Essays on the Minimum Wage Effect in a Low-wage Labor Market

Thanh Tung, Nguyen

March 1, 2023

Executive Summary

Chapter 1: Introduction

Since New Zealand passed the first national minimum wage in the world in 1894, there have always been debates regarding the minimum wage effect on employment among legislators, academicians, progressives, and international organizations. Despite this controversy, minimum wage legislation has been widely applied all over the world. In 2020, the International Labor Organization (ILO) reported that more than 90% of their member states applied at least one form of minimum wage laws (ILO, 2020, p. 60). Over the last decade, minimum wage discussions have become increasingly intense because several countries have imposed this policy for the first time (e.g., Germany, Malaysia, Myanmar, etc.,) and many others have raised their minimum wages to considerable levels.

Authorities intend to protect vulnerable workers by setting a minimum wage, regulating social security contribution, health standards, etc. However, these legislation raise the costs of hiring and may induce enterprises to violate them, especially in developing countries where informal sectors are prevalent. As a result, workers may become the cost bearers rather than the beneficiaries, and formal employment may be displaced by informal employment. In this regard, this dissertation aims at better understanding of how minimum wages affect workers and employers in a low-wage labor market, where several institutional issues exist. For example, the huge informal sector along with imperfect enforcement certainly influences the ways firms respond to minimum wage changes, and hence, labor market outcomes. Given the availability of two comprehensive data sets, this dissertation takes the Vietnamese labor market as a case study and carefully examines the minimum wage effects on both workers' and employers' sides.

In the literature, minimum wage studies in developing countries has expanded both in terms of number of studies and direction of studies. Researchers have been taking advantage of high-quality micro data and experimental-like minimum wage hikes to estimate the effects on various outcomes. Yet, empirical findings on the minimum wage effects are still inconclusive even within one country. More importantly, complex realities in developing countries require a better research design to accurately capture the minimum wage effects. This implies that further studies that seek better understanding of how the minimum wage affects labor market outcomes are still needed.

At the labor market level, existing studies still have not paid much attention to enforcement efforts of the authorities. In developed countries, one may agree to some extent that the minimum wage policy is well enforced. However, this assumption does not hold in many developing countries, where informal economy and informal employment are pervasive. The weak labor inspection system is also attributable to the imperfect enforcement of the policy. Failing to take this imperfectness into account may result in inaccurately estimating the minimum wage effects on labor market outcomes. Although a few recent papers attempted to incorporate imperfect enforcement into minimum wage analysis, this issue is still particularly underexplored in the literature.

At the firm-level, many papers have tested the monopolistic power of firms in the output market to see if they can pass the minimum wage cost onto their customers. However, the relationship between the minimum wage and output prices is still underexplored in developing countries because of limited data availability. Additionally, this option may not always be feasible for small- and medium-sized enterprises (SMEs) in developing countries. In the output market, they often compete with larger and/or heavily invested foreign firms. Because of that, they may not be able to raise output prices in response to a negative shock on the labor cost. The question then becomes how these firms survive in such circumstances. This dissertation will take a new approach by exploring the option of switching outputs. To improve production efficiency, firms may drop less profitable products from and add new profitable products to their portfolio.

In Vietnam, the minimum wage was originally applied to workers in foreign firms, foreign agencies, and international organizations. In 2009, the government expanded the minimum wage coverage to the domestic sector. However, the initial minimum wage applied to workers in the domestic sector was set at a lower level to protect domestic firms from foreign competitors. In October 2011, the minimum wage applied to domestic firms was raised to catch up with the one applied to foreign counterparts. This step resulted in a sharp minimum wage hike and completely changed the shape of the labor market. After the formation of the National Wage Council (NWC) in 2013, the government has raised the minimum wage annually despite the high levels of the minimum wage relative to the mean and median wages in the labor market.

The minimum wage reform and subsequent hikes clearly raise concern over the impacts on labor market outcomes. On the worker side, one may worry that higher minimum wages negatively affect vulnerable workers or push them to the informal labor market. Therefore, formal employment may decline while informal increases in response to higher minimum wages. On the firm side, one may argue that higher minimum wages raise the labor cost facing the firm, thus leading to lower survivability and profitability, especially SMEs. Therefore, they may consequently reduce their employment and cannot expand their business. In this dissertation, I will address both issues by examining the effects of the minimum wage reform on firm-level response and the effects of subsequent hikes on labor market outcomes. This dissertation will add up the literature by exploring two new aspects of the minimum wage: informal employment under enforcement heterogeneity and firm-level product switching response

Chapter 2: Minimum Wage and Enforcement Heterogeneity: A New Approach

In the literature, both theoretical and empirical studies, especially in developed countries, often implicitly assume the perfect enforcement of the minimum wage policy. However, this assumption does not hold in many developing countries, where informal economy and informal employment are pervasive. Weak labor inspection systems in developing countries result in an imperfect enforcement of the policy. The presence of imperfectness implies that the recent theoretical framework developed by Basu, Chau, and Kanbur (2010) may be more appropriate than the traditional competitive and monopsony models in explaining the minimum wage effects (hereinafter referred to as the BCK model). This chapter extends the BCK model by allowing for enforcement heterogeneity across sectors and across regions.

By allowing for two levels of enforcement associated with the formal and informal segments, the extended BCK framework points out a possibility of opposite minimum wage effects on employment in the two segments. If the labor market is monopsonitic, enforcement heterogeneity may result in positive employment effect on the formal segment and negative employment effect on the informal segment.

This chapter also tests the applicability of the extended BCK model by estimating the wage effects in Vietnam. The main results suggest that the model is well-suited in the Vietnamese case. Specifically, a higher minimum wage raises wages at lower wage percentiles in both segments; therefore, reduces wage gaps and wage inequalities in Vietnam. Meanwhile, enforcement intensity produces mixed effects in the two segments. A higher enforcement level does not affect wages in the formal segment, but it leads to higher wages in the informal segment. This implies opposite states the two segments: exact-compliance in the formal segment and non-compliance in the informal segment.

Chapter 3: Minimum Wage and Informal Employment at Varying Enforcement Levels

By applying the theoretical framework developed in the previous chapter, Chapter 3 examines the employment effects of minimum wages in a developing country with a large informal sector and heterogeneity in the policy enforcement effort. This chapter first distinguishes between employment formality and minimum wage coverage, which has not been fully discussed in the literature. Given the data structure, I categorize employment by social security (formality) and labor contract status (policy coverage). In the empirical analysis, I estimate the minimum wage and enforcement effects on each type of employment. The baseline specification identifies minimum wage effects on each labor market segment, and the main specification incorporates the enforcement effects by introducing the interaction term between the minimum wage and proxy for the enforcement level.

The main results support the hypothesis that Vietnamese labor market has monopsonistic features, which has been increasingly acknowledged among labor economists. Minimum wage hikes were associated with increases in the share of wage workers. Higher minimum wages also induced inactive workers to participate in the labor market.

Importantly, this chapter points out that enforcement intensity matters. First, the minimum wage effects varied across sectors with different levels of enforcement. After minimum wage hikes, formal employment significantly increased while informal employment remained unaffected by the minimum wage. Second, higher enforcement intensity produced mixed effects on the informal market, depending on the agreement between employers and employees. Firms in districts with higher enforcement levels initially demanded more for informal and uncovered workers, but the minimum wage hikes led to lower informal-uncontracted employment and higher informal-contracted employment. Empirical results also suggest that an appropriate hike combined with enforcement can promote workforce formalization rather than adversely affect employment.

Chapter 4: Minimum Wage, Firm Revenue, and the Role of Product Switching

Chapter 4 utilizes a comprehensive firm-level data set to examine the minimum wage effects on firms' revenue, its components, and the role of product switching practices. This chapter first decomposes the minimum wage effect on firms' sale revenue by types of products (i.e., continuing, newly added, and recently dropped). It then explores how product switching may help manufacturing firms to survive after a sharp minimum wage increase. The underlying mechanism is based on a theoretical framework developed by Bernard, Redding, and Schott (2010).

Despite the negative employment effect, this chapter finds that firms, especially non-manufacturing ones, were able to raise their revenue after the minimum wage reform. In the manufacturing sector, firms that kept their product portfolio over time were more likely to experience revenue drop than firms that switched their products. The revenue decomposition shows that continuing products contributed a large share in sale revenue growth. However, the sale revenue of these products was negatively affected by the minimum wage while newly added products helped to offset this adverse effect. Furthermore, empirical results imply that firms in both manufacturing and non-manufacturing sectors did not rely on raising output prices in response to the sharp minimum wage hike. This implies that the analysis focusing only on price response does not capture fully the minimum wage effect on the firm's behavior.

I then explain the revenue change by exploring a new aspect of the minimum wage that has not been examined in the literature: the product switching response. The main findings suggest that manufacturing firms affected by the minimum wage reform switched their product portfolio more frequently than other firms. Five years after the reform, binding firms were around 10 percentage points higher in cumulative probability of dropping old product(s) or adding new product(s) compared to nonbinding firms. The underlying mechanism is that surviving firms were able to cover the fixed cost of producing more profitable products thanks to higher labor productivity.

Importantly, empirical findings highlight the important role of product switching in the way manufacturing firms responded to the minimum wage reform. Specifically, firms that switched their product mix experienced significantly higher revenue growth in total revenue and total employment. This explains the fact that some manufacturing firms managed to raise their operating revenue without losing competitiveness advantage (when raising output prices). Indeed, estimates from structural equation modelling (SEM) regressions support the hypothesis that product switching is a potential choice for manufacturing firms when facing a negative shock on labor cost. Adding new product(s) induced by the hike significantly improved binding firm's outcomes in the medium run and the longer run. While the minimum wage reform did not directly affect the firm's revenue, it indirectly raised revenue of binding firms by 0.5 percentage point. Additionally, product switching helped manufacturing firms mitigate the negative employment effect caused by the minimum wage reform.

References

Basu, Arnab K., Nancy H. Chau, and Ravi Kanbur. 2010. Turning a Blind Eye: Costly Enforcement, Credible Commitment and Minimum Wage Laws. *The Economic Journal 120*(543), 244–269.

Bernard, Andrew B, Stephen J Redding, and Peter K Schott. 2010. Multiple-Product Firms and Product Switching. *American Economic Review 100*(1), 70–97.

ILO. 2020. Global Wage Report 2020–21. Wages and Minimum Wages in the Time of COVID-19. Technical Report, International Labour Organization, Geneva.