	(0.171)	(0.595)	(0.212)	(0.291)	(0.268)	(0.256)	(0.403)
L1.MW	-0.083	-0.591***	0.181	-0.555	-0.031	-0.251	0.044	0.113	-0.019	0.200	-0.348*	0.204	-0.550*
	(0.192)	(0.217)	(0.281)	(0.408)	(0.190)	(0.416)	(0.142)	(0.370)	(0.152)	(0.156)	(0.209)	(0.158)	(0.320)
L2.MW	0.084	0.101	0.111	0.808**	0.185	-0.425	0.057	0.188	-0.043	-0.037	-0.356**	0.139	0.369
	(0.190)	(0.225)	(0.249)	(0.383)	(0.198)	(0.323)	(0.162)	(0.349)	(0.140)	(0.160)	(0.172)	(0.211)	(0.267)
L3.MW	0.117	0.205	-0.211	-0.390	-0.033	0.357	0.184	0.426	0.137	-0.172	-0.040	-0.079	0.060
	(0.173)	(0.209)	(0.201)	(0.367)	(0.223)	(0.284)	(0.154)	(0.324)	(0.132)	(0.169)	(0.175)	(0.152)	(0.242)
Compliance	-0.663***	0.130	0.747***	-0.406*	0.377**	0.062	-0.198*	0.063	-0.133	-0.005	0.101	0.199	0.146
	(0.158)	(0.195)	(0.172)	(0.241)	(0.149)	(0.264)	(0.104)	(0.281)	(0.105)	(0.098)	(0.158)	(0.122)	(0.211)
L1.Compliance	-0.138	-0.219	0.095	-0.236	-0.184	0.132	-0.021	-0.226	-0.004	-0.140	0.115	-0.006	0.081
	(0.147)	(0.224)	(0.183)	(0.187)	(0.160)	(0.205)	(0.089)	(0.283)	(0.104)	(0.115)	(0.125)	(0.120)	(0.276)
L2.Compliance	-0.040	-0.153	-0.197	0.379	0.048	-0.069	-0.029	0.251	-0.289**	0.050	0.092	0.394***	-0.101
	(0.150)	(0.136)	(0.215)	(0.243)	(0.217)	(0.241)	(0.183)	(0.265)	(0.126)	(0.114)	(0.120)	(0.125)	(0.240)
L3.Compliance	0.467	0.507	0.123	-0.257	0.084	0.052	0.142	0.134	0.312	0.136	0.058	0.108	-0.058
	(0.292)	(0.327)	(0.213)	(0.169)	(0.175)	(0.230)	(0.209)	(0.272)	(0.219)	(0.166)	(0.137)	(0.125)	(0.192)
L1.Compliance	0.213	0.215	-0.334	-4.583	-0.597	1.744	-0.030	0.242	-0.284	-0.629	1.746*	0.070	1.637
	(0.810)	(0.949)	(0.915)	(2.974)	(0.829)	(1.260)	(0.634)	(2.148)	(0.557)	(0.624)	(0.917)	(0.592)	(1.315)
L1.MW*L1.Compliance	1.770**	0.287	0.034	4.676**	0.719	0.999	1.012	2.167	0.961	1.298	1.420	1.452	-0.797
	(0.808)	(0.830)	(1.023)	(2.050)	(0.731)	(1.202)	(0.627)	(1.382)	(0.679)	(0.841)	(1.051)	(0.956)	(1.187)
L2.MW*L2.Compliance	-0.673	0.194	2.219**	-0.610	-0.064	0.531	-0.544	-1.775	0.025	-0.505	-1.373	-0.395	-0.521
	(0.541)	(1.003)	(0.965)	(1.721)	(0.645)	(1.460)	(0.427)	(1.413)	(0.489)	(0.925)	(0.906)	(0.724)	(1.135)
L3.MW*L3.Compliance	0.594	-0.747	0.341	1.665	-1.084	-0.064	0.627	-2.056	0.138	-0.364	0.663	0.305	1.207
	(0.817)	(1.433)	(1.229)	(2.444)	(0.721)	(1.815)	(0.505)	(1.878)	(0.600)	(0.492)	(0.749)	(0.843)	(1.382)
Observations	3,723	3,714	3,597	3,516	3,702	3,615	3,723	3,207	3,718	3,709	3,717	3,706	3,665
Number of regvar	85	85	85	85	85	85	85	85	85	85	85	85	85
Regional FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Appendix Table 3: Effects of minimum wages on employment in Thailand

	Thailand (Employment)															
	All	Private Ent.	Private HH	Agriculture	Industry	Services	Services HH	Occ: Managerial	Occ: Profess.	Occ: Mid-Skill (Routine)	Occ: Mid-Skill (Non-routine)	Low-skill	Non wage	Firm: Small	Firm: Medium	Firm: Large
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
MW	0.062**	0.037	-0.181	-0.027	0.036	-0.040	-0.001	-0.414**	-0.043	0.064	0.112***	0.014	0.047	-0.022	0.063	0.339
	(0.026)	(0.050)	(0.216)	(0.061)	(0.027)	(0.081)	(0.033)	(0.167)	(0.047)	(0.045)	(0.041)	(0.043)	(0.038)	(0.056)	(0.227)	(0.208)
L1.MW	0.037**	0.060	0.177	0.007	-0.006	-0.024	0.005	-0.226	-0.130***	0.048	0.029	0.051*	0.060**	0.034	0.409*	0.118
	(0.015)	(0.042)	(0.192)	(0.033)	(0.015)	(0.061)	(0.016)	(0.151)	(0.039)	(0.045)	(0.029)	(0.029)	(0.025)	(0.043)	(0.216)	(0.201)
L2.MW	-0.002	0.061	-0.234	-0.005	0.012	0.068	-0.002	1.213***	0.215***	-0.075*	-0.042	-0.012	-0.037	0.081*	-0.264	-0.241
	(0.015)	(0.041)	(0.237)	(0.029)	(0.019)	(0.058)	(0.016)	(0.194)	(0.052)	(0.044)	(0.028)	(0.027)	(0.023)	(0.044)	(0.219)	(0.174)
L3.MW	-0.021	0.013	0.059	-0.045	0.015	0.103	0.001	0.943***	0.029	0.071	-0.028	-0.099**	-0.035	0.148**	-0.247	-0.072
	(0.033)	(0.067)	(0.334)	(0.056)	(0.033)	(0.093)	(0.037)	(0.259)	(0.088)	(0.058)	(0.046)	(0.046)	(0.041)	(0.064)	(0.305)	(0.241)
Compliance	0.004	-0.028	-0.282*	-0.022	-0.006	-0.010	0.004	0.090	-0.027	0.056*	-0.001	-0.018	0.007	-0.103***	0.032	0.339*
	(0.020)	(0.032)	(0.147)	(0.034)	(0.020)	(0.039)	(0.019)	(0.089)	(0.037)	(0.030)	(0.033)	(0.025)	(0.025)	(0.037)	(0.123)	(0.180)
L1.Compliance	-0.000	-0.014	0.094	0.008	-0.010	0.001	-0.012	-0.137	-0.029	0.031	-0.023	0.004	-0.000	-0.035	0.223**	0.007
	(0.015)	(0.024)	(0.156)	(0.020)	(0.018)	(0.036)	(0.018)	(0.098)	(0.033)	(0.025)	(0.024)	(0.023)	(0.020)	(0.032)	(0.110)	(0.172)
L2.Compliance	0.007	0.038	-0.022	-0.042	0.012	-0.032	-0.004	0.139	-0.011	-0.014	0.023	0.000	-0.003	-0.002	0.096	-0.154
	(0.019)	(0.030)	(0.133)	(0.028)	(0.020)	(0.042)	(0.020)	(0.093)	(0.033)	(0.028)	(0.028)	(0.023)	(0.021)	(0.026)	(0.131)	(0.145)
L3.Compliance	-0.012	-0.049	-0.074	-0.012	-0.018	0.020	-0.017	-0.209**	-0.019	-0.048*	0.020	-0.009	0.007	-0.036	-0.147	0.019
	(0.017)	(0.030)	(0.133)	(0.028)	(0.017)	(0.042)	(0.017)	(0.100)	(0.027)	(0.025)	(0.027)	(0.023)	(0.021)	(0.027)	(0.108)	(0.101)
L1.Compliance	0.001	-0.241	0.366	0.047	0.099	0.176	-0.031	-0.981	0.175	-0.099	0.042	0.028	0.106	-0.387*	-0.478	-1.138
	(0.125)	(0.192)	(0.824)	(0.223)	(0.118)	(0.247)	(0.139)	(0.601)	(0.208)	(0.186)	(0.169)	(0.157)	(0.145)	(0.203)	(0.659)	(1.052)
L1.MW*L1.Compliance	-0.007	-0.053	0.242	-0.016	0.031	-0.045	0.037	-0.214	-0.201	-0.090	0.033	0.007	0.020	-0.094	0.252	0.020
	(0.073)	(0.143)	(0.711)	(0.115)	(0.071)	(0.279)	(0.089)	(0.487)	(0.183)	(0.177)	(0.116)	(0.110)	(0.101)	(0.191)	(0.620)	(0.632)
L2.MW*L2.Compliance	0.039	0.057	0.198	0.094	0.089	-0.285	0.098	0.038	0.339**	-0.080	0.029	0.005	0.034	0.117	0.076	1.156*
	(0.074)	(0.159)	(0.665)	(0.127)	(0.073)	(0.221)	(0.076)	(0.579)	(0.150)	(0.136)	(0.121)	(0.098)	(0.091)	(0.185)	(0.656)	(0.703)
L3.MW*L3.Compliance	-0.039	0.013	-0.134	0.098	0.013	0.124	0.020	-0.194	-0.052	-0.057	-0.008	-0.003	0.027	-0.036	0.520	0.142
	(0.085)	(0.160)	(0.899)	(0.157)	(0.081)	(0.235)	(0.099)	(0.626)	(0.226)	(0.150)	(0.121)	(0.138)	(0.097)	(0.171)	(0.590)	(0.612)
Observations	3,721	3,721	3,717	3,721	3,721	3,721	3,721	3,721	3,721	3,721	3,721	3,721	3,721	3,721	3,702	3,715
Number of regvar	77	77	77	77	77	77	77	77	77	77	77	77	77	77	85	85
Regional FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Appendix Table 4: Effects of minimum wages on wage dispersion in Thailand

	Thailand (Wage Dispersion)														
	All	Private Ent.	Private HH	Agriculture	Industry	Services	Services HH	Occ: Managerial	Occ: Profess.	Occ: Mid-Skill (Routine)	Occ: Mid-Skill (Non-routine)	Low-skill	Firm: Small	Firm: Medium	Firm: Large
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
MW	-0.013	0.000	-0.334	0.007	-0.013	0.315	0.174	0.497	0.424	0.145	-0.257	0.249	-0.091	-0.196	-0.166
	(0.340)	(0.392)	(0.370)	(0.372)	(0.410)	(0.261)	(0.322)	(0.408)	(0.274)	(0.312)	(0.260)	(0.392)	(0.437)	(0.378)	(0.425)
L1.MW	-0.996***	-0.683***	-0.330	-0.498*	-0.249	-0.251	-0.801***	-0.197	-0.554**	-0.485*	-0.252	-0.314	-0.576	-0.529*	-0.272
	(0.335)	(0.261)	(0.254)	(0.260)	(0.277)	(0.275)	(0.299)	(0.332)	(0.267)	(0.268)	(0.240)	(0.246)	(0.360)	(0.313)	(0.329)
L2.MW	0.083	0.428*	-0.108	0.993***	0.256	0.297	-0.048	-1.377***	-0.110	-0.347	0.024	0.440*	0.320	0.505*	0.603*
	(0.298)	(0.241)	(0.259)	(0.336)	(0.239)	(0.283)	(0.242)	(0.336)	(0.244)	(0.238)	(0.219)	(0.246)	(0.290)	(0.273)	(0.333)
L3.MW	0.245	-0.366	0.691	0.209	-0.046	-0.432	0.432*	-0.014	0.025	-0.071	-0.216	0.526*	-0.817**	0.839***	-0.144
	(0.294)	(0.337)	(0.442)	(0.399)	(0.292)	(0.341)	(0.236)	(0.470)	(0.256)	(0.289)	(0.249)	(0.318)	(0.341)	(0.317)	(0.411)
Compliance	-0.032	0.187	0.183	0.160	0.071	0.084	0.033	-0.365*	0.093	0.131	0.169	-0.072	0.127	0.169	0.010
	(0.170)	(0.223)	(0.175)	(0.155)	(0.160)	(0.175)	(0.122)	(0.189)	(0.111)	(0.121)	(0.165)	(0.144)	(0.233)	(0.209)	(0.229)
L1.Compliance	-0.128	-0.154	0.022	-0.418**	-0.122	0.067	-0.106	-0.017	-0.075	-0.251**	-0.023	0.022	-0.163	-0.090	-0.022
	(0.170)	(0.200)	(0.157)	(0.204)	(0.175)	(0.161)	(0.112)	(0.247)	(0.111)	(0.121)	(0.143)	(0.172)	(0.200)	(0.174)	(0.214)
L2.Compliance	0.050	0.233	-0.316	0.005	0.206	0.022	-0.066	-0.026	-0.116	0.036	0.078	0.137	0.066	0.102	0.308*
	(0.155)	(0.157)	(0.227)	(0.155)	(0.151)	(0.119)	(0.124)	(0.197)	(0.107)	(0.125)	(0.135)	(0.160)	(0.184)	(0.168)	(0.171)
L3.Compliance	0.069	-0.033	0.190	0.187	-0.113	-0.218	0.189*	0.661***	0.098	-0.030	-0.175	0.177	0.045	0.129	-0.367*
	(0.155)	(0.201)	(0.201)	(0.177)	(0.183)	(0.151)	(0.112)	(0.180)	(0.120)	(0.115)	(0.146)	(0.174)	(0.220)	(0.146)	(0.193)
L1.Compliance	-1.729*	-0.211	-0.792	0.245	-1.330*	-0.259	-0.894	1.052	-1.656*	-1.719**	-0.571	1.496	0.679	-0.477	-1.915*
	(1.011)	(1.038)	(1.212)	(1.427)	(0.708)	(0.798)	(1.019)	(1.560)	(0.862)	(0.748)	(0.924)	(1.183)	(1.253)	(0.947)	(1.153)
L1.MW*L1.Compliance	-0.153	0.992	0.383	-0.701	1.249*	-0.868	-0.257	-1.785	0.871	0.898	-0.114	-1.321*	1.319	0.332	0.420
	(1.020)	(0.956)	(0.928)	(0.986)	(0.758)	(0.971)	(0.924)	(1.176)	(0.855)	(0.840)	(0.698)	(0.787)	(1.028)	(0.954)	(1.166)
L2.MW*L2.Compliance	1.574	0.167	2.280**	1.596	0.599	0.548	1.333*	-0.862	1.552**	0.545	-0.208	-0.212	1.171	-0.710	-0.019
	(1.007)	(1.052)	(1.006)	(1.737)	(0.807)	(0.808)	(0.744)	(1.162)	(0.621)	(0.692)	(0.725)	(1.296)	(1.176)	(0.882)	(1.194)
L3.MW*L3.Compliance	0.875	0.716	-1.097	-1.143	0.329	2.336**	0.289	-0.024	0.646	-0.132	1.986**	-0.637	-0.104	-1.028	1.395
	(0.796)	(1.000)	(0.980)	(0.910)	(0.797)	(0.957)	(0.616)	(1.284)	(0.566)	(0.635)	(0.818)	(0.844)	(0.972)	(0.906)	(1.011)
Observations	3,721	3,721	3,717	3,721	3,721	3,721	3,721	3,721	3,721	3,721	3,721	3,721	3,721	3,721	3,702
Number of regvar	77	77	77	77	77	77	77	77	77	77	77	77	77	77	85
Regional FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Appendix Table 5: Effects of minimum wages on employment and wage dispersion in private enterprises in the Philippines

	Philippines (Private Enterprise Employment)								Philippines (Private Enterprise Wage Dispersion)							
	Female	Male	Primary Educated	Secondary Educated	Tertiary Educated	Age 15 to 24	Age 25 to 54	Age 55 to 64	Female	Male	Primary Educated	Secondary Educated	Tertiary Educated	Age 15 to 24	Age 25 to 54	Age 55 to 64
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
MW	0.183	0.513**	0.356	0.448	0.553*	0.456**	0.488**	0.152	0.786*	0.382	0.456*	0.695***	0.375	1.055***	0.432	0.602
	(0.236)	(0.238)	(0.243)	(0.288)	(0.283)	(0.230)	(0.235)	(0.222)	(0.403)	(0.281)	(0.246)	(0.261)	(0.364)	(0.259)	(0.305)	(0.535)
L1.MW	0.251	0.260**	0.381**	0.286*	0.059	0.190	0.232**	0.065	-0.550*	-0.345**	-0.119	-0.258*	-0.403	-0.247	-0.459**	-0.183
	(0.153)	(0.120)	(0.178)	(0.152)	(0.121)	(0.156)	(0.106)	(0.198)	(0.320)	(0.175)	(0.156)	(0.139)	(0.289)	(0.177)	(0.195)	(0.399)
L2.MW	0.013	-0.043	-0.095	0.029	0.056	0.101	-0.018	-0.030	0.369	0.052	0.051	0.163	-0.025	-0.049	0.177	0.018
	(0.147)	(0.116)	(0.148)	(0.135)	(0.175)	(0.168)	(0.102)	(0.168)	(0.267)	(0.225)	(0.212)	(0.162)	(0.260)	(0.175)	(0.186)	(0.319)
L3.MW	0.027	0.031	0.017	-0.007	-0.105	-0.170	0.009	0.069	0.060	0.012	0.190	0.034	0.198	0.131	0.164	-0.039
	(0.133)	(0.130)	(0.151)	(0.155)	(0.142)	(0.181)	(0.135)	(0.168)	(0.242)	(0.180)	(0.178)	(0.172)	(0.207)	(0.154)	(0.199)	(0.272)
Compliance	-0.322***	-0.150	-0.284**	-0.214	-0.023	-0.414***	-0.116	-0.305*	0.146	0.307*	0.837***	0.364**	0.158	0.730***	0.157	0.634**
	(0.114)	(0.116)	(0.128)	(0.138)	(0.095)	(0.116)	(0.124)	(0.162)	(0.211)	(0.170)	(0.136)	(0.148)	(0.192)	(0.151)	(0.169)	(0.247)
L1.Compliance	-0.057	0.023	-0.203*	-0.033	-0.100	0.002	-0.017	-0.193	0.081	-0.210	0.209*	0.046	-0.212	0.078	-0.121	-0.276
	(0.121)	(0.124)	(0.121)	(0.166)	(0.093)	(0.141)	(0.104)	(0.167)	(0.276)	(0.198)	(0.109)	(0.120)	(0.207)	(0.156)	(0.174)	(0.223)
L2.Compliance	0.005	-0.023	-0.101	0.041	0.108	-0.129	0.038	-0.005	-0.101	-0.077	-0.051	-0.324**	0.015	-0.126	-0.067	-0.007
	(0.101)	(0.098)	(0.123)	(0.121)	(0.083)	(0.126)	(0.086)	(0.130)	(0.240)	(0.110)	(0.200)	(0.155)	(0.200)	(0.131)	(0.141)	(0.271)
L3.Compliance	-0.035	-0.156	-0.150	-0.061	-0.107	-0.044	-0.130	-0.176	-0.058	0.589**	0.251*	0.200	0.088	0.111	0.340	0.374
	(0.099)	(0.098)	(0.122)	(0.094)	(0.104)	(0.132)	(0.080)	(0.124)	(0.192)	(0.292)	(0.147)	(0.150)	(0.259)	(0.155)	(0.263)	(0.256)
L1.Compliance	0.766	0.356	0.439	0.287	0.544	0.503	0.493	0.947	1.637	0.185	0.557	-1.003	0.878	0.886	-0.196	1.186
	(0.788)	(0.636)	(0.754)	(0.700)	(0.768)	(0.879)	(0.673)	(0.878)	(1.315)	(0.831)	(0.716)	(0.820)	(0.839)	(0.732)	(0.864)	(1.290)
L1.MW*L1.Compliance	1.101	1.310	1.234	2.047*	1.138	1.661*	1.053	1.884**	-0.797	0.482	-0.694	-0.436	-0.229	-0.121	-0.257	-1.738
	(0.862)	(0.814)	(1.015)	(1.078)	(0.862)	(0.875)	(0.747)	(0.961)	(1.187)	(0.690)	(0.606)	(0.715)	(1.323)	(0.837)	(0.644)	(1.759)
L2.MW*L2.Compliance	-1.125*	-0.199	-0.146	-1.123	-0.438	-0.848	-0.257	-0.652	-0.521	0.065	-0.128	0.655	0.690	0.488	-0.349	-0.615
	(0.676)	(0.470)	(0.571)	(0.793)	(0.760)	(0.612)	(0.479)	(0.757)	(1.135)	(1.093)	(0.765)	(0.773)	(1.165)	(0.756)	(0.970)	(1.402)
L3.MW*L3.Compliance	-0.925	-0.430	-0.616	-0.418	-0.515	-1.247	-0.457	-0.625	1.207	-0.985	1.202	0.404	-0.573	-0.090	-0.013	1.910*
	(0.563)	(0.598)	(0.755)	(0.795)	(0.557)	(0.850)	(0.465)	(0.689)	(1.382)	(1.235)	(1.353)	(0.649)	(1.112)	(0.803)	(0.972)	(1.031)
Observations	3,669	3,714	3,681	3,701	3,692	3,681	3,709	3,555	3,665	3,710	3,672	3,683	3,683	3,658	3,705	3,423
Number of regvar	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85
Regional FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Appendix Table 6: Effects of minimum wages on employment and wage dispersion in private enterprises in Thailand

	Thailand (Private Enterprise Employment)								Thailand (Private Enterprise Wage Dispersion)							
	Female	Male	Primary Educated	Secondary Educated	Tertiary Educated	Age 15 to 24	Age 25 to 54	Age 55 to 64	Female	Male	Primary Educated	Secondary Educated	Tertiary Educated	Age 15 to 24	Age 25 to 54	Age 55 to 64
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
MW	-0.007	0.054	-0.006	0.019	0.212**	-0.086	0.068	0.014	0.248	0.040	0.266	0.075	0.184	0.509*	0.062	-0.116
	(0.061)	(0.057)	(0.064)	(0.073)	(0.105)	(0.082)	(0.052)	(0.126)	(0.301)	(0.356)	(0.344)	(0.354)	(0.295)	(0.277)	(0.367)	(0.366)
L1.MW	0.121**	0.027	0.039	0.079	-0.023	0.115	0.042	0.142	-0.331	-0.455*	-0.529**	-0.020	-0.496*	-0.164	-0.684***	-0.133
	(0.058)	(0.042)	(0.059)	(0.056)	(0.089)	(0.077)	(0.042)	(0.118)	(0.246)	(0.237)	(0.241)	(0.190)	(0.274)	(0.227)	(0.225)	(0.308)
L2.MW	0.041	0.065	0.032	0.105*	0.008	0.113	0.052	-0.045	0.367*	0.251	0.239	0.081	0.544**	0.104	0.474**	0.184
	(0.057)	(0.041)	(0.052)	(0.054)	(0.114)	(0.080)	(0.046)	(0.095)	(0.200)	(0.226)	(0.230)	(0.210)	(0.239)	(0.162)	(0.220)	(0.295)
L3.MW	-0.032	0.040	-0.007	0.004	0.036	-0.241*	0.047	0.260	-0.149	-0.290	-0.312	-0.058	-0.312	-0.161	-0.076	-1.125***
	(0.097)	(0.064)	(0.088)	(0.087)	(0.139)	(0.139)	(0.063)	(0.175)	(0.272)	(0.294)	(0.318)	(0.212)	(0.346)	(0.209)	(0.312)	(0.358)
Compliance	-0.087**	0.006	-0.076*	0.028	0.091	-0.033	-0.017	-0.003	0.062	0.155	0.189	0.012	0.027	0.235*	0.110	0.006
	(0.040)	(0.038)	(0.045)	(0.041)	(0.071)	(0.052)	(0.039)	(0.109)	(0.172)	(0.202)	(0.171)	(0.189)	(0.191)	(0.141)	(0.200)	(0.187)
L1.Compliance	-0.002	-0.022	-0.030	-0.023	0.081	-0.007	-0.008	-0.122	0.012	-0.041	-0.187	0.123	-0.066	0.130	-0.077	-0.017
	(0.030)	(0.028)	(0.030)	(0.043)	(0.053)	(0.044)	(0.026)	(0.084)	(0.159)	(0.174)	(0.148)	(0.186)	(0.155)	(0.141)	(0.172)	(0.183)
L2.Compliance	0.064*	0.022	0.011	0.067	0.027	0.092	0.018	0.018	0.176	0.203	0.212	0.042	0.171	0.023	0.189	0.051
	(0.038)	(0.029)	(0.037)	(0.043)	(0.055)	(0.065)	(0.029)	(0.092)	(0.147)	(0.161)	(0.147)	(0.120)	(0.132)	(0.128)	(0.134)	(0.200)
L3.Compliance	-0.050	-0.044	-0.042	-0.063*	-0.067	-0.098**	-0.027	-0.139	-0.001	0.024	0.098	-0.015	-0.128	-0.090	0.023	0.342*
	(0.041)	(0.028)	(0.037)	(0.034)	(0.073)	(0.045)	(0.035)	(0.093)	(0.199)	(0.170)	(0.150)	(0.162)	(0.131)	(0.155)	(0.155)	(0.199)
L1.Compliance	-0.128	-0.322	-0.280	-0.151	-0.493	-0.524*	-0.126	-0.654	0.159	0.225	0.388	0.602	-0.163	-0.428	0.469	-1.749**
	(0.235)	(0.209)	(0.233)	(0.279)	(0.417)	(0.315)	(0.197)	(0.503)	(1.021)	(0.873)	(0.862)	(0.898)	(0.982)	(0.873)	(1.020)	(0.822)
L1.MW*L1.Compliance	-0.031	-0.071	-0.066	0.085	-0.373	0.250	-0.093	-0.175	0.448	0.559	0.601	-0.217	0.891	0.327	0.598	0.054
	(0.173)	(0.155)	(0.218)	(0.213)	(0.423)	(0.258)	(0.142)	(0.501)	(0.776)	(0.927)	(0.948)	(0.726)	(0.888)	(0.611)	(0.918)	(0.924)
L2.MW*L2.Compliance	0.064	0.067	0.041	-0.016	0.249	-0.306	0.198	-0.212	-1.301**	0.809	0.656	-0.332	-0.129	-0.352	-0.063	1.172
	(0.212)	(0.156)	(0.210)	(0.243)	(0.322)	(0.342)	(0.159)	(0.483)	(0.657)	(1.026)	(1.050)	(0.680)	(0.876)	(0.752)	(0.970)	(1.183)
L3.MW*L3.Compliance	-0.091	0.063	-0.004	0.058	0.076	0.092	-0.028	0.168	1.385	-0.367	-1.028	1.795***	0.900	1.032	-0.024	1.191
	(0.240)	(0.151)	(0.242)	(0.171)	(0.445)	(0.245)	(0.178)	(0.458)	(0.880)	(0.852)	(0.898)	(0.616)	(0.821)	(0.755)	(0.918)	(1.085)
Observations	3,721	3,721	3,721	3,721	3,721	3,721	3,721	3,721	3,721	3,721	3,721	3,721	3,721	3,721	3,721	3,721
Number of regvar	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77
Regional FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Appendix Table 7: Effects of minimum wages on employment and wage dispersion by inclusion of differing lengths of lag values in the Philippines

	Philippines (2001-2014)				Philippines (2001-2014)			
	Change in Employment (1-Year)				Change in Wage Dispersion (1-Year)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
MW	0.100	0.094	0.106	0.155	-0.146	-0.112	-0.106	-0.182
	(0.089)	(0.090)	(0.094)	(0.100)	(0.278)	(0.286)	(0.285)	(0.308)
L1.MW	0.062	0.081	0.072	0.073	0.003	-0.086	-0.084	-0.120
	(0.072)	(0.054)	(0.053)	(0.053)	(0.214)	(0.206)	(0.210)	(0.209)
L2.MW		-0.021	-0.029	-0.037		0.123	0.051	0.142
		(0.061)	(0.052)	(0.056)		(0.191)	(0.185)	(0.188)
L3.MW			0.038	-0.017			0.118	0.331
			(0.040)	(0.049)			(0.169)	(0.300)
L4. MW				0.160*				-0.553
				(0.085)				(0.531)
Compliance	0.003	0.009	0.006	0.002	-0.553***	-0.591***	-0.589***	-0.501***
	(0.037)	(0.036)	(0.040)	(0.041)	(0.122)	(0.135)	(0.141)	(0.143)
L1.Compliance	-0.021	-0.007	-0.005	-0.007	-0.021	0.022	-0.034	-0.022
	(0.034)	(0.031)	(0.033)	(0.034)	(0.114)	(0.120)	(0.141)	(0.144)
L2.Compliance		-0.073**	-0.061*	-0.065*		-0.058	-0.095	-0.140
		(0.032)	(0.032)	(0.034)		(0.120)	(0.128)	(0.142)
L3.Compliance			-0.053**	-0.052**			0.270	0.265
			(0.024)	(0.025)			(0.221)	(0.228)
L4. Compliance				-0.004				0.191
				(0.033)				(0.166)
Constant	0.014	0.016	0.014	0.013	-0.103**	-0.114**	-0.113**	-0.100**
	(0.022)	(0.022)	(0.022)	(0.022)	(0.046)	(0.047)	(0.046)	(0.046)
Observations	3,902	3,810	3,715	3,625	3,902	3,810	3,715	3,625
Number of regvar	85	85	85	85	85	85	85	85
Regional FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Robust standard errors in parentheses								
*** p<0.01, ** p<0.05, * p<0.1								
Note: Differences of variables included in model are 1-year differences values; employment, minimum wage, and labor force								
Source: Labor force surveys: Philippines 2005-2014; Thailand 2000-2014. Statistics are pooled across the years								

Appendix Table 8: Effects of minimum wages on employment and wage dispersion by inclusion of differing lengths of lag values in the Philippines

	Thailand (2001-2014)							
	Change in Employment (1-Year)				Change in Wage Dispersion (1-Year)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
MW	0.066***	0.067***	0.063***	0.109***	0.030	0.048	0.083	0.315
	(0.022)	(0.022)	(0.023)	(0.028)	(0.337)	(0.337)	(0.341)	(0.457)
L1.MW	0.037**	0.037**	0.037**	0.012	-1.025***	-1.042***	-1.037***	-1.201***
	(0.016)	(0.015)	(0.015)	(0.016)	(0.294)	(0.327)	(0.327)	(0.398)
L2.MW		-0.006	-0.004	-0.015		0.067	0.026	-0.061
		(0.016)	(0.015)	(0.016)		(0.283)	(0.286)	(0.288)
L3.MW			-0.021	-0.046			0.441	0.245
			(0.030)	(0.028)			(0.291)	(0.312)
L4.MW				0.081***				0.407
				(0.023)				(0.425)
Compliance	0.009	0.010	0.004	0.017	-0.094	-0.097	-0.092	-0.200
	(0.020)	(0.020)	(0.021)	(0.021)	(0.164)	(0.166)	(0.170)	(0.185)
L1.Compliance	-0.001	-0.003	0.001	-0.006	-0.061	-0.118	-0.133	-0.128
	(0.012)	(0.013)	(0.015)	(0.014)	(0.159)	(0.164)	(0.168)	(0.176)
L2.Compliance		0.006	0.010	0.010		0.177	0.126	0.136
		(0.017)	(0.018)	(0.018)		(0.137)	(0.143)	(0.145)
L3.Compliance			-0.014	-0.020			0.139	0.171
			(0.015)	(0.016)			(0.147)	(0.148)
L4. Compliance				0.017				-0.210
				(0.015)				(0.158)
Observations	3,879	3,800	3,721	3,643	3,879	3,800	3,721	3,643
Number of regvar	77	77	77	77	77	77	77	77
Regional FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: Differences of variables included in model are 1-year differences values; employment, minimum wage

Source: Labor force surveys: Philippines 2005-2014; Thailand 2000-2014. Statistics are pooled across the years.

Appendix

The minimum wage is the lowest remuneration that employers are legally allowed to pay workers. Supporters of the minimum wage claim it increases the standard of living of workers, reduces poverty, reduces inequality, improves morale and forces business to be efficient. Allan Blinder suggests that higher wages may reduce turnover and that minimum wage workers represent such a small proportion of the business's cost that the increase is too small to correct. Opponents on the other hand state that minimum wages increase poverty, unemployment (particularly among the unskilled and unexperienced workers), damages business, and reduces trade exports based on low-skilled labor. Minimum wages were imposed in an effort to stop sweatshop of slave labor and to reduce unfair bargaining power in certain sectors.

Optimal minimum wage is one that minimizes job losses and preserves international competitiveness. In competitive markets a minimum wage set above the equilibrium wage will also result in increased unemployment both because the supply of labor increases due to the higher wage, but also because the demand for labor decreases. However, in monopsony markets this prediction is not maintained as the monopolist hires labor up till MC = MRP and sets a low wage. Hence, when a minimum wage is set the monopolist the new MC curve is instead essentially equal to the minimum wage resulting in a potential expansion in the hiring of labor as long as the minimum wage is set below the point where MC = MRP. Nevertheless, unemployment increases because of greater entry into the labor market at the prevailing wage rate. Here the optimal level is equal to the marginal product of labor. This emphasizes minimum wages as a market regulation policy that is similar to antitrust policies.