Minimum Wages, Non-Compliance and the Uncovered Sector in Developing Countries *

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Abstract

We present new empirical evidence on the implications of minimum wages on employment in the uncovered sector in developing countries, analyzing a unique dataset assembled from a set of micro surveys collected in 49 low- and middle-income countries. Our identification strategy exploits relative bindingness in minimum wages across socio-demographic labor market groups, and allows for heterogeneous effects depending on the degree of compliance with minimum wage legislation. We find that a higher minimum wage is associated with a larger self-employment share, the effect being statistically significant only in contexts where the rule of law is more respected. The estimated impact of the minimum wage on the uncovered sector, once non-compliance with the law has been considered in the analysis, is economically significant.

Keywords: Minimum Wage, Informal Jobs, Self-Employment, Developing Countries.

JEL Codes: J38, O17, J21.

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1 Introduction

In many developing countries, minimum wages are widely believed to be an effective labor market policy tool to reduce inequality and alleviate poverty. However, the effectiveness of minimum wage policies in achieving these goals can be compromised if a significant portion of the workforce remains uncovered and unaffected by these wage regulations. Moreover, the size of the uncovered sector can be influenced by the minimum wage, as firms may opt for informal work arrangements to reduce costs, and workers may face limited formal employment opportunities if minimum wages set wage floors that are too high. If minimum wages force workers to move into uncovered employment, the expected benefits of the policy may be limited or even reversed. This phenomenon raises questions about the overall impact of minimum wages on overall welfare. Unfortunately, there is no consensus in the empirical literature on the extent to which minimum wages affect the size of the uncovered sector in developing countries.

Studies of the impact of the minimum wage on formal employment show mixed results across countries. Large negative effects of the minimum wage on formal employment are found in Honduras (Gindling and Terrell, 2009) and Indonesia (Comola and De Mello, 2011), while the effects are small in Costa Rica (Gindling and Terrell, 2007) and Vietnam (Nguyen Viet, 2010). In contrast, studies in Mexico (Bell, 1997), Chile (Montenegro and Pagés, 2003),[1] and Thailand (Del Carpio *et al.*, 2014) do not find statistically significant effects. Even within the same country, differences in methodology and data sources can lead to apparently contradictory results. For example, in Colombia, Bell (1997) and Maloney *et al.* (2001) find economically and statistically significant negative effects, while Pérez (2020) finds no such effects on formal employment and observes small negative effects on employment in the uninsured sector.[2] In Brazil, Lemos (2009) and Engbom and Moser (2021) documented no discernible effects of minimum wage adjustments on either formal or informal employment. However, Jales (2018) has found evidence of significant unemployment effects and substantial transitions of workers from the formal to the informal sector.

The mixed results observed in previous studies may in fact reflect genuine heterogeneity in the effects of the minimum wage. These effects are likely to depend on the interactions

[1] For youth and unskilled workers.

[2] Arango and Flórez (2021), while not focusing on formal employment, reports a notable increase in labor informality rates.

between minimum wage policies and other labor market policies, as well as on the structural characteristics of the labor market. An important source of variation across countries and over time is the degree to which the minimum wage is binding. Consider, for example, the case of Mexico, where in 2000 the minimum wage represented only 24 percent of the 70th percentile of the formal sector wage distribution. In Colombia, by contrast, the minimum wage is comparatively more substantial, at 59 percent of the 70th wage percentile in 2001 and exceeding the median wage for many labor market segments, such as young and low-educated workers. The significant variation in statutory minimum wage levels across countries and over time can lead to different labor market outcomes of minimum wage policies, particularly among demographic groups characterized by different productivity levels.

Different degrees of non-compliance with minimum wage laws may also lead to heterogeneous effects across countries and time periods. Several studies have highlighted the existence of non-compliance with minimum wage laws in developing countries (Bell, 1997; Jaramillo Baanante, 2004; Kristensen and Cunningham, 2006; Alaniz *et al.*, 2011; Bhorat *et al.*, 2011; Rani *et al.*, 2013; Ham, 2015; Dinkelman and Ranchhod, 2012; Lemos, 2009; Bosch and Manacorda, 2010; Khamis, 2013; Hohberg and Lay, 2015; Gindling and Terrell, 2007, 2009; Garnero, 2018; Jales, 2018; Clemens and Strain, 2020). However, only a handful have directly addressed this issue when estimating the impact of minimum wage adjustments on formal sector employment (Suryahadi *et al.*, 2003; Soundararajan, 2019; Mansoor and O'Neill, 2021), and to our knowledge, none have delved into assessing how the interaction of minimum wage levels and compliance rates affects the uncovered sector.

This paper seeks to address this gap in the literature by providing new insights into the impact of minimum wage policies on the uncovered sector in developing countries, with a specific focus on accounting for non-compliance with the law. To this end, we assemble a unique dataset compiled from micro-surveys conducted in 49 low- and middle-income countries between 1995 and 2012. Evaluating the effects of minimum wage changes across countries or over time within countries can be challenging due to potential correlations with other labor market policies and macroeconomic shocks. Our empirical approach focuses on assessing the relative impact of the minimum wage within specific labor market socio-demographic groups, which we categorize as "types" based on workers' age, gender, and educational attainment. We measure the impact by examining the interaction between the typical wage associated with a particular

labor market type and the country-specific minimum wage in a given year. Consequently, our identification strategy relies on exploiting the variation in the stringency of minimum wage policies within countries and types over time. Our approach shares similarities with that of Lee (1999), who assessed the impact of the federal minimum wage on wage inequality in the United States by examining variations in the relative impact of the minimum wage across U.S. states. By analyzing changes in the relative impact of the minimum wage across different labor market types specific to each country, this approach allows us to control for fixed, unobservable characteristics of each labor market type in each country, as well as the country-specific institutional context that may interact with minimum wage policy and influence its impact on the uncovered sector.

A novel dimension of our approach is that we explicitly account for the different levels of noncompliance that may occur across countries and time periods due to differences in the enforcement of regulations. This aspect is particularly relevant when studying developing countries, which are typically characterized by very different institutional frameworks. To account for these variations, we use a comprehensive set of fixed effects to control for country-specific institutional settings and temporal changes. Furthermore, in our preferred specification, we adjust the minimum wage ratio, which quantifies the extent to which the minimum wage is binding across country/type/year dimensions, by incorporating the non-compliance ratio computed from our data for each country/year pair.

In our preferred specification, the uncovered sector is composed of the ratio of self-employed and family workers, i.e. those workers who by definition are not covered by minimum wage legislation, to total employment outside agriculture. The effectiveness of the minimum wage is calculated as the ratio of the country/year minimum wage to the 70^{th} percentile of covered sector wages attaining to each type. We call this variable the minimum wage ratio. In the literature, it is customary to use the median wage as the reference point to assess minimum wage bindingness, the so-called Kaitz index. We chose instead the 70^{th} percentile in the wage distribution because spillovers to workers above the minimum wage cutoff are common in developing countries. However, Cunningham (2007) examines wage distributions in several Latin American countries and finds that the 70^{th} percentile is rarely affected by minimum wages. Nevertheless, we provide robustness checks for different cut-off points and different definitions of the minimum wage ratio.

Our estimates show that a higher minimum wage is associated with a larger share of the

uncovered sector, suggesting that a minimum wage policy may favor the reallocation of the least productive worker, whose marginal productivity is below the minimum wage, from the covered to the uncovered sector. However, such an effect is statistically significant only in contexts where there is sufficient compliance with minimum wage legislation. Our point estimates for such contexts are sizable: once we adjust for non-compliance, our baseline model indicates that a percentage point increase in the minimum wage ratio increases the uncovered sector by 0.182 percentage points. This is equivalent to a one standard deviation increase in the minimum wage ratio, corrected for noncompliance, increasing the uncovered sector by 9.32 percent.

The remainder of the paper is organized as follows. Section 2 introduces the identification strategy, section 3 provides a description of the data, section 4 presents the empirical results, section 4.2 discusses several robustness checks, and section 5 concludes.

2 Research Design

We examine the impact of different levels of minimum wage stringency on the size of the uncovered sector. First, we assume full compliance with the minimum wage law, meaning that firms are required to pay wages equal to or above the legal minimum wage to employ formal sector workers. Later in our analysis, we will revisit this assumption and incorporate non-compliance into our model.

The uncovered sector includes workers who are typically not subject to minimum wage regulations, including the self-employed and family workers. Our identification strategy exploits the variation in the impact of the minimum wage across different socio-demographic "labor market types." These types have different productivity distributions. For instance, workers with lower levels of education have left-shifted productivity distributions relative to college-educated workers. Consequently, minimum wage floors have a greater impact on the wages of less-educated workers due to this leftward shift. The bite of the minimum wage is defined at the country-year-type level, allowing for variation over time and across countries in the relationship between type-specific wage distributions and the minimum wage.

We categorize labor market types based on age, gender, and educational attainment. For each country/year/type combination, we calculate the stringency of the minimum wage, referred to as the "minimum wage bite." A commonly used measure, as used by Lee (1999), is the ratio

of the minimum wage to the median wage. This assumes that the median wage is unaffected by the level of the minimum wage and serves as a valid benchmark for assessing its stringency. In developing countries, it is not uncommon for the minimum wage to be close to, or even above, the median wage. To mitigate potential spillover effects on our centrality measure, our benchmark specification uses the ratio of the country/year minimum wage to the 70$^{\text{th}}$ of the country/year/type earnings distribution.[3] In the robustness checks section, we show that variations in the centrality measure around this threshold do not affect the main findings of our study.

Our reduced-form model is represented by:

$$\begin{gathered} y_{ict}^{j} = \alpha MWR_{ct}^{j} + \beta_{\mathbf{c}}{}' \mathbf{X}_{ict}^{j} + \mu_{cj} + \mu_{ct} + \varepsilon_{cit}^{j} \\ \text{for} \quad i = 1, ..., N \quad c = 1, ..., C \quad j = 1, ..., J \quad t = 1, ..., T \end{gathered} \tag{1}$$

with:

$$MWR_{ct}^{j} = \frac{MW_{ct}}{W70_{ct}^{j}} \tag{2}$$

where y_{ict}^{j} is a dummy variable that takes the value of one if individual i is observed in country c, in year t, and is employed in the unobserved sector, and zero otherwise. The superscript j indicates that the individual belongs to one of 12 socio-demographic types that result from the interaction of two gender categories, three age groups (16-29; 30-59; 50-65), and two levels of education ("primary or less" and "more than primary").[4]

The strictness of the minimum wage is represented by MWR_{ct}^{j}, which varies by country, year, and type; i.e, it is the ratio of the statutory minimum wage MW_{ct} in each country/year to the 70$^{\text{th}}$ percentile wage in each cell jct. X_{ict}^{j} is a vector of individual characteristics whose

[3]Spillover effects of minimum wages on wages above the minimum have been documented in the literature. In developed countries, these effects are modest, up to the 15$^{\text{th}}$ (Autor *et al.*, 2016; Brochu *et al.*, 2015) or 23$^{\text{rd}}$ (Cengiz *et al.*, 2019) percentile of the wage distribution, but in developing countries spillovers can reach the upper parts of the wage distribution. For example, in Colombia, Cunningham (2007) finds wage increases for those in the 45$^{\text{th}}$ to 60$^{\text{th}}$ wage deciles (and no effects above or below), and in the formal sector in Brazil, Engbom and Moser (2021) finds spillovers up to the 70$^{\text{th}}$ percentile.

[4]The choice of dimensions that define the labor market types is subject to a trade-off. On the one hand, having a large number of cells would lead to imprecise estimates of the 70$^{\text{th}}$ percentile because there would be few individuals in each cell. On the other hand, having few cells would reduce the heterogeneity in the policy experiments, leading to less precise estimates of the parameter of interest. In section 4.2 we assess the robustness of the results to different definitions of labor market types.

parameters β_c are heterogeneous across countries,[5] and μ_{cj} and μ_{ct} are country/type and country/year fixed effects, respectively.

We assess the impact of the minimum wage on the uncovered sector by exploiting the variation in minimum wage stringency over time among different labor market types within each country. This research design allows us to control for unobservable aggregate macro factors using country/year fixed effects. In addition, institutional and structural factors specific to each labor market type are accounted for through country/type fixed effects. Our main assumption is that there are no time-varying country/type-specific labor market shocks that are systematically correlated with MWR^j_{ct} and the individual probability of working in the uninsured sector (y^j_{ct}). In all our specifications, we cluster the standard errors at the country/type level.

Our baseline individual-level estimates are weighted to give equal weight to each country/year/type cell. Small cell sizes can introduce sampling error and measurement inaccuracies in our MWR^j_{ct} measure, potentially biasing our estimates. We strike a balance between bias and variance by using a minimum cell size of 100 individuals, following the approach outlined in Verbeek and Nijman (1992, 1993). In section 4.2 we perform additional robustness checks by exploring different thresholds for the minimum number of individuals per cell.

In our research design, we account for minimum wage non-compliance, which can vary across countries/years due to institutional, historical, and budgetary factors that may affect the government's ability to enforce the law. Non-compliance poses a challenge to identifying the impact of the minimum wage, as it can significantly alter its effectiveness. To address this concern, we modify our research design by incorporating an alternative measure of the minimum wage rate that is adjusted for non-compliance rates at the country/year level. Our revised model specification is as follows:

$$\begin{gathered} y_{cjit} = \alpha CMWR_{cjt} + \beta_{\mathbf{c}}{}'\mathbf{X}_{cjit} + \mu_{cj} + \mu_{ct} + \varepsilon_{cjit} \\ \text{for} \quad i = 1, ..., N \quad c = 1, ..., C \quad j = 1, ..., J \quad t = 1, ..., T \end{gathered} \tag{3}$$

where:

[5] X^j_{ict} includes an indicator for whether the individual lives in an urban area and the sector in which he/she works (i.e. mining, manufacturing, public utilities, construction, retail and wholesale trade, transport and communications, financial and business services, public administration, or other unspecified services).

$$CMWR_{cjt} = \frac{MW_{ct}}{W70_{cjt}}(1 - NCR_{ct}) \tag{4}$$

Here, NCR_{ct} represents the non-compliance rate, calculated as the number of workers earning below the minimum wage divided by the total number of workers in each country/year (Rani *et al.*, 2013; Mansoor and O'Neill, 2021). We define $CMWR_{cjt}$ as the corrected minimum wage ratio, which accounts for the effectiveness of the minimum wage by adjusting for non-compliance at the country/year level. In the case of full non-compliance, $CMWR_{cjt} = 0$, and in the case of full compliance, $CMWR_{cjt} = MWR_{cjt}$.

3 The Data

Our analysis is based on a rich and unique newly assembled dataset covering 49 developing countries. We use two main sources to construct it. The first is the International Income Distribution dataset (I2D2 henceforth), a globall harmonized household survey database created by the World Bank that allows comparisons across countries and over time. The vast majority of surveys included in I2D2 are nationally representative (World Bank, 2013). The dataset is extremely rich and comprehensive in coverage, but it is also noisy because it collects data from surveys that were not designed to be comparable. Our empirical strategy mitigates the impact of these limitations by restricting identification to within-country/type comparisons across years, i.e. by effectively eliminating variation across countries.

We merge the I2D2 with the International Labor Organization's Global Wage dataset (International Labour Office (ILO), 2013), which covers statutory nominal gross monthly minimum wages around the world. Where information on minimum wages is missing, we supplement it with national sources.[6] We use minimum wage data to construct indicators of minimum wage effectiveness across twelve different labor market types, which are defined based on the interaction of individual-level information on gender, age (three age types: 18-29, 30-50, and 51-65), and education ("primary or less" and "more than primary"). These types are therefore: female/male aged 18-29 with low/high education, female/male aged 30-50 with low/high education, female/male aged 51-65 with low/high education.

Originally, the I2D2 dataset merged with minimum wage data covers 78 countries. countries.

[6] See Appendix A for details.

We restrict our analysis to individuals working in non-agricultural sectors, as in most countries the minimum wage does not apply to the agricultural sector. In addition, we focus on full-time workers, who provide a benchmark for assessing employment dynamics across sectors, countries, and time periods. Such workers are often the focus of labor market policies, typically rely on their wages as their primary source of income, and are particularly vulnerable to changes in minimum wage policies. Our research design is based on and controls for a number of individual characteristics, including occupation and area of residence. Therefore, our sample includes all surveys that provide information on sector, employment status (full-time or part-time), and whether respondents live in an urban or rural area.[7] Most of the minimum wages in our sample have national coverage, but not all. Where the minimum wage is sub-national, we limit our focus to workers in the sectors/geographical areas/occupations to which the available minimum wage applies (e.g., in Ethiopia, the available minimum wage applies only to public sector workers, so we limit our analysis to public sector workers).[8]

In order to reduce the risk of sampling error typical of finite samples where the cell size is too small, we construct a measure of minimum wage effectiveness based on cells containing at least 100 observations (Verbeek and Nijman, 1992, 1993). In our robustness section, we check whether our results change when we choose a different minimum number of observations per cell, and find that the results are robust to this test.

We also exclude observations related to country/types that have minimum wages above the 70^{th} percentile wage at least once across years, as this may indicate a disproportionate rate of noncompliance and our identification strategy may be compromised in this case.[9]

[7]For more details, see Appendix A, Tables A1- A2.

[8]For three countries in our sample (Costa Rica, Mexico, and the Dominican Republic), however, there are multiple minimum wages, and it is not always possible to identify the respondents to whom each minimum wage applies. In this case, we make some reasonable assumptions, such as limiting the analysis to those individuals to whom the minimum wage is likely to apply, and considering the less binding minimum wage threshold available (i.e., the lowest minimum wage level) among the different levels detailed in the data. More specifically, in Mexico, where minimum wages vary by geographic area and occupation, the I2D2 surveys lack detailed information on the specific occupations and areas of workers. Therefore, we take a conservative approach by applying the lowest available minimum wage (for each year) to all workers included in the analysis. By choosing the least binding minimum wage of all, we ensure that the MW bite is not overestimated in any estimate. However, it will always be a lower bound on the true value, so for robustness we re-estimate the analysis without the surveys from Mexico (as well as Costa Rica and El Salvador). In Costa Rica, minimum wages vary by sector and occupation. Similarly, we consider the lowest minimum wage applicable to unskilled workers in "manufacturing, construction, mining and trade". This minimum wage is then applied uniformly to workers in these sectors. Finally, in El Salvador, non-agricultural minimum wages vary by sector, such as industry, services, commerce, and textiles. To maintain consistency, we focus our analysis on workers in the industrial sector and apply only the corresponding minimum wage specific to that sector. For more details, see the Appendix A.

[9]We provide further checks in the robustness section where we include country/years whose minimum wage

Finally, since our analysis exploits time variation within country/type, we drop from the sample those cases where country/types are observed for one year only. Our final sample consists of 34 countries, 255 waves, 215 country/types, and 1,718 cells, for a total of 6,458,808 full-time employed individuals. Further details about the dataset construction can be found in the Appendix.

FIGURE 5 AROUND HERE

Figure 5 displays the country coverage in our sample and the average minimum wage ratio across countries. There is considerable variation in the overall bindingness of the minimum wage across countries. Countries where the minimum wage is more binding across types and over time are mainly from the Central and Latin American region (Colombia, Costa Rica, El Salvador, Panama, Paraguay, Peru, and Venezuela) and from Europe and Central Asia (Bulgaria, Serbia, Turkey). The effectiveness of the minimum wage in developing countries is actually quite high. On average, across all countries considered, the minimum wage is 42 percent of the 70^{th} wage percentile, as can be seen in Table 1. The generosity of the minimum wage has generally increased in recent decades. This is shown in Figure 2, which plots the minimum wage ratios in the 1990s and 2000s for a subset of 22 countries for which measures of the minimum wage ratio are available for both periods.

FIGURE 2 AROUND HERE

How binding the minimum wage is varies across the types of workers we consider. Panel (a) in Figure 4 shows a kernel of the relative effectiveness of the minimum wage across age types, after pooling the data across countries and years. As expected, young workers (18-29) are most affected by minimum wage legislation, with wages closer to the minimum wage. Instead, prime-age workers (30-50) have higher wages and lower MWR. Panel (b) shows that the minimum wage is generally more binding for less educated workers. Gender differences are less pronounced, but we still observe a stronger minimum wage bite for females (panel c). Our identification strategy controls for this heterogeneity in the stringency of the minimum wage across labor market types and exploits the within-country/type variation over time.

FIGURE 4 AROUND HERE

is further below the 70^{th} percentile wage.

High values of the MWR can give a misleading impression of the bite of the minimum wage in the presence of non-compliance. Non-compliance with minimum wage legislation is high in developing country labor markets, and consistent with the theory (Ashenfelter and Smith, 1979), it increases with the level of the minimum wage (see Figure 3).[10]

Our comprehensive data set also allows us to observe that the relationship between MWR and noncompliance is concave. For low levels of MWR, noncompliance is moderate. On average, only 8.6 percent of workers in the covered sector are paid below the minimum wage when the MWR is below 0.4. Instead, non-compliance increases rapidly as the MWR increases. In those country/years where the MWR exceeds 0.6, non-compliance averages 40.7 per cent. The positive relationship between the MWR and non-compliance is also present when we compare the same labor market types across countries, as shown in figures A.1 and A.2 in the appendix. Note that despite the regularity that positively links the MWR and non-compliance, we also observe significant variation in the degree of non-compliance across labor market types within countries that may not be explained by the MWR only. For example, low-skilled workers (Figure A.1) tend to have slightly lower levels of minimum wage compliance than high-skilled workers (Figure A.2) for similar levels of MWR. This may be due to several factors, including different levels of unionization across labor market types. Because these factors, such as unionization, may be correlated with the size of the uncovered sector, we don't use the variation across types in constructing the CMWR. Instead, we use only the cross-country/year variation in the degree of non-compliance that is absorbed by the country/year fixed effects in equation (3).

FIGURE 3 AROUND HERE

Even in the covered sector, it is not uncommon to observe that more than 50 per cent of workers are paid below the minimum wage. This pervasiveness of non-compliance suggests that the impact of the minimum wage on informality may be less obvious than the high effectiveness of the minimum wage would suggest. A high minimum wage in a country with high compliance is likely to discourage firms from hiring low-productivity workers, pushing them into the informal sector. Conversely, a high minimum wage in a country where minimum wage compliance is low may have no effect on the size of the uncovered sector. It follows that if we want to

[10]This positive relationship has been empirically documented across labor markets within countries before, for example in Honduras (Ham, 2018), India (Mansoor and O'Neill, 2021), and the US (Clemens and Strain, 2020). Rani *et al.* (2013) shows a strong positive relationship between the ratio of the minimum wage to the median wage and non-compliance in the covered sector across 11 developing countries.

estimate the impact of minimum wage legislation on the uncovered sector, the minimum wage ratio needs to be adjusted with a measure of minimum wage compliance.

Table 1 presents a number of additional descriptive statistics of our final sample at the country level, including the number of waves available per country. The table shows considerable variation in minimum wage ratios across regions. Europe and Central Europe stand out with the highest minimum wage ratios, reflecting a more generous minimum wage policy relative to the wage distribution. However, it is also the region with the highest non-compliance rate, indicating that a significant proportion of workers are not covered by minimum wage regulations. Adjusting the minimum wage ratio for the non-compliance rate yields corrected minimum wage ratios that are more in line with those observed in other regions. In addition, sub-Saharan Africa and Latin America and the Caribbean exhibit relatively higher percentages of uncovered sectors. This suggests that a significant proportion of the workforce is not protected by minimum wage regulations.

Table 2 provides further descriptive statistics at the type level on the minimum wage ratio (with and without correction), the non-compliance rate, the share of respondents in the uncovered sector, and the number of observations for each type. Here we see that minimum wage ratios tend to be more binding for low-educated workers, especially women and young people. The same is true for the non-compliance rate.

Finally, to assess whether correcting for minimum wage compliance is effective in capturing legal compliance, we also provide a set of estimates on country/year subsamples defined by their respect for the rule of law. This is based on the rule of law indicator from the World Bank Worldwide Governance Indicators (WGI). The Rule of Law Index "captures perceptions of the extent to which agents have confidence in and abide by the rules of society, in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. Estimates give the country's score on the aggregate indicator in units of a standard normal distribution, i.e., ranging from approximately -2.5 to 2.5" (World Bank, 2022).

4 Empirical Findings

4.1 Baseline Specification

Our baseline findings are presented in Table 3. Columns (1)-(3) show the effect of the minimum wage ratio on the uncovered sector without any correction for non-compliance, i.e. estimating equation (1) with the minimum wage ratio defined as in equation (2). The results are presented by column, augmenting the model with additional controls, starting with country fixed effects, year fixed effects, and their interaction in column (1). In this simple model specification, we cross-sectionally compare the minimum wage ratio across labor market types within countries and years and find a positive and significant (at the 10 percent level) effect of the minimum wage ratio on the probability of working in the uncovered sector.

In column (2) we add country/type fixed effects. The variation exploited in this model is within country/types and over time. The sample is reduced to country/types that we observe in at least two waves, which explains the reduction in the number of observations. The introduction of country/type fixed effects slightly reduces the estimated coefficient of interest, which is still statistically significant at the 10 percent level.

The model in column (3) includes additional country-specific individual-level controls, i.e. the interaction between country fixed effects and individual-level controls. These controls include indicators for whether the individual resides in an urban or rural area and industry dummies (mining, manufacturing, public utilities, construction, retail and wholesale trade, transport and communications, financial and business services, public administration, or other unspecified services). According to this preferred specification in column (3), a 1 percentage point increase in the ratio of the minimum wage to the 70^{th} percentile of wages outside agriculture increases the probability of being self-employed by 0.1 percentage point. Given that the standard deviation of the minimum wage ratio in the estimation sample is 0.216 and the average share of the uncovered sector is 0.283, a one standard deviation increase in the minimum wage ratio increases employment in the uncovered sector by 7.7 percent. [11] In all specifications, the effects are significant at the 10% level.

TABLE 3 AROUND HERE

[11] Note that a change in the minimum wage ratio equal to its standard deviation of 0.216 is very large, given that its sample average is 0.421.

Our results so far suggest that the effect of the minimum wage on formal employment may not be as harmful as expected in the presence of noncompliance, because in this case the minimum wage regulations are not strictly binding. However, if this is the case, we should modify our specification accordingly, especially considering that minimum wage noncompliance tends to be high in developing country labor markets and tends to increase with the level of the minimum wage. We therefore estimate an adjusted version of our model as in equation (3), where the minimum wage ratio is defined as in equation (4), i.e. including a correction for the country/year non-compliance rate calculated from our data.

Our findings are presented in columns (4)-(6) of Table 3. The structure of these columns is the same as in columns (1)-(3), i.e. we cumulatively add fixed effects by column: country, year fixed effects and their interaction in column (4), country/type fixed effects in column (5), additional controls and their interaction with country fixed effects in column (6). After adjusting for noncompliance, we find that a higher minimum wage rate is typically associated with a higher probability of working in the uninsured sector, and the effect is statistically significant at the 5 percent level. According to our preferred specification in column (6), a 1 percentage point increase in the ratio of the corrected minimum wage to the 70^{th} percentile of wages outside agriculture increases the probability of being self-employed by 0.182 percentage points. Given that the standard deviation of the corrected minimum wage ratio in the estimation sample is 0.145 and that the average share of the uncovered sector is 0.281, a one standard deviation increase in the corrected minimum wage ratio increases the uncovered sector by 9.4 percent.[12].

To provide further evidence on the role of non-compliance, we re-run the analysis for two different types of country/waves: country/waves with higher rule of law scores and country/waves with lower scores. As can be seen in Table 4, the effects of the minimum wage ratio on self-employment are fully driven by country/waves with higher rule of law scores (columns 2-3), while when country/waves score below the median in rule of law (column 1), the results do not significantly differ from zero. When we correct the minimum wage ratio for the country's compliance rate (as in columns 4-6), the effects on self-employment exhibit larger point estimates, as in Table 3, but the relative differences in the estimated coefficients for the corrected and uncorrected minimum wage ratios are less pronounced than in Table 3. Finally, it is interesting

[12]Similar to what was noted above, a change in the corrected minimum wage ratio equal to its standard deviation of 0.145 is very large, given that its sample average is equal to 0.302.

to note that the point estimates are always larger when focusing on the country/waves scoring in the top quartile of the rule of law index.

If the minimum wage exceeds the value of a worker's output, a firm could potentially replace him or her with a more productive worker. This 'labor-labor substitution' could have important distributional effects compared to more modest aggregate employment effects (Clemens *et al.*, 2021). To test the presence of this phenomenon and whether the results are driven mainly by vulnerable workers, we present additional estimates obtained by interacting the MWR and the CMWR with dummies for each education, gender, and age types. As can be seen in Table 5, the effects of the MWR do not vary by education (column 1), nor by age (column 3), but they do vary by gender (column 2), with the minimum wage ratio having a significant effect on self-employment only for females. Our results are in line with Engbom and Moser (2021), who focus their analysis on the effects of the minimum wage on employment and formality for men only in Brazil and find no significant effects. Instead, after correcting for noncompliance, we find that the effects of the minimum wage also differ by educational attainment and are concentrated among workers with low educational attainment (column 4). As before, the CMWR estimates show that the effects of the minimum wage are concentrated among women (column 5), but do not show differences across age groups (column 6).

4.2 Robustness Checks

Sample Construction and Selection

Our corrected minimum wage ratio is constructed using the 70^{th} percentile of the wage distribution, with the expectation that even if the minimum wage has substantial spillover effects on workers paid above the minimum, the 70^{th} may be far enough away from the minimum wage to be unaffected. In Table 6, we check whether our results hold when we change the definition of the minimum wage's effectiveness by using the 65^{th} and 75^{th} percentile wages, respectively, to construct the minimum wage ratio, both uncorrected (columns 1 and 2) and corrected for noncompliance (columns 4 and 5). Our point estimates do not change much after this modification, the only change being in column (2) where the effect is no longer significantly different from zero. In our preferred model, where we correct for noncompliance, the results are not significantly different from our baseline.

TABLE 6 AROUND HERE

As a further robustness check, we estimate our model restricting the sample to cells with a dimension of at least 150 observations. This choice mitigates potential measurement error in estimating the 70th percentile of the cell-specific wage distribution due to small cell sizes, but may exacerbate potential bias introduced by selecting those cells that are large enough. Our sample is now slightly smaller, as we lose about 0.5% of the observations. The results are not significantly different from our baseline, both using the uncorrected (column 3) and the corrected (column 6) minimum wage.

In Table A4 we also check the sensitivity of our analysis to how we trim the sample. In our baseline estimates we always exclude country/types characterized by a minimum wage above the 70th percentile of the wage distribution, i.e. where the minimum wage ratio is above 1. We now assess the robustness of our findings to looser or tighter exclusion rules. In columns (1) and (3) we report the results where all country/types are included.[13] The point estimates are smaller in magnitude, but both positive and significantly different from zero. In columns (2) and (4), we reduce the sample to country/types where the minimum wage ratio is smaller than 0.9, that is, we only consider country/types where the minimum wage is smaller than 90% of the 70th percentile of the cell-specific wage distribution. That is, we only consider country/types where the minimum wage is lower and not binding. The estimated coefficients are not significantly different from our baseline estimates. In our final exercise, if there is at least one labor market type where the MWR or the CMWR exceeds 1 or 0.9, we exclude the entire country/year. The results are reported in columns (5)-(8). The estimated coefficients are all larger in magnitude, but not significantly different from our baseline estimates.

TABLE A4 AROUND HERE

In addition, in Table A3 in the appendix, we check whether our results are driven by countries where the minimum wage is very high relative to the national distribution of wages. To do this, we only consider waves in which the minimum wage is below the 40th percentile of the national wage distribution in columns (1) and (3), and below the 50th percentile in columns (2) and (4). If anything, the point estimates are larger than in our baseline, but not significantly different, suggesting that the minimum wage increases the probability of working

[13] In this case, the MW can go up to 1.5 times the 70th percentile of the wage distribution.

in the uncovered sector regardless of one's position in the national wage distribution. This is true both when we do not correct the minimum wage rate for noncompliance (columns 1-2) and when we do (columns 3-4).

TABLE A3 AROUND HERE

MWR and CMWR Including Workers in the Uncovered Sector

One source of concern in our analysis arises from the fact that the 70th percentile of the wage distribution is derived only from the wages of wage earners, since wages for the uncovered sector are not observed in the data. Since wages in the uncovered sector are likely to be lower than wages in the covered sector, the 70th percentile of the wage distribution used to construct the minimum wage ratio and the corrected minimum wage ratio is likely to overestimate the true 70th percentile of the wage distribution of each labor market type. As a result, both the MWR and the CMWR that use the 70th in their denominators are likely to be downward biased.

To assess the impact of this limitation on our results, we can use data from the Socio-Economic Database for Latin America and the Caribbean (SEDLAC), which collects and harmonizes data from household surveys and includes wages for the self-employed for about half of the countries in our original sample.[14]

Our findings for this restricted sample are reported in Table 7. First, in columns (1) and (2), we rerun our analysis of the effects of the MWR and CMWR, respectively, on the probability of working in the uncovered sector on the I2D2 data, but only for those countries/years that are also present in the SEDLAC database. The estimated coefficients for this sample of countries are larger in magnitude, suggesting possibly stronger effects in the region, but they are not significantly different from our baseline estimates in Table 3. Columns (3) and (4) report the results from the SEDLAC data, where the MWR and CMWR are based on the 70th percentile of wage earners only, in line with the rest of the analysis presented in the paper. [15]

[14]The SEDLAC data are a joint product of the Center of Distributive, Labor and Social Studies (CEDLAS) and the World Bank. Sometimes the original sources of SEDLAC and I2D2 coincide, and sometimes they do not. In addition, the SEDLAC data for Latin America and the Caribbean are harmonized and subject to a different cleaning procedure, which makes them different from I2D2. Nevertheless, the average statistics provided by the two sources are comparable.

[15]Although the SEDLAC data are already cleaned and harmonized, we apply the same filters used in the analysis of the I2D2 data to make the analyses more comparable: only full-time non-agricultural workers are considered; labor market types with fewer than 100 observations are excluded, as are labor market types where the minimum wage ratio is greater than 1 at least once across years.

The estimates from the SEDLAC data confirm our baseline results. The point estimates are smaller than those from the I2D2 data in columns (1) and (2), but the difference is not statistically significant. Finally, in columns (5) and (6), we include the wages of the self-employed in the construction of the MWR and the CMWR. As expected, the 70th percentile wages of the wage distribution are now higher, and both the MWR and the CMWR are now more binding. The resulting estimated coefficients from estimating equations (1) and (3) are larger in magnitude, but, reassuringly for our analysis, they are not significantly different from our baseline estimates that ignore wages from the uncovered sector. Most importantly, all the results point in the same direction, suggesting that excluding uncovered wages, as we do in our baseline estimates, provides a lower bound on the effects.

Predetermined MWR and CMWR

To mitigate lingering concerns that the 70th percentile might instead be altered by increases in the minimum wage at time t, we perform robustness checks in Table 8 using predetermined measures of the 70th percentile of the wage distribution. In column (1), we show the effect on self-employment of the minimum wage relative to the CPI-adjusted 70th percentile wage of the previous year.[16] The effect of interest is positive and statistically significant, with slightly smaller point estimates than in the baseline, though not significantly so.

TABLE 8 AROUND HERE

Since for some country/types the survey is not available in *t-1*, we use the 70th percentile of the wage distribution in the previous available year, up to two lags. That is, in column (2) we construct the minimum wage ratio as the minimum wage above the CPI-adjusted 70th percentile wage in the previous available period, up to the second lag. The number of observations increases slightly from column (1) to column (2), but the estimated coefficient does not change significantly from the previous column. Both point estimates are smaller than in our baseline estimates, but positive and significantly different from zero.

Similar tests are performed using the corrected minimum wage in columns (3) and (4). Here, the corrected minimum wage ratio is the ratio of the minimum wage to the CPI-adjusted 70th percentile in the previous year or in any available previous year up to the second lag, corrected

[16] We deflate the wage series using the average CPI for each country from the World Economic Outlook.

for the non-compliance rate, also measured with the same lag. The results are broadly the same, with lower point estimates that are statistically significant. However, the differences in the effects compared to the baseline model are again not statistically significant.

5 Conclusions

We present a new set of empirical evidence on the economic impact of minimum wage legislation in developing countries, derived from a unique, newly assembled dataset of 270 micro-surveys from 49 developing countries over the period 1995-2012. The focus of our analysis is on the relationship between minimum wages and the uncovered sector, measured as the probability of being self-employed or a family worker outside of agriculture. We avoid common pitfalls of cross-country comparisons by relying on the effectiveness of the minimum wage within country labor market types across years for identification. Our identification strategy exploits the relative bite of the minimum wage within age, gender, and education country/types across years.

Our estimates show that a more generous minimum wage is typically associated with a larger size of the uncovered sector, in line with the predictions of a standard segmented competitive labor market model, where an increase in the minimum wage would raise the wages of the least productive workers in the covered sector above their marginal productivity, leading to a reallocation of workers from the covered to the uncovered sector. Our preferred baseline model shows that a 1 percentage point increase in the minimum wage above the 70^{th} percentile of wages outside agriculture (MWR) increases the probability of working in the uncovered sector by 0.1 percentage point. This effect is only significant at the 10 percent level. The effect is larger and statistically significant at the 5 percent level when the minimum wage rate is corrected for non-compliance (CMWR). A one standard deviation increase in the CMWR is associated with a 9.4 percent increase in the probability of working in the uncovered sector. These effects are very robust to a large number of alternative specifications.

The economic impact of the minimum wage is intimately related to its generosity, i.e., how binding the minimum wage is, but also to the overall level of compliance with the law at the country level. Our results show that the impact of the minimum wage we uncover is more economically significant when we take into account the level of compliance with the law, and

it is statistically significant only in contexts where the rule of law is more respected. Our results show that, on average, the minimum wage is likely to have relatively large effects on the uncovered sector in developing countries, a feature that should be taken into account when assessing the welfare consequences of minimum wage reform. Governments seeking to reduce poverty by using the minimum wage as a policy lever should take into account that the effects on the uncovered sector are likely to be concentrated among those groups of individuals who are more vulnerable to poverty, particularly women and less educated workers. Further research is needed to assess the general equilibrium effects of minimum wage policies in developing countries, taking into account the impact of such policies on overall employment levels.

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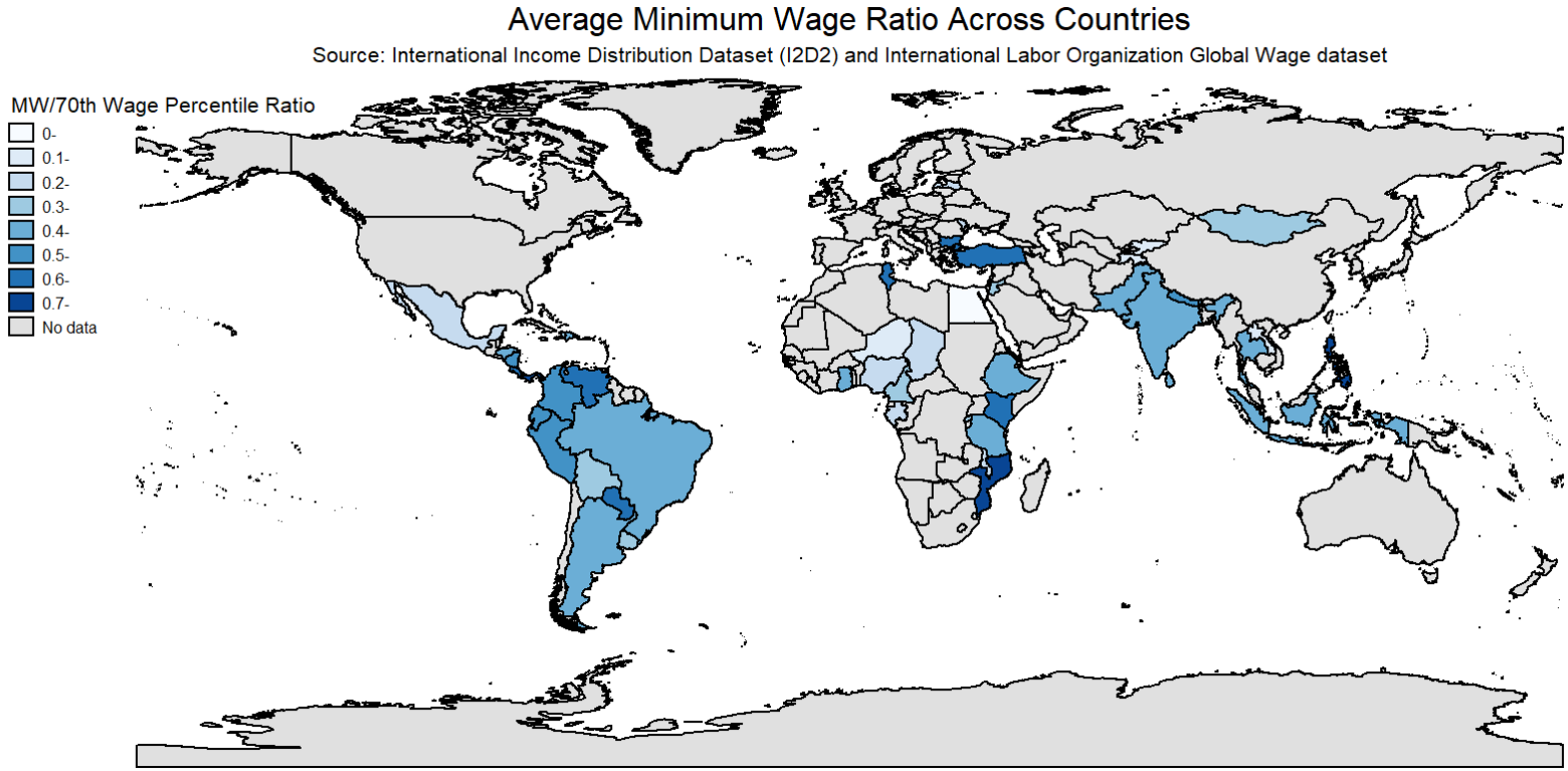
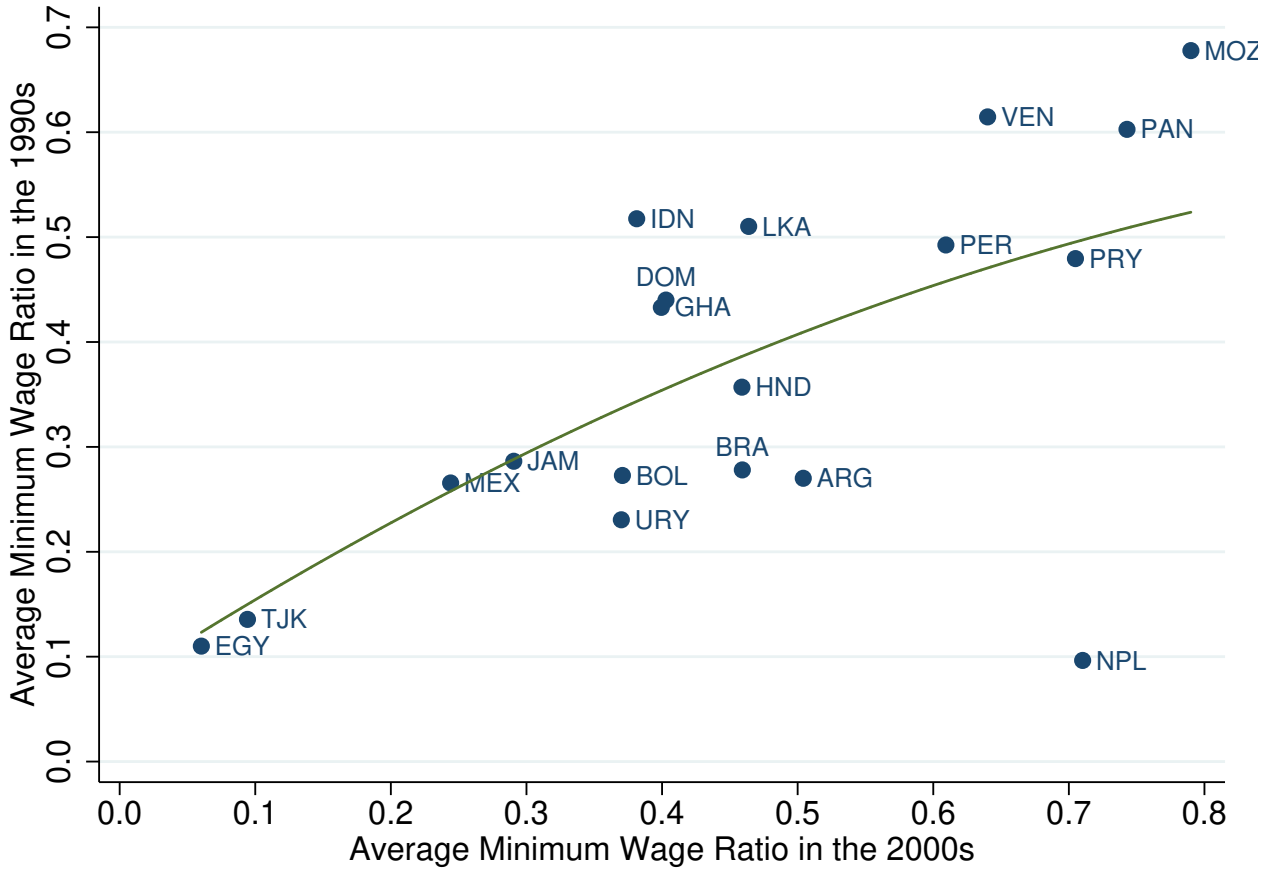
Figure 1: Minimum Wage Ratio Across Countries



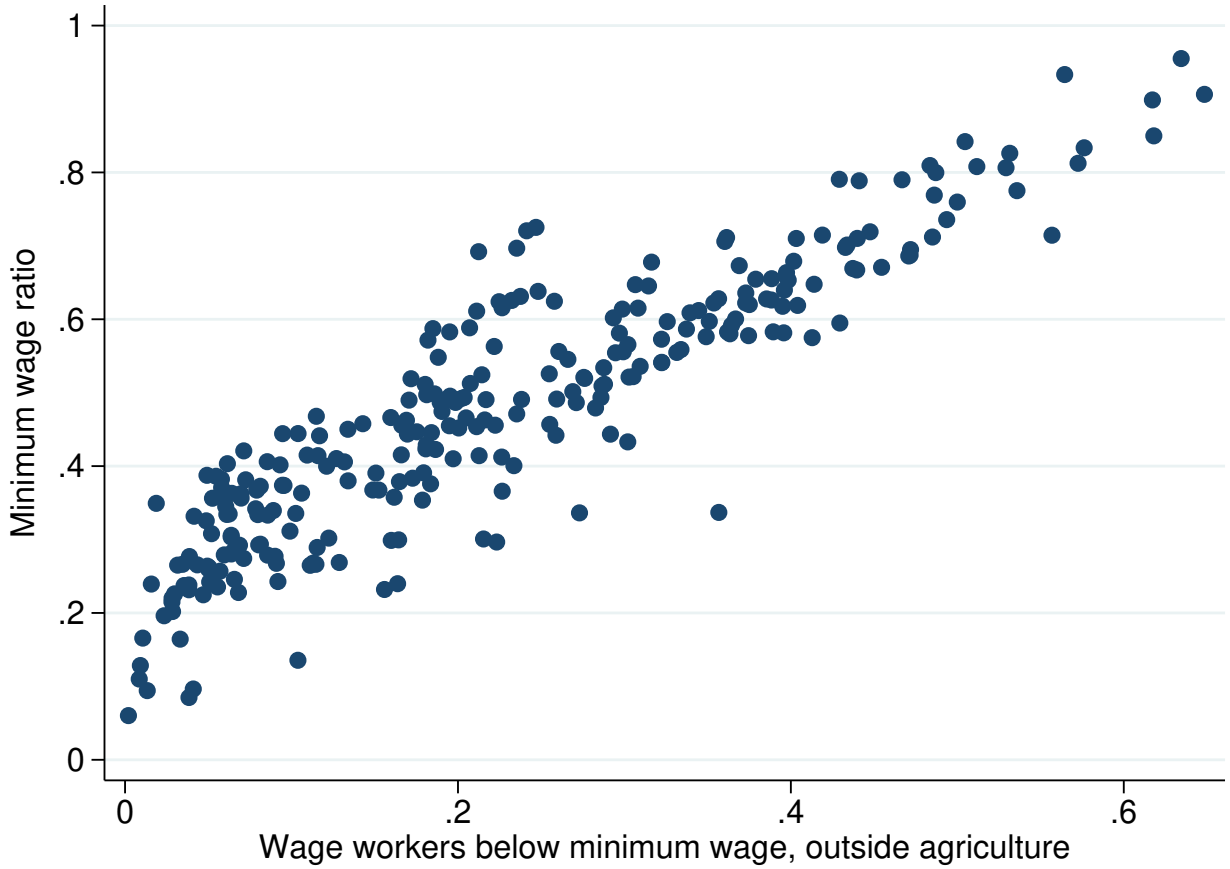
Notes: The wage ratio shown in the map is a weighted average of the minimum wage/70^{th} percentile wage in the country across labor market types (cells), where the weights are the shares of each cell wage employment in total wage employment, and across years. The sample is constructed by merging the I2D2 dataset and the ILO Global Wage dataset and including those developing countries where minimum wage regulations exist. We further limit our sample to labor market types for which we observe at least 100 individuals each year and where the minimum wage is below the 70^{th} percentile wage. The time period covered by the data is 1995-2012.

Figure 2: Minimum Wage Ratio Across Countries in the 1990s and 2000s



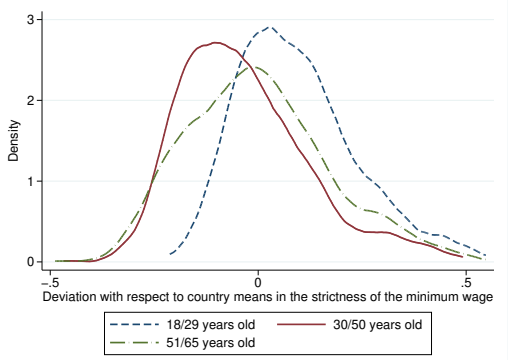
Notes: On the y axis the average minimum wage ratio in the 1990s is reported; on the x axis the average minimum wage ratio in the 2000s is reported. The wage ratio shown in the map is a weighted average of the minimum wage/70^{th} percentile wage in the country across labor market types (cells), where the weights are the shares of each cell wage employment in total wage employment, and across years. The sample is constructed by merging the I2D2 dataset and the ILO Global Wage dataset and including those developing countries where minimum wage regulations exist. We further limit our sample to labor market types for which we observe at least 100 individuals each year and where the minimum wage is below the 70^{th} percentile wage. The time period covered by the data is 1995-2012.

Figure 3: Non-Compliance and Minimum Wage Ratio across Waves

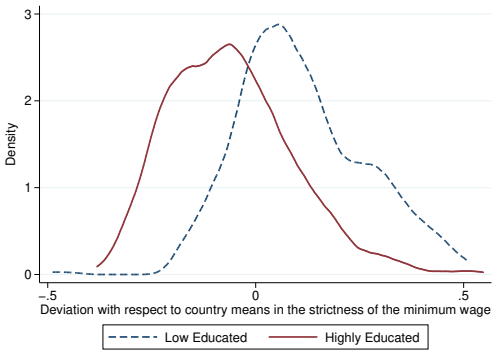


Notes: The figure shows the positive relationship between the minimum wage ratio (y axis) and the non-compliance rate (x axis) across country years, where each dot represents one country/year, or wave. The sample is constructed by merging the I2D2 dataset and the ILO Global Wage dataset and including those developing countries where minimum wage regulations exist. We further limit our sample to labor market types for which we observe at least 100 individuals each year and where the minimum wage is below the 70^{th} percentile wage. The time period covered by the data is 1995-2012. Self-employed are self-employed and non-paid employees (i.e. family worker) outside of agriculture. The minimum wage ratio in a wave is defined as the average of minimum wage ratios (over the labor market type 70^{th} percentile wage) across labor market types. The non-compliance rate in a wave is defined as the average share of workers outside agriculture whose wages are below the minimum wage across labor market types.

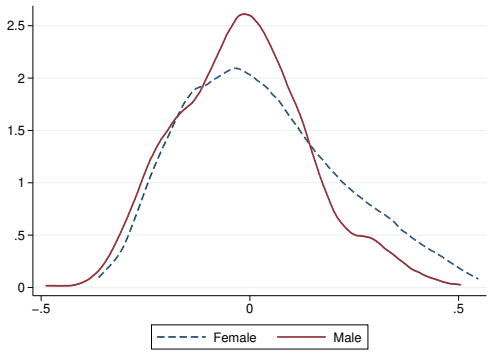
Figure 4: Deviations in the Minimum Wage Ratio from Country Means by Age, Education and Gender



(a) Deviations by Age.



(b) Deviations by Education.



(c) Deviations by Gender.

Notes: The figure shows the kernel density estimation of the deviations of minimum wage ratios with respect to countries' average minimum wage ratios, by age in Panel (a), by education in Panel (b) and by gender in Panel (c). Young workers are 18-29 years old, prime age workers are 30-50 years old, old workers are 51-65 years old. Low educated workers have a level education up to primary (included); highly educated workers have at least secondary education. The wage ratio shown in the map is a weighted average of the minimum wage/70^{th} percentile wage in the country across labor market types (cells), where the weights are the shares of each cell wage employment in total wage employment, and across years. The sample is constructed by merging the I2D2 dataset and the ILO Global Wage dataset and including those developing countries where minimum wage regulations exist. We further limit our sample to labor market types for which we observe at least 100 individuals each year and where the minimum wage is always below the 70^{th} percentile wage. The time period covered by the data is 1995-2012. The minimum wage ratio in a cell is defined as the minimum wage over the cell 70^{th} percentile wage. The deviations are calculated as the difference between the country/year/type minimum wage ratio and the country average minimum wage ratio across years.

Table 1: Summary Statistics: Panel A

Country	Minimum Wage Ratio	Corrected Minimum Wage Ratio	Non-compliance Rate	Uncovered Sector (%)	Male (%)	Low Educated (%)	Living in Urban Area (%)	No. of Waves
East Asia and Pacific								
Indonesia	42.32	34.32	18.00	31.66	70.77	27.69	71.92	10
Lao PDR	13.46	12.98	3.13	54.92	75.00	25.00	60.85	2
Mongolia	36.79	34.92	5.01	7.13	50.00	0.00	76.59	3
Philippines	75.64	27.59	63.64	29.87	71.43	0.00	100.00	10
Solomon Islands	23.98	20.00	16.62	31.05	60.00	20.00	52.71	1
Thailand	40.17	36.67	8.71	22.46	57.14	28.57	100.00	1
Total	45.01	32.92	21.73	28.91	68.14	20.74	76.14	27
Europe and Central Europe								
Bulgaria	61.38	27.87	42.46	6.25	100.00	0.00	68.25	4
Kyrgyz Republic	12.84	12.80	0.34	2.84	50.00	50.00	58.36	1
Latvia	29.46	27.38	7.15	2.83	52.00	4.00	55.30	4
Moldova	22.79	20.94	8.10	5.75	75.00	0.00	70.41	1
Tajikistan	11.49	10.73	5.71	25.33	60.00	0.00	46.13	2
Turkey	63.73	36.93	41.98	17.86	66.67	33.33	83.14	6
Total	62.33	36.37	40.71	17.37	66.50	32.05	81.98	18
Latin America and The Caribbean								
Argentina	43.10	31.31	21.49	22.31	62.50	25.00	100.00	16
Bolivia	35.33	29.76	15.32	35.76	69.86	35.62	85.52	11
Brazil	40.26	33.74	15.66	24.87	50.00	50.00	94.03	16
Colombia	55.89	40.76	26.32	44.21	57.14	14.29	97.71	10
Costa Rica	60.67	49.00	19.15	24.63	55.00	53.75	48.18	9
Dominican Republ	40.79	36.28	10.43	40.76	56.39	54.89	74.86	15
Ecuador	53.51	37.03	30.75	30.97	66.67	33.33	78.91	9
Haiti	33.70	19.16	43.14	47.65	100.00	50.00	59.94	1
Honduras	42.92	31.43	21.23	15.13	56.25	0.00	87.06	16
Jamaica	28.85	27.16	5.58	22.10	50.00	0.00	57.92	4
Mexico	24.97	24.09	3.55	22.50	55.26	48.68	81.03	7
Nicaragua	58.61	45.41	19.37	18.83	60.00	0.00	89.83	2
Panama	70.57	44.31	35.93	18.28	93.88	24.49	65.83	17
Paraguay	65.48	23.16	63.43	26.95	51.85	0.00	85.99	13
Peru	59.24	32.97	42.92	39.35	86.96	20.29	87.92	16
Uruguay	33.65	30.47	7.50	24.50	51.00	49.00	97.98	17
Venezuela, RB	63.16	39.80	36.58	40.54	55.56	33.33	19.55	6
Total	45.13	34.94	19.63	30.50	55.28	37.09	90.57	185

The table reports the country averages for minimum wage ratio, corrected minimum wage ratio, the non-compliance rate at the national level, uncovered sector, percentage of males, percentage of low educated individuals, percentage of people living in an urban area, whether the country enters the final sample for the analysis, and the number of waves per country. The sample is constructed by merging the I2D2 dataset and the ILO Global Wage dataset and including those developing countries where minimum wage regulations exist. We further limit our sample to labor market types for which we observe at least 100 individuals each year and where the minimum wage is always below the 70^{th} percentile wage. The time period covered by the data is 1995-2012. The uncovered sector is defined as the share of self-employed and non-paid employees (i.e. family worker) outside of agriculture. The minimum wage ratio is calculated as the minimum wage over the 70^{th} percentile wage of full-time wage workers outside of agriculture; wages are weighted with survey weights. The corrected minimum wage ratio is the minimum wage ratio multiplied by the compliance rate at the national level.

Table 1: Summary Statistics: Panel B

Country	Minimum Wage Ratio	Corrected Minimum Wage Ratio	Non-compliance Rate	Uncovered Sector (%)	Male (%)	Low Educated (%)	Living in Urban Area (%)	No. of Waves
Middle East and North Africa								
Egypt, Arab Rep.	8.37	8.36	0.08	10.04	70.59	35.29	72.21	2
Jordan	38.75	36.26	6.43	9.51	66.67	16.67	76.49	1
Malta	41.20	38.50	6.55	9.03	66.67	16.67	100.00	2
Tunisia	62.39	51.11	18.09	17.60	60.00	50.00	75.39	1
Total	42.34	36.11	10.49	13.65	64.43	38.68	78.05	5
South Asia								
India	47.92	40.12	16.27	40.87	50.00	50.00	56.50	1
Nepal	57.38	30.28	27.01	47.91	77.78	44.44	71.06	2
Pakistan	43.95	32.51	25.08	35.18	75.00	37.50	60.30	3
Sri Lanka	47.67	42.23	11.36	25.68	55.26	46.05	28.32	7
Total	46.91	37.92	17.99	34.29	61.06	44.37	49.08	13
Sub Saharan Africa								
Cameroon	39.98	32.32	18.76	47.99	66.67	33.33	80.84	2
Chad	29.96	22.47	24.98	34.33	100.00	50.00	68.92	1
Ethiopia	41.79	30.75	26.12	39.04	66.67	44.44	97.08	5
Gabon	29.88	26.69	10.70	29.74	62.50	37.50	87.74	1
Ghana	40.74	27.41	29.29	35.45	70.59	17.65	67.42	3
Kenya	68.73	26.12	62.00	38.26	50.00	0.00	71.88	1
Malawi	25.26	22.39	18.58	58.48	63.64	63.64	43.21	2
Mozambique	73.39	42.84	40.80	35.01	100.00	100.00	75.51	2
Niger	16.58	15.82	4.56	16.37	100.00	0.00	12.67	1
Nigeria	26.88	22.14	17.63	65.57	83.33	33.33	53.99	1
Rwanda	30.08	22.78	24.27	0.00	66.67	50.00	62.08	1
Tanzania	45.57	31.82	30.18	45.32	66.67	44.44	78.04	1
Total	40.99	29.99	25.72	39.72	66.87	41.61	89.73	19
All	42.07	30.24	21.59	28.13	67.04	29.64	71.34	270

The table reports the country averages for minimum wage ratio, corrected minimum wage ratio, the non-compliance rate at the national level, uncovered sector, percentage of males, percentage of low educated individuals, percentage of people living in an urban area, and the number of waves per country. The sample is constructed by merging the I2D2 dataset and the ILO Global Wage dataset and including those developing countries where minimum wage regulations exist. We further limit our sample to labor market types for which we observe at least 100 individuals each year and where the minimum wage is always below the 70^{th} percentile wage. The time period covered by the data is 1995-2012. The uncovered sector is defined as the share of self-employed and non-paid employees (i.e. family worker) outside of agriculture. The minimum wage ratio is calculated as the minimum wage over the 70^{th} percentile wage of full-time wage workers outside of agriculture; wages are weighted with survey weights. The corrected minimum wage ratio is the minimum wage ratio multiplied by the compliance rate at the national level.

Table 2: Summary Statistics by Labor Market Type

	Minimum Wage Ratio	**Corrected Minimum Wage Ratio**	**Non-compliance Rate (group level)**	**Uncovered Sector**	**Observations**
All groups	0.47	0.37	0.18	0.26	6,628,672
Group 1: young, male, low educated	0.53	0.43	0.25	0.20	328,237
Group 2: prime age, male, low educated	0.48	0.37	0.20	0.37	816,598
Group 3: old, male, low educated	0.51	0.38	0.23	0.48	350,174
Group 4: young, female, low educated	0.67	0.58	0.35	0.25	112,689
Group 5: prime age, female, low educated	0.61	0.52	0.29	0.34	325,470
Group 6: old, female, low educated	0.57	0.46	0.28	0.42	109,178
Group 7: young, male, high educated	0.50	0.37	0.21	0.15	953,957
Group 8: prime age, male, high educated	0.36	0.24	0.14	0.22	1,420,275
Group 9: old, male, high educated	0.29	0.19	0.12	0.29	307,626
Group 10: young, female, high educated	0.50	0.39	0.21	0.13	699,907
Group 11: prime age, female, high educated	0.35	0.26	0.14	0.25	1,010,549
Group 12: old, female, high educated	0.31	0.22	0.14	0.23	194,012

The table reports the type averages for minimum wage ratio, corrected minimum wage ratio, the uncovered sector, non-compliance rate at the type level and the total number of observations by type. The sample is constructed by merging the I2D2 dataset and the ILO Global Wage dataset and including those developing countries where minimum wage regulations exist. We further limit our sample to labor market types for which we observe at least 100 individuals each year and where the minimum wage is always below the 70^{th} percentile wage. The time period covered by the data is 1995-2012.

Table 3: Effects of the MWR and CMWR on the Probability to be Self-employed

	(1)	(2)	(3)	(4)	(5)	(6)
MWR	0.087*	0.066*	0.100*			
	(0.047)	(0.036)	(0.053)			
CMWR				0.114*	0.124**	0.182**
				(0.060)	(0.050)	(0.072)
CountryFE	Yes	Yes	Yes	Yes	Yes	Yes
YearFE	Yes	Yes	Yes	Yes	Yes	Yes
Country× YearFE	Yes	Yes	Yes	Yes	Yes	Yes
CountryFE× GroupFE	No	Yes	Yes	No	Yes	Yes
Controls	No	No	Yes	No	No	Yes
CountryFE× Controls	No	No	Yes	No	No	Yes
Country-groups	325	215	215	325	215	215
Countries	49	34	34	49	34	34
MWR (or CMWR) s.d.	0.222	0.216	0.216	0.157	0.145	0.145
Average Informality	0.284	0.283	0.283	0.284	0.283	0.283
R-sqr overall	0.058	0.098	0.223	0.058	0.098	0.223
RMSE	0.438	0.428	0.397	0.438	0.428	0.397
Observations	6628672	6458808	6458808	6628672	6458808	6458808

The table reports the estimated effect of the minimum wage ratio (columns 1-3) and of the corrected minimum wage ratio (columns 4-6) on the probability to be self-employed. The minimum wage ratio (MWR) is calculated as the minimum wage over the 70^{th} percentile wage of full-time wage workers outside of agriculture; wages are weighted with survey weights. CMWR is the MWR corrected with compliance rate at the country-year at time t and the MW ratio is the ratio of the MW of the country-year and the 70^{th} percentile of the wage distribution of the country/type. The sample is constructed by merging the I2D2 dataset and the ILO Global Wage dataset and including those developing countries where minimum wage regulations exist. We further limit our sample to labor market types for which we observe at least 100 individuals each year and where the minimum wage is always below the 70^{th} percentile wage. The time period covered by the data is 1995-2012. Self-employed are self-employed and non- paid employees (i.e. family workers) outside of agriculture. The included controls are: dummies for industry (manufacturing, commerce, public administration, etc.), urban/rural. In columns (2), (3), (5) and (6) we only consider country-types that we observe for 2 years or more. The countries that we lose in these columns are: Chad, Gabon, Haiti, India, Jordan, Kenya, Kyrgyz Republic, Moldova, Niger, Nigeria, Rwanda, Solomon Islands, Tanzania, Thailand, Tunisia. Observations are weighted so that each labor market type has equal weight in the estimations. Standard errors clustered at country type level in parentheses: * p<0.1, ** p<0.05, *** p<0.01.

Table 4: Effects of the MWR and CMWR on the Probability to be Self-employed by Rule of Law

	(1) ROL below median	(2) ROL above median	(3) ROL top quartile	(4) ROL below median	(5) ROL above median	(6) ROL top quartile
MWR	-0.060	0.249***	0.361***			
	(0.047)	(0.076)	(0.088)			
CMWR				-0.014	0.343***	0.461***
				(0.075)	(0.097)	(0.107)
CountryFE	Yes	Yes	Yes	Yes	Yes	Yes
YearFE	Yes	Yes	Yes	Yes	Yes	Yes
Country× YearFE	Yes	Yes	Yes	Yes	Yes	Yes
CountryFE× GroupFE	No	Yes	Yes	No	Yes	Yes
Controls	No	No	Yes	No	No	Yes
CountryFE× Controls	No	No	Yes	No	No	Yes
Country-groups	135	206	107	135	206	107
Countries	22	30	15	22	30	15
MWR (or CMWR) s.d.	0.138	0.210	0.219	0.138	0.210	0.219
Average Informality	0.231	0.313	0.259	0.231	0.313	0.259
R-sqr overall	0.244	0.210	0.168	0.244	0.210	0.168
RMSE	0.403	0.389	0.384	0.403	0.389	0.384
Observations	2811111	2839844	1470200	2811111	2839844	1470200

The table reports the estimated effect of the minimum wage ratio (columns 1-3) and of the corrected minimum wage ratio (columns 4-6) on the probability to be self-employed in country-years with Rule of Law below the median in columns (1) and (4), country-years with Rule of Law above the median in columns (2) and (6), country-years with Rule of Law in the top quartile in columns (3) and (6). The waves with missing Rule of Law are not considered. The countries that have both years with Rule of Law above the median, but more years with Rule of Law above (below) are grouped with countries that always have Rule of Law above (below) the median. Countries that never have values for the Rule of Law are excluded from the estimations. The minimum wage ratio (MWR) is calculated as the minimum wage over the 70^{th} percentile wage of full-time wage workers outside of agriculture; wages are weighted with survey weights. CMWR is the MWR corrected with compliance rate at the country-year at time t and the MW ratio is the ratio of the MW of the country-year and the 70^{th} percentile of the wage distribution of the country/type. The sample is constructed by merging the I2D2 dataset and the ILO Global Wage dataset and including those developing countries where minimum wage regulations exist. We further limit our sample to labor market types for which we observe at least 100 individuals each year and where the minimum wage is always below the 70^{th} percentile wage. The time period covered by the data is 1995-2012. Self-employed are self-employed and non- paid employees (i.e. family workers) outside of agriculture. The included controls are: dummies for industry (manufacturing, commerce, public administration, etc.), urban/rural. We only consider country-types that we observe for 2 years or more. Observations are weighted so that each labor market type has equal weight in the estimations. Standard errors clustered at country type level in parentheses: * p<0.1, ** p<0.05, *** p<0.01.

Table 5: Effects of the MWR and CMWR on the Probability to be Self-employed by Rule of Law

	(1)	(2)	(3)		(4)	(5)	(6)
MWR	0.074*	0.013	0.100	CMWR	0.076	0.064	0.189**
	(0.043)	(0.034)	(0.071)		(0.061)	(0.048)	(0.096)
Low Edu×MWR	0.030			Low Edu×CMWR	0.125**		
	(0.046)				(0.063)		
Female×MWR		0.139***		Female×CMWR		0.171***	
		(0.032)				(0.053)	
Young×MWR			-0.001	Young×CMWR			-0.021
			(0.054)				(0.085)
Older×MWR			0.009	Older×CMWR			0.082
			(0.052)				(0.075)
CountryFE	Yes	Yes	Yes		Yes	Yes	Yes
YearFE	Yes	Yes	Yes		Yes	Yes	Yes
Country× YearFE	Yes	Yes	Yes		Yes	Yes	Yes
CountryFE× GroupFE	Yes	Yes	Yes		Yes	Yes	Yes
Controls	Yes	Yes	Yes		Yes	Yes	Yes
CountryFE× Controls	Yes	Yes	Yes		Yes	Yes	Yes
Country-groups	215	215	215		215	215	215
Countries	34	34	34		34	34	34
MWR (or CMWR) s.d.	0.216	0.216	0.216		0.145	0.145	0.145
Average Informality	0.283	0.283	0.283		0.283	0.283	0.283
R-sqr overall	0.223	0.223	0.223		0.223	0.223	0.223
RMSE	0.397	0.397	0.397		0.397	0.397	0.397
Observations	6458808	6458808	6458808		6458808	6458808	6458808

The table reports the estimated effect of the minimum wage ratio (columns 1-3) and of the corrected minimum wage ratio (columns 4-6) on the probability to be self-employed by education (columns 1, 4), gender (columns 2, 5) and age type (columns 3, 6). The minimum wage ratio (MWR) is calculated as the minimum wage over the 70^{th} percentile wage of full-time wage workers outside of agriculture; wages are weighted with survey weights. CMWR is the MWR corrected with compliance rate at the country-year at time t and the MW ratio is the ratio of the MW of the country-year and the 70^{th} percentile of the wage distribution of the country/type. The sample is constructed by merging the I2D2 dataset and the ILO Global Wage dataset and including those developing countries where minimum wage regulations exist. We further limit our sample to labor market types for which we observe at least 100 individuals each year and where the minimum wage is always below the 70^{th} percentile wage. The time period covered by the data is 1995-2012. Self-employed are self-employed and non- paid employees (i.e. family workers) outside of agriculture. The included controls are: dummies for industry (manufacturing, commerce, public administration, etc.), urban/rural. We only consider country-types that we observe for 2 years or more. Observations are weighted so that each labor market type has equal weight in the estimations. Standard errors clustered at country type level in parentheses: * p<0.1, ** p<0.05, *** p<0.01.

Table 6: Effects of the MWR and CMWR on the Probability to be Self-employed (Robustness Checks)

	(1) MWR 65th percentile	(2) MWR 75th percentile	(3) Obs 150+	(4) MWR 65th percentile	(5) MWR 75th percentile	(6) Obs 150+
MWR	0.107**	0.099	0.107*			
	(0.050)	(0.060)	(0.056)			
				0.189***	0.196**	0.201***
CMWR				(0.068)	(0.078)	(0.077)
CountryFE	Yes	Yes	Yes	Yes	Yes	Yes
YearFE	Yes	Yes	Yes	Yes	Yes	Yes
Country× YearFE	Yes	Yes	Yes	Yes	Yes	Yes
CountryFE× GroupFE	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes
CountryFE× Controls	Yes	Yes	Yes	Yes	Yes	Yes
Country-groups	215	215	211	215	215	211
Countries	34	34	33	34	34	33
MWR (or CMWR s.d.)	0.237	0.209	0.214	0.156	0.128	0.141
Average Informality	0.283	0.283	0.280	0.283	0.283	0.280
R-sqr overall	0.223	0.223	0.218	0.223	0.223	0.218
RMSE	0.397	0.397	0.397	0.397	0.397	0.397
Observations	6458808	6458808	6426405	6458808	6458808	6426405

The table reports the estimated effect of the minimum wage ratio of the country/type/year (columns 1-3) and of the minimum wage ratio of the country/type/year corrected with compliance rate at the country-year level (columns 4-6), on the probability to be in the uncovered sector in different sub samples: the minimum wage ratio is calculated as the minimum wage over the 65th percentile wage of full-time wage workers outside of agriculture in columns (1) and (4), the minimum wage ratio is calculated as the minimum wage over the 75th percentile wage of full-time wage workers outside of agriculture in columns (2) and (5). The sample is constructed by merging the I2D2 dataset and the ILO Global Wage dataset and including those developing countries where minimum wage regulations exist. We further limit our sample to labor market types for which we observe at least 100 individuals each year and where the minimum wage is always below the 70th percentile wage. The time period covered by the data is 1995-2012. Our sample is limited to cells formed by more than 150 observations in columns (3) and (6). Self-employed are self-employed and non-paid employees (i.e. family workers) outside of agriculture. In columns (3) and (6) the minimum wage ratio is calculated as the minimum wage over the 70th percentile wage of full-time wage workers outside of agriculture; wages are weighted with survey weights. The controls included are: dummies for industry (manufacturing, commerce, public administration, etc.), urban/rural. In all columns we only consider country-types that we observe for 2 years or more. In the estimations equal weights are given to each labor market type. Standard errors clustered at country type level in parentheses: * p<0.1, ** p<0.05, *** p<0.01.

Table 7: Effects of the MWR and CMWR on the Probability to be Self-employed - SEDLAC

	(1)	(2)	(3)	(4)	(5)	(6)
	I2D2 Data - SEDLAC Sample		SEDLAC Data - 70th percentile wage of wage workers only		SEDLAC Data - 70th percentile wage of wage workers & self-employed	
MWR	0.125*		0.068**		0.080**	
	(0.063)		(0.034)		(0.037)	
CMWR		0.234***		0.121**		0.136**
		(0.084)		(0.047)		(0.053)
CountryFE	Yes	Yes	Yes	Yes	Yes	Yes
YearFE	Yes	Yes	Yes	Yes	Yes	Yes
Country× YearFE	Yes	Yes	Yes	Yes	Yes	Yes
CountryFE× GroupFE	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes
CountryFE× Controls	Yes	Yes	Yes	Yes	Yes	Yes
Min. Wage Cells	102	102	113	113	113	113
Countries	14	14	14	14	14	14
R-sqr overall	0.189	0.189	0.286	0.286	0.286	0.286
RMSE	0.406	0.406	0.378	0.378	0.378	0.378
Observations	4697141	4697141	2933073	2933073	2933073	2933073

The table reports the estimated effect of the minimum wage ratio (MWR) (columns 1, 3, 5) or the corrected minimum wage ratio (CMWR) (columns 2, 4, 6) on the probability to be self-employed of I2D2 data in the SEDLAC sample (columns 1-2), on SEDLAC data with MWR and CMWR based on the 70th percentile wage of wage workers only, on SEDLAC data with MWR and CMWR based on the 70th percentile wage of wage workers and self-employed. The minimum wage ratio (MWR) is calculated as the minimum wage over the 70th percentile wage of full-time wage workers outside of agriculture (columns 1-4) or all workers outside of agriculture (columns 5-6); wages are weighted with survey weights. CMWR is the MWR corrected with compliance rate at the country-year at time t and the MW ratio is the ratio of the MW of the country-year and the 70th percentile of the wage distribution of the country/type. The sample is constructed by merging the I2D2 dataset and the ILO Global Wage dataset and including those developing countries where minimum wage regulations exist. We further limit our sample to labor market types for which we observe at least 100 individuals each year and where the minimum wage is always below the 70th percentile wage. The time period covered by the data is 1995-2012. Self-employed are self-employed and non-paid employees (i.e. family workers) outside of agriculture. The included controls are: dummies for industry (manufacturing, commerce, public administration, etc.), urban/rural. Observations are weighted so that each labor market type has equal weight in the estimations. Standard errors clustered at country type level in parentheses: * p<0.1, ** p<0.05, *** p<0.01.

Table 8: Effects on the probability to be self-employed changing the definition of the MWR/CMWR (Robustness Checks)

	(1) θ=1	(2) $\theta \in [1,2]$	(3) θ=1	(4) $\theta \in [1,2]$
$MWR_{cj,t} = (MW_{cj,t}/wage70_{cj,t-\theta})$	0.074**	0.073***		
	(0.034)	(0.026)		
$CMWR_{cj,t} = (MW_{cj,t}/wage70_{cj,t-\theta}) \times NCR_{c,t-\theta}$			0.121***	0.112***
			(0.042)	(0.030)
CountryFE	Yes	Yes	Yes	Yes
YearFE	Yes	Yes	Yes	Yes
Country×YearFE	Yes	Yes	Yes	Yes
CountryFE×GroupFE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
CountryFE×Controls	Yes	Yes	Yes	Yes
Country-groups	161	173	161	173
Countries	23	24	23	24
R-sqr overall	0.217	0.215	0.217	0.215
RMSE	0.400	0.400	0.400	0.400
Observations	5351591	5970278	5351591	5970278

The MWR is the ratio of the MW of the country-year and the 70^{th} percentile of the wage distribution of the country/type in the previous non-missing year calendar (up to 1 year, CPI adjusted, in column 1; up to 2 years, CPI adjusted, in column 2). CMWR is the MWR corrected with compliance rate at the country level in the previous non-missing calendar year (up to 1 year, CPI adjusted, in column 3; up to 2 years, CPI adjusted, in column 4). We only consider country-types that we observe for 3 years or more. Standard errors clustered at country-cell level in parentheses, * p<0.1, ** p<0.05, *** p<0.01. Controls: urban, industry. Country-cell-years with more than 100 observations. Equal weights to each labor market type, observations outside of agriculture.

A Details on the Dataset Construction and Sample

When we merge the I2D2 with the ILO Global Wage Database 2012, covering the 1995-2012 period, we start with 382 waves for 74 countries. The ILO minimum wage is the one effective December 31st in each country/year. Often the minimum wages contained in the ILO Global Wage Database 2012 are national minimum wages, but sometimes they are sub-national. When the minimum wage is sub-national, we obtain from national sources the minimum wage that applies to a certain area or sector, and consider workers in that area or sector only.[17] In the very few cases where there are multiple sub-national minimum wages for sectors and occupations or geographical areas that cannot be perfectly matched to our survey data (as it is the case for Costa Rica, Dominican Republic and Mexico), we employ the lowest possible sub-national minimum wage available from national sources to avoid over-estimating the non-compliance rate at the national level, and restrict our attention to workers in those sectors/occupation/areas where the minimum wage applies, even if identification of the exact coverage is impossible given the limited level of data disaggregation in our surveys. For more details please refer to Table A2.

We narrow our data focus to encompass the sectors beyond agriculture, as the minimum wage laws are not applied to the agricultural sector in most countries. Our scope also centers on full-time workers, who typically rely on their wages as their primary income source, rendering them especially susceptible to shifts in minimum wage regulations. Throughout our analysis, we will additionally account for other discernible attributes, including occupational sector and residential area. Consequently, our data analysis is constrained to surveys that furnish details regarding sector classification, employment status (full-time or part-time), and respondents' urban or rural residency. This way we drop, waves like Croatia in 2004, where all the self-employed and non-paid employees belong to the agricultural sector; or Tanzania 2009, that does not provide information on sector of activity. We also exclude survey waves in which we cannot perfectly identify which workers are full-time workers. In order to do this, we discard those survey waves where the hours of work are missing for more than 20% of the working population, or where the distribution of weekly hours does not exceed 35, implying that the

[17] From the National Minimum Wages Commission for Mexico, the Observatory of the Dominican Labor Market of the Government for the Dominican Republic, the Attorney General's Office for Costa Rica, from the Ministry of Manpower and Transmigration for Indonesia, from the ILO TRAVAIL Legal Database for El Salvador.

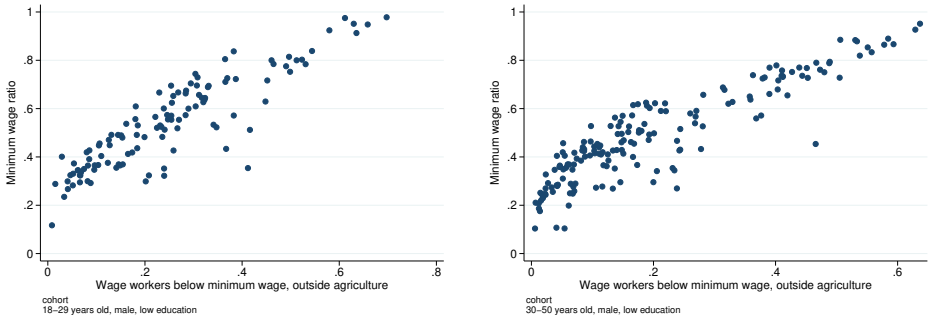
variable is measured with error. We are left with 50 countries, 280 waves, 584 country/type observations, 3,299 cells, and 7,658,131 observations.

To mitigate the potential for sampling errors, a common occurrence in finite samples with too small cell sizes, we devise a metric to gauge the bite of the minimum wage based on cells that comprise a minimum of 100 observations. As a result, our dataset contains 50 countries, 399 country/types, 2,405 cells, and a total of 7,510,836 individuals engaged in full-time employment.

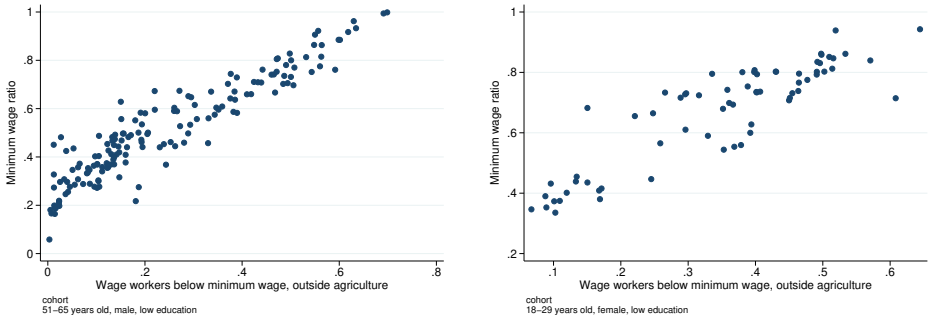
We can then exclude observations for which the ratio of the minimum wage over the 70^{th} percentile wage is strictly greater than 1, which represent 9.17% of cells. Of these excluded cells, 55% pertain to women with a low level of education. We also exclude all the year observations related to these country/types where the minimum wage ratio is greater than 1 at least once across years, because this may indicate a disproportionate rate of non-compliance, and our identification strategy that relies on the 70^{th} percentile being unaffected by increases in the minimum wage may be compromised in this case. We are then left with 49 countries, 325 country/type observations, 270 waves, 1,828 cells and 6,628,672 full-time employed individuals. Finally, since in our analysis we exploit time variation within country/types, those country/types featuring a sole observation throughout the sample are excluded from our estimations. This yields to a conclusive sample comprising 34 countries, 255 waves, 215 country/types and 1,718 cells, for a total of 6,458,808 full-time employed individuals.

B Additional Figures and Tables

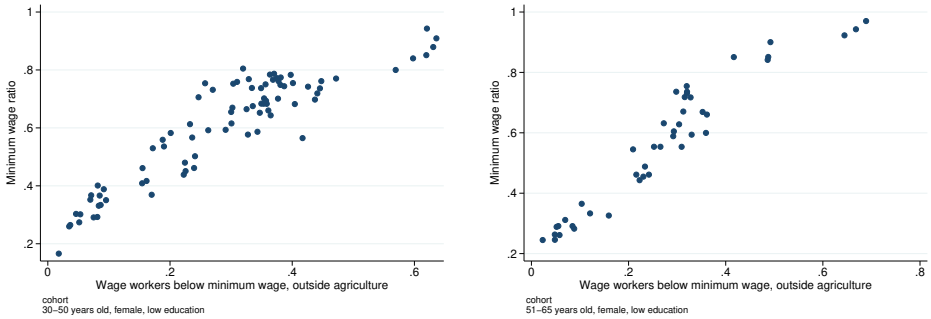
Figure A.1: Non-Compliance and Minimum Wage Ratio in Low Educated Cohorts



(a) Low educated 18-29 years old men. (b) Low educated 30-50 years old men.



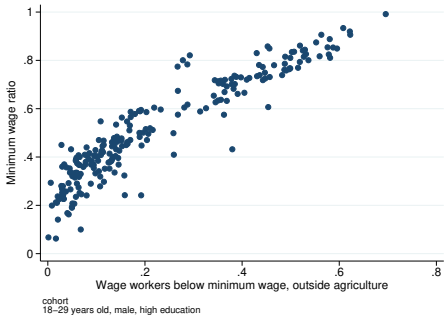
(c) Low educated 51-65 years old men. (d) Low educated 18-29 years old women.



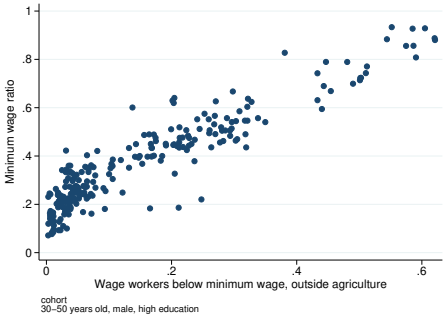
(e) Low educated 30-50 years old women.(f) Low educated 51-65 years old women.

Notes: The figure shows the positive relationship between the minimum wage ratio (y axis) and the non-compliance rate (x axis) across labor market types (cells) of individuals who are low educated (primary or no schooling). The sample is constructed by merging the I2D2 dataset and the ILO Global Wage dataset and including those developing countries where minimum wage regulations exist. We further limit our sample to labor market types for which we observe at least 100 individuals each year and where the minimum wage is always below the 70^{th} percentile wage. The time period covered by the data is 1995-2012. The minimum wage ratio in a cell is defined as the minimum wage over the cell 70^{th} percentile wage. The non-compliance rate in the cell is defined as the share of workers outside agriculture whose wages are below the minimum wage.

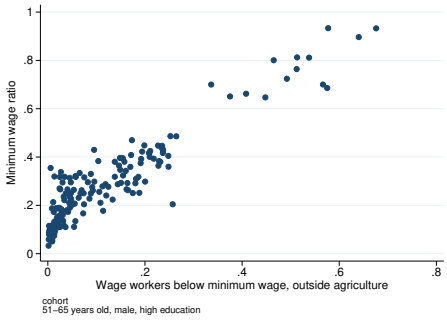
Figure A.2: Non-Compliance and Minimum Wage Ratio in Highly Educated Cohorts



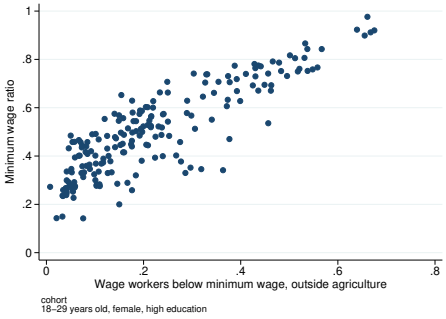
(a) Highly educated 18-29 years old men.



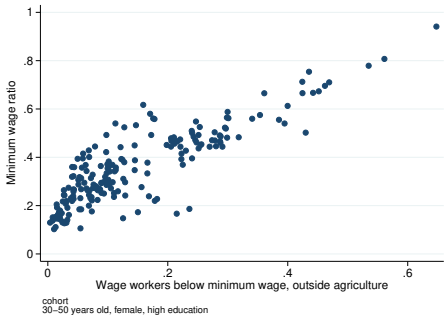
(b) Highly educated 30-50 years old men.



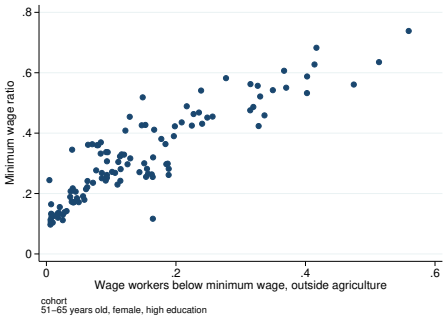
(c) Highly educated 51-65 years old men.



(d) Highly educated 18-29 years old women.



(e) Highly educated 30-50 years old women.



(f) Highly educated 51-65 years old women.

Notes: The figure shows the positive relationship between the minimum wage ratio (y axis) and the non-compliance rate (x axis) across labor market types (cells) of individuals who are low educated (secondary or post-secondary schooling). The sample is constructed by merging the I2D2 dataset and the ILO Global Wage dataset and including those developing countries where minimum wage regulations exist. We further limit our sample to labor market types for which we observe at least 100 individuals each year and where the minimum wage is always below the 70^{th} percentile wage. The time period covered by the data is 1995-2012. The minimum wage ratio in a cell is defined as the minimum wage over the cell 70^{th} percentile wage. The non-compliance rate in the cell is defined as the share of workers outside agriculture whose wages are below the minimum wage.

Table A1: List of Countries and Waves in the Sample

Country	**Waves**
Argentina	1995; 1996; 1997; 1998; 1999; 2000; 2001; 2002; 2003; 2005; 2006; 2007; 2008; 2009; 2010; 2012
Bolivia	1997; 1999; 2000; 2002; 2003; 2005; 2007; 2008; 2009; 2011; 2012
Brazil	1995; 1996; 1997; 1998; 1999; 2001; 2002; 2003; 2004; 2005; 2006; 2007; 2008; 2009; 2011; 2012
Bulgaria	2001; 2003; 2007; 2008
Cameroon	2001; 2007
Chad	2003
Colombia	2001; 2002; 2003; 2004; 2005; 2006; 2007; 2008; 2009; 2010
Costa Rica	2001; 2002; 2003; 2004; 2005; 2006; 2007; 2008; 2009
Dominican Republic	1996; 1997; 2000; 2001; 2002; 2003; 2004; 2005; 2006; 2007; 2008; 2009; 2010; 2011; 2012
Ecuador	2003; 2004; 2005; 2006; 2007; 2008; 2009; 2010; 2011; 2012
Egypt, Arab Rep.	1998; 2006
Ethiopia	2005; 2006; 2009; 2010; 2011
Gabon	2005
Ghana	1998; 2005; 2012
Haiti	2001
Honduras	1995; 1996; 1997; 1998; 1999; 2001; 2002; 2003; 2004; 2005; 2006; 2007; 2008; 2009; 2010; 2011
India	2007
Indonesia	1996; 1998; 1999; 2000; 2001; 2002; 2003; 2004; 2005; 2006
Jamaica	1996; 1999; 2001; 2002
Jordan	2010
Kenya	2005
Kyrgyz Republic	1997
Lao PDR	2002; 2008
Latvia	2005; 2006; 2007; 2008
Malawi	2004; 2010
Malta	2009; 2010
Mexico	1996; 1998; 2000; 2002; 2008; 2010; 2012
Moldova	2005
Mongolia	2009; 2010; 2011
Mozambique	1996; 2008
Nepal	1998, 2008
Nicaragua	2005; 2009
Niger	2002
Nigeria	2003
Pakistan	2005; 2007; 2008
Panama	1995; 1997; 1998; 1999; 2000; 2001; 2002; 2003; 2004; 2005; 2006; 2007; 2008; 2009; 2010; 2011; 2012
Paraguay	1995; 1997; 1999; 2001; 2002; 2003; 2004; 2006; 2007; 2008; 2009; 2010
Peru	1997; 1998; 1999; 2000; 2001; 2002; 2003; 2004; 2005; 2006; 2007; 2008; 2009; 2010; 2011; 2012
Philippines	2001; 2002; 2003; 2004; 2005; 2006; 2007; 2008; 2009; 2010; 2011
Rwanda	2005
Solomon Islands	2005
Sri Lanka	1998; 1999; 2000; 2001; 2003; 2004; 2008
Tajikistan	1999; 2003
Tanzania	2006
Thailand	2009
Tunisia	2000
Turkey	2005; 2006; 2007; 2008; 2009; 2010
Uruguay	1995; 1996; 1997; 1998; 2000; 2001; 2002; 2003; 2004; 2005; 2006; 2007; 2008; 2009; 2010; 2011; 2012
Venezuela, RB	1995; 1998; 2000; 2001; 2002; 2003

Table A2: Coverage of Minimum Wages

Country	Classification	Coverage	Sample considered
ARG	National		All
BFA	National		All
BGR	National		All
BOL	National		All
BRA	National		All
CMR	National		All
COL	National		All
CRI	Sub-national	Sector and occupation	We use the lowest minimum wage of non-qualified workers in manufacturing, construction, mining, commerce; we restrict our sample to workers in manufacturing, construction, mining, commerce
DOM	Sub-national	Sector, occupation and geographical area	We use the lowest MW among the ones for private sector workers, and we consider only workers in the private sector
ECU	National		All
EGY	National		All
ETH	Sub-national	Sectoral	We only consider public workers and use the MW that applies
GHA	National		All
HND	Sub-national	Sectoral	We only consider industry in the analysis and use the MW that applies
IDN	Sub-national	Regional	We consider all workers in West Jawa (Jawa Barat) and use the MW that applies
JAM	National		All
JOR	National		All
LAO	Sub-national	Sectoral	We consider only private sector workers and use the MW that applies
LKA	Sub-national	Sectoral	We only consider industry in the analysis and use the MW that applies
LVA	National		All
MEX	Sub-national	Occupation and geographical area	We consider all workers, but we apply the lowest MW existing each year
MLT	National		All
MNG	National		All
MOZ	Sub-national	Sectoral	We only consider workers in industry in the analysis and the MW that applies
MWI	National		All
NIC	Sub-national	Sectoral	We only consider workers in industry and the MW that applies
NPL	National		All
PAK	Sub-national	Private sector workers only	We consider only private workers and the MW that applies
PAN	Sub-national	Sectoral	We only consider workers in industry and the MW that applies
PER	National		All
PHL	Sub-national	Regional	We only consider region Metro Manila in the analysis and the MW that applies
PRY	Sub-national	Regional	We consider only workers in IPC Asuncion Metropolitan area and the MW that applies
RWA	National		All
SLV	Sub-national	Sectoral	We only consider industry in the analysis and the MW that applies
THA	Sub-national	Regional	We only consider the Bangkok region and the MW that applies
TJK	National		All
TUR	National		All
URY	National		All
VEN	National		All

Table A3: Effects of MWR and CMWR on the Probability to be Self-employed (Different Samples)

	(1) MW below 40^{th} pc of National Wages	(2) MW below 50^{th} pc of National Wages	(3) MW below 40^{th} pc of National Wages	(4) MW below 50^{th} pc of National Wages
MWR	0.142**	0.114**		
	(0.060)	(0.053)		
CMWR			0.212***	0.197***
			(0.077)	(0.071)
CountryFE	Yes	Yes	Yes	Yes
YearFE	Yes	Yes	Yes	Yes
Country×YearFE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
CountryFE×Controls	Yes	Yes	Yes	Yes
Countries	32	34	32	34
Country-groups	210	215	210	215
R-sqr overall	0.224	0.225	0.224	0.225
RMSE	0.396	0.397	0.395	0.397
Observations	5465118	6401581	5465118	6401581

The table reports the estimated effect of the minimum wage ratio of the country/type/year corrected with compliance rate at the country-year level on the probability to be in the uncovered sector in different sub samples: we drop waves where the country/year minimum wage is above the 40^{th} percentile of the country/year wages in columns (1) and (2), and above the 50^{th} percentile of the country/year wages in columns (3) and (4). The minimum wage ratio is calculated as the minimum wage over the 70^{th} percentile wage of full-time wage workers outside of agriculture; wages are weighted with survey weights. The sample is constructed by merging the I2D2 dataset and the ILO Global Wage dataset and including those developing countries where minimum wage regulations exist. We further limit our sample by excluding those labor market types with less than 100 observations and where the minimum wage is above the $40^{th}/50^{th}$ percentile wage. The time period covered by the data is 1995-2012. Self-employed are self-employed and non-paid employees (i.e. family workers) outside of agriculture. The included controls are: dummies for industry (manufacturing, commerce, public administration, etc.), urban/rural. In all columns we only consider countries that we observe for 2 years or more. Observations are weighted so that each labor market type has equal weight in the estimations. Standard errors clustered at country type level in parentheses: * p<0.1, ** p<0.05, *** p<0.01.

Table A4: Effects of MWR and CMWR on the Probability to be Self-employed (Different Subsamples)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Country/groups with MWR across years always below:				Country/years with MWR across years always below:			
	Full Sample	0.9	Full Sample	0.9	1	0.9	1	0.9
MWR	0.053*	0.120**			0.195***	0.201***		
	(0.031)	(0.060)			(0.058)	(0.064)		
CMWR			0.156***	0.206***			0.249***	0.253***
			(0.053)	(0.079)			(0.071)	(0.077)
CountryFE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
YearFE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country×YearFE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CountryFE×GroupFE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CountryFE×Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Min. Wage Cells	261	196	261	196	187	148	187	148
Countries	34	33	34	33	24	19	24	19
R-sqr overall	0.243	0.212	0.243	0.212	0.220	0.207	0.220	0.207
RMSE	0.399	0.398	0.399	0.398	0.393	0.391	0.393	0.391
Observations	7246162	6177110	7246162	6177110	3680448	3460058	3680448	3460058

The table reports the estimated effect of the minimum wage ratio of the country/type/year on the probability to be self-employed in different sub-samples. In columns (1) and (3) we report the results where all country/types are included. In columns (2) and (4), we reduce the sample to country/types where the minimum wage ratio is smaller than 0.9, that is, we only consider country/types where the minimum wage is smaller than 90% of the 70^{th} percentile of the cell-specific wage distribution. In columns (5) and (8) we exclude all country/years where at least one labor market type exhibits MWR or CMWR above 1 or 0.9. Self-employed are self- employed and non-paid employees (i.e. family workers) outside of agriculture. The sample is constructed by merging the I2D2 dataset and the ILO Global Wage dataset and including those developing countries where minimum wage regulations exist. We further limit our sample to labor market types for which we observe at least 100 individuals each year. The minimum wage ratio is calculated as the minimum wage over the 70^{th} percentile wage of full-time wage workers outside of agriculture; wages are weighted with survey weights. The included controls are: dummies for industry (manufacturing, commerce, public administration, etc.), urban/rural. In all columns we only consider country-types that we observe for 2 years or more. Observations are weighted so that each labor market type has equal weight in the estimations. Standard errors clustered at country type level in parentheses: * p<0.1, ** p<0.05, *** p<0.01.