Ex-ante Evaluation of the Impact of Increases in Minimum Wages on Labor Market Outcomes in Kosovo

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Abstract

This paper uses microsimulation techniques to quantify the potential ex-ante impacts of several minimum wage increases on labor market outcomes in Kosovo. The results show that the overall impacts of a minimum wage increase in the baseline scenario are likely to be modest, although the impacts for some groups may be stronger. In the most extreme scenario, an increase to 250 euros per month, the simulated unemployment rate increases by 0.4 percentage point in the short term and about 0.6 percentage point in the long term. The youth unemployment rate (ages 15–24) is anticipated to increase by up to 1.1 percentage

points in this scenario, a relatively large increase considering the already high levels of unemployment among this group. Similarly, unemployment among the unskilled (with primary school or less) is simulated to increase by 0.6 percentage point in the short term and up to 0.8 percentage point in the long term. The paper finds that, even if raising the minimum wage is long overdue, due to decreasing nominal wages in real terms, policy needs to strike a fine balance between protecting workers and ensuring that employment effects are not too large.

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I. Motivation

Minimum wages are an essential component of a country's social protection system, aiming to protect vulnerable workers; yet, there are risks associated with poor minimum wage design. According to the International Labor Organization (2012), minimum wage is “the salary which constitutes the floor of the wage structure with the objective of protecting workers who occupy the lowest position in wage distribution”. Minimum wage laws are potentially useful for protecting workers against unfair low pay and reducing wage inequality and working poverty, but they may also lead to higher rates of unemployment, especially among unskilled workers. The empirical evidence on the effect of minimum wages on employment is mixed and policy needs to strike a fine balance between protecting workers and ensuring that employment effects are not too large. There is evidence to suggest that this popular policy instrument might be ineffective in targeting the poor in countries with high unemployment or high levels of informal employment, primarily because the poor are more likely to be unemployed or employed in the informal sector and therefore not covered by labor market regulations. In such cases, minimum wage policy can benefit low-wage workers, but not necessarily low-income families.

Kosovo introduced a legally binding minimum wage in 2011, and the ratio of the minimum wage to the median wage was similar to the level observed in most EU countries but surpassed that recommended for countries with high unemployment among young and low-skilled workers - like Kosovo. Minimum wage setting is currently regulated in an administrative instruction that was amended in December 2017.² The nominal minimum wage in Kosovo has not grown consistently with inflation, but in relative terms compared to median wages, the level is close to other EU countries. Currently, the monthly minimum wage in Kosovo is 130 euros for employed individuals aged 15-34, and 170 euros for employed individuals aged 35-64. This minimum wage applies for full-time employment, defined as 174 hours per month.³ This amount has not changed since 2011 and has not grown with the inflation rate. Also, there is no variation in minimum wage across regions, despite geographic price differences. According to the official statistics of EUROSTAT, Kosovo and Albania report the lowest minimum wages in Eastern Europe.⁴ Figure 1 Panel a shows the evolution of the minimum to the median wage ratio in Kosovo between 2012 and 2018. The ratio of the minimum wage to the median wage in Kosovo is slightly lower than the level observed in most EU countries (Figure 1 Panel b) and constituted 0.38 in 2018 (based on Labor Force Survey estimates). The ratio of the minimum wage to the median wage is a common proxy used to measure the restrictiveness of minimum wages (ILO, 2012). The review of practices across countries by the ILO indicates that countries that use this indicator typically calculate the minimum wage as 50-60 percent of the median wage. However, according to Rutkowski (2003), this ratio should not surpass one-third in countries with high unemployment among young and low-skilled workers.

² Source: International Monetary Fund, 2016.

³ For part-time employment (fewer than 174 hours per month), a minimum hourly wage should be applied. This is 0.75 euro per hour for employed individuals aged 15-34, and 0.98 for employed individuals aged 35-64.

⁴ In 2019, average monthly minimum wages in Eastern Europe were: 886 euros in Slovenia, 505 euros in Croatia, 331 euros in Montenegro, 343 euros in Serbia, and 210 euros in Albania.

Figure 1. Minimum-to-median wage ratio, Kosovo and selected OECD countries

a. Kosovo, 2012-2018

Source: Own estimates based on 2012-2018 Kosovo Labor Force Survey.

b. Selected OECD countries, 2018

Source: OECD statistics for full time workers.

Note: the median wage is defined as follows: 50 percent of workers receive a wage below the minimum wage.

Increasing minimum wage in real terms or at least indexing the nominal wage to inflation has been under consideration by policy makers in Kosovo. Table 1 reports current minimum wages and several scenarios of potential increases in minimum wages (net and gross) in comparable currencies. Currently, the monthly gross nominal minimum wage in Kosovo is 130 euros for employed individuals aged 15-34, and 170 euros for employed individuals 35 and over. We consider several scenarios of minimum wage increase, with a maximum increase to 250 euros (Scenario 1) as a baseline scenario, which would increase the minimum-to-median wage ratio to 0.63.⁵ Given the discussion above, such an increase in the real wages is high, especially for younger individuals. Scenario 2 proposes a slightly lower change: to increase the minimum wage for both younger and older individuals to 230 euros, which would increase the minimum-to-median wage ratio to 58 percent. Scenario 3 proposes to increase the minimum wage to a level consistent with poverty-level wages.⁶ This change in the minimum wage policy would result in an increase of the minimum-to-median wage ratio to 54 percent, which is similar to the level observed in most European countries (see Figure 1.b). Scenario 4 follows a rules-based minimum wage increase⁷ accounting for core inflation and private sector wage growth, which would result in an increase of the minimum wage to 137.6 euros for 15-34 years old and to 180 euros for 35 and older. Finally, Scenario 5 proposes to increase the minimum wage to 50 percent of the median wage (193.6 euros in 2018 euros). In Section V, we compare the potential effect of alternative minimum wage policies (Scenarios 1-5).

Table 1. Current minimum wage and scenarios for increases

Age	Gross Nominal Minimum Wage, EUR 2018		Net Nominal Minimum Wage, EUR 2018		Percentage Change in Nominal Minimum Wage	
	15-34	35-64	15-34	35-64	15-34	35-64
Current	130	170	124.8	163.2		
Scenario 1	250	250	240	240	92.3%	47.1%
Scenario 2	230	230	220.8	220.8	76.9%	35.3%
Scenario 3	212	212	203.5	203.5	63.1%	24.7%
Scenario 4	137.6	180	132.1	172.8	5.9%	5.9%
Scenario 5	193.6	193.6	185.9	185.9	48.9%	13.9%

Source: Statutory minimum wages and official CPI estimates from Kosovo Statistics Agency (Harmonized Indices of Consumer Prices; April 2018).

⁵ A debate over a potential increase in the minimum wage in Kosovo began in 2016/2017. The same analyses used in this paper were conducted using the 2016 Labor Force Survey (the latest available data at that time) and were intended to inform the debate in 2018 when the government was considering an increase between 230 and 250 euros for all employed. The estimates presented here have been updated with the 2018 LFS.

⁶ Poverty-level wages are the wages required to lift a family out of poverty in Kosovo. Poverty-level wages are computed as the national poverty line (per adult equivalent) multiplied by adult equivalents in the household, divided by the number of household members who work full time. Given that part-time work in Kosovo is prevalent, an adjustment is also made to include part time-work. In 2017, the poverty line per household was 302 euros per month. Considering that about 0.93 household members on average work full time (LFS estimates) and 0.98 work part-time, this is equivalent to a poverty-level wage of 212 euros per month.

⁷ As per Administrative Instruction No. 09/2013.

According to economic theory, an increase in minimum wage will lead to job losses among minimum wage workers in a labor market characterized by perfect competition (see Neumark and Wascher, 2006, among others). The negative effect of minimum wages on employment is thought to occur because employers may substitute minimum wage workers with other inputs, such as high-skilled non-minimum wage workers or capital.⁸ Economic theory also predicts that higher wages will transfer to higher prices of inputs, which in turn will decrease production and labor demand. Yet, if the labor market is characterized by competition under monopsony, an increase in minimum wage could increase employment.⁹ The potential effects of minimum wages may also depend on coverage and compliance (Posadas and Sanz-de-Galdeano, 2018).

The empirical literature on the effect of minimum wage on employment is broad and the results are mixed. Brown, Gilroy and Cohen (1982) conducted a broad review of the evidence from early minimum wage studies. The authors' findings suggest that a 10 percent increase in minimum wage reduced teenage employment by 1 to 3 percent. Neumark and Wascher's (2006) review of more recent minimum wage research found a wider range of estimates of the effect of minimum wage on employment, which reflects the great variety of methods used in this newer research. A majority of the studies surveyed by Neumark and Wascher (2006) suggested a decrease in employment due to minimum wage increase. Interestingly, of those studies judged most credible, 85 percent reported a negative effect on employment.¹⁰ The stronger negative effect on employment was found in studies that focused on low-skilled workers. In contrast, some more recent studies (Dube, Lester and Reich, 2010; Allegretto, Dube and Reich, 2011) found no adverse employment effects of minimum wage. Their results were recently questioned by Neumark, Salas and Wascher (2014a) and Neumark, Salas and Wascher (2014b). Among studies conducted in the past few years, researchers found strong disemployment¹¹ effects of minimum wage (e.g., Baskaya and Rubinstein, 2016; Clemens and Wither, 2019; and Powell, 2016). These studies estimated elasticities ranging from about -0.3 to -0.5 for teenagers, and about -1 for minimum wage workers. Finally, recent empirical evidence also suggests that minimum wage reduces employment growth, which can be explained by labor-saving technology adoption caused by higher prices of labor (Meer and West, 2016).

Minimum wage may still be an effective tool for poverty reduction if the “winners” from minimum wage policy are disproportionately from low-income families. While research on the United States suggests that minimum wages are ineffective at supporting the poor (Neumark et al., 2005; MaCurdy, 2015), evidence on developing countries is mixed (Bell, 1997; Del Carpio, Messina and Sanz-de-Galdeano 2014; Gindling and Terrell, 2007 and 2009; Maloney and Nunez, 2000). In sum, the effectiveness of minimum wage at helping the poor is context specific and depends on minimum wage workers' characteristics. Therefore, it is crucial to examine who is potentially affected by minimum wage increase and to isolate the disemployment effect of minimum wages on poor families.

In this paper, we use microsimulation techniques to evaluate the potential ex-ante impact of large changes to the minimum wage on labor market outcomes as well as poverty incidence. Our objective

⁸ Note, however, that the substitution of low-skilled (minimum wage workers) for high-skilled workers may result in small overall employment declines, even if the disemployment effect among low-skilled workers is substantial (Neumark, 2018).

⁹ However, Neumark (2015) argues that labor markets for unskilled workers, which are most affected by the minimum wage, might be better characterized as competitive and the monopsony models are less applicable to them because they have high worker turnover and many similar employers.

¹⁰ These studies used data from Canada, Colombia, Costa Rica, Mexico, Portugal, the United Kingdom, and the United States.

¹¹ “Disemployment effects” is a term commonly used in the minimum wage literature that means negative employment effects.

is to assess the potential employment, earnings, and poverty effects of the proposed minimum wage increase. Particularly, we want to disentangle three types of effects:

- i) **Disemployment effects:** “Binding” minimum wages may decrease job creation and/or increase job destruction among low-skilled workers. As stated before, evidence from many countries suggests that higher minimum wages may lead to fewer jobs, particularly among the least skilled workers. In theory, the potential effects of minimum wages depend on the structure of labor demand. While negative employment effects are expected in a competitive labor market, this is not always the case in a monopsony. Depending on the minimum wage level, an increase in the demand for labor is also possible. These theoretical employment effects (on the extensive margin) will emerge in the long run only. In the short run, other adjustment channels might postpone changes in worker behavior (e.g., workers adjusting on the intensive margin or changing their working hours [Stewart and Swaffield, 2008], firm profitability [Mirko et al., 2011] or incomplete non-compliance [Metcalf, 2008]). Evaluating overall employment effects is therefore an empirical question that must be assessed for the particular country of interest.
- ii) **Changes in the composition and the level of employment:** Some of the potential impacts include changes in worker and job characteristics. For example, the employment pool may become more educated because some unskilled workers may transition into unemployment or inactivity. Job losses may be disproportionately higher among some groups, such as women, teenagers and other vulnerable groups. Higher informality may also be an unintended consequence because higher minimum wages may disincentivize job creation in the formal sector.
- iii) **Distributional effects:** High minimum wages may have distributional effects, resulting in increased earnings for some workers who are still employed but job losses for others (typically among younger and older unskilled workers). Who is most likely to be affected by increases in the minimum wage? Are overall gains exceeding the losses? Are these winners disproportionately overrepresented among low-income families? Weighing employment losses against wage gains raises the broader question of how the minimum wage affects poverty and inequality.

Even though the expected effect on overall employment and labor earnings is small, our results suggest that the impact on certain vulnerable groups such as the youth may be significant. Our findings suggest that, in the baseline scenario, about 8.2 percent of employees in Kosovo would be directly affected by the increase in minimum wage and that a large share of this group (83.8 percent) are workers from non-poor households (households with earnings per capita higher than the national poverty line). Moreover, given that the policy has no direct effect on the unemployed or inactive population and given the low employment rate in Kosovo (28.8 percent in 2018), only a small fraction of the total population would be directly affected by the policy (about 2.4 percent). The results of micro-simulations, which account for the possible adverse effect of a minimum wage increase on employment, show a positive but not significant net effect on workers’ earnings. This is because the decrease in earnings due to job losses is predicted to be of similar size to the increase in earnings due to higher wages. The baseline minimum wage increase (to 250 euros) might be effective in increasing earnings among young workers (aged 15-24) but has little effect on older workers (aged 35-64). Youth unemployment (aged 15-24), on the other hand, may increase by up to 1.1 percentage points, which is a relatively large increase considering the already high levels of youth unemployment.

Because there are no reliable estimates of wage elasticity of labor demand for Kosovo, we also conduct sensitivity analyses to examine how the estimates vary for different wage elasticity values, which determine the fraction of those who lose jobs because of changes in the minimum wage policy. The estimates of the labor demand elasticity from the economic literature suggest relatively high labor demand elasticity in Eastern European countries. In Kosovo, this elasticity might be especially high given the country's high unemployment rate (29.6 percent in 2018), which reflects an economy with less capacity to absorb minimum wage spikes. When we assume large values of wage elasticities, the simulated net effect on earnings becomes negative, suggesting that the decrease in earnings due to job losses may exceed the increase in earnings due to high minimum wage among those that remain employed. Therefore, the minimum wage increase in Kosovo from the current level to a hypothetical 250 euros could not only fail to target the poor but also increase the unemployment rate and poverty level.

The remainder of the paper is organized as follows. Section II describes the stylized facts, including sources of data and definitions, and recent trends in labor market outcomes and wages. Section III covers distributional implications and the size and profile of the group most likely to be affected by the policy reform (i.e., the group with earnings between the current and the proposed minimum wage). Section IV includes the potential impact of the changes in minimum wage on labor market outcomes using microsimulation techniques. Section V summarizes the findings and policy implications.

II. Stylized Facts

Kosovo is facing significant labor market challenges that are detrimental to poverty reduction. Less than one-third of the adult population holds a job, almost nine out of ten women are not working, and over half of active youth are unemployed. The quality of available work is low with high levels of informal employment. Kosovo still has high poverty rates, with about 18 percent of Kosovars living in poverty according to the most recent 2017 Household Budget Survey (HBS) data. As labor is the main source of income for the majority of the population in Kosovo (above 60 percent for all quintiles), low employment rates and low wages contribute to material deprivation for workers and their families. Importantly, poverty is related to labor market attachment, and growth in labor income has been the main driver of poverty reduction in recent years — either because of higher employment rates or because of increased labor earnings.

In this section we present trends during the period 2012-2018 in labor force participation, unemployment, and informality, factors important to the design of an optimal minimum wage policy.

Data sources and definitions

The analysis presented in this paper relies heavily on the 2012-2018 Kosovo Labor Force Survey (LFS), a continuous household survey, with data collected each week of the year by the Kosovo Agency of Statistics (KAS). The survey collects detailed data on labor market indicators as well as other standard socio-demographics including age, gender, employment status, economic activity, occupation and other variables related to the labor market. The data are representative at the urban and rural level. The sampling frame was based on the data and cartography from the 2011 Kosovo Census, and a stratified two-stage sample design was used for the 2012-2018 Kosovo LFS. In our analysis, we focus on the working age population (age 15-64) and use survey weights computed by KAS to adjust the estimates for the survey design.

Measuring individual earnings is challenging, in part because of the quality of wage data in the LFS. Wages are collected in intervals or brackets and so estimating reliable point estimates is difficult. Figure 2 shows

the intervals collected in the LFS and the distribution of wages across these intervals.¹² Only 3.3 percent of employees failed to report wages in the 2018 LFS. To convert wages into a continuous variable, in the baseline case, we obtain point estimates by assuming that wages are uniformly distributed on the reported interval and impute a random variable.¹³ To address missing data, we use the standard practice of imputing mean wages conditional on observable characteristics, such as age, gender, occupation, marital status and urban status. In our analysis, we compare real wages net of taxes and deflated with the consumer price index (CPI), using 2015 as a base year. Specifically, we use the CPI estimates published by KAS (Harmonized Indices of Consumer Prices, 2018).

Figure 2. Distribution of nominal wages reported in intervals (2018 euros)

Source: Own estimates using the 2018 Kosovo LFS.

We also analyze the sensitivity of the results to alternative imputation techniques. In particular, we predict wages conditioning on observable worker characteristics using the 2017 HBS, in which the exact net wages are reported, and we use non-parametric matching techniques (Ñopo, 2008) to impute these wages into the 2018 LFS. We also use the 2017 HBS to identify poor households because official poverty in Kosovo is measured based on a consumption aggregate, and this can only be constructed with HBS data.

Another empirical challenge is to establish causality since identifying sources of exogenous variation is not possible with available data. Only short pooled cross-section time series data are available, with no significant variation over time, and there is no variation by region in nominal minimum wages. Another option would be to exploit the fact that the minimum wage in Kosovo is set differently for different age groups, so that individuals experience a significant hourly wage increase at age 35.¹⁴ In this case, changes in employment for individuals who are a few months younger and older than 35 years provide an estimate of the employment effect of the legislated wage increase. However, given that the wage data are in brackets, we cannot use a regression discontinuity approach that compares employment outcomes for individuals around this age

¹² The current minimum wage falls in the third and fourth brackets, for the young and the old, respectively.

¹³ Note that this method does not account for worker characteristics.

¹⁴ This approach has been used in the United Kingdom, where the legal minimum wage varies by age (Dickens, Riley, Wilkinson, 2011).

threshold by pooling different cross-section databases together. This means there are no proper sources of exogenous variation for implementing a quasi-experimental setting to assess employment effects.

In our main analysis we use the following definitions:

- **Informality** (Firm Size and Occupation Definition): a worker is informal¹⁵ if any of the following conditions holds:
 - Employees and employers in small firms (5 or fewer workers)
 - Self-employed with or without employees in non-professional occupations (i.e., clerks, service and market sales workers, agricultural workers, craft workers, machine operators and workers in non-professional occupations)
 - Unpaid family workers
- **Skilled workers:** workers who have professional occupations or post-secondary levels of education. We define professional occupations according to the International Standard Classification of Occupations (ISCO-08).
- **Poor:** population living below the national poverty line.

Recent trends in labor market indicators

Since its independence in 2008, Kosovo has maintained a good track record of macroeconomic and fiscal policy, but with significant dependence on diaspora inflows and high trade deficits. Kosovo has maintained an average growth rate of 3.6 percent over the last decade, albeit from a lower base compared to the rest of the Western Balkans, and has maintained a stable headline fiscal policy, with low deficit and public debt levels. However, its economy is largely consumption-based, with significant dependence on diaspora-driven remittances, exports of services, and foreign direct investment in residential construction. Almost 50 percent of value-added is generated by service activities, dominated by wholesale and retail trade.

Against this background, it is problematic that economic growth over the past decade has not been associated with robust job creation. The lack of employment opportunities is reflected in high rates of inactivity and unemployment and slim chances of transitioning from unemployment to employment. As depicted in Figure 3 Panel a, labor force participation increased over the period 2012-2014, but decreased afterwards, reaching 40.9 percent in 2018. In 2018, female labor force participation was only 18.5 percent, while male labor force participation was 63.3 percent. Figure 3 Panel b also shows that labor force participation rates slightly increased for medium-educated workers, but not for those with higher levels of education. Inactivity among men is primarily market related (i.e., their education/training or the belief that work is not available), whereas over half of inactive women cite family-related reasons for inactivity (Cojocaru, 2017).

The unemployment rate decreased since 2014, but remained high, particularly among youth. The overall unemployment rate increased over the period 2012-2014, but decreased afterwards, reaching 29.6 percent in 2018 (Figure 4 Panel a). The gender gap in the unemployment rate narrowed by 7.1 percentage points over the period 2012-2018. The youth unemployment rate (age 15-24) remained high and constituted 55.4 percent in 2018, although the relationship between overall unemployment and youth unemployment appears in line with other countries. The unemployment rate was related to education level: low levels/quality of education/training and skill mismatches prevented the population from obtaining and retaining good jobs, resulting in high inactivity and unemployment.

¹⁵ This definition has been used in previous analytical reports in Kosovo (Cojocaru, 2017).

Figure 3. Labor force participation, % of population aged 15-64, 2012-2018

a. By age and gender

b. By educational level

Source: Own estimates based on 2012-2018 Kosovo LFS. Note: Secondary refers to upper secondary.

Figure 4. Unemployment rate, % of labor force aged 15-64, 2012-2018

a. By age and gender

b. By educational level

Source: Own estimates using the 2012-2018 Kosovo LFS. Note: Secondary refers to upper secondary.

As a result of low labor force participation and high unemployment, employment rates were significantly lower in Kosovo than in EU peer countries. In 2018, the employment rate was only 29.4 percent compared with 52.5 percent across the Western Balkans, 69 percent in Hungary and 73 percent in Austria (World Bank and wiiw, 2020). The female employment rate in 2018 was only 12.6 percent compared with 45.7 percent among men. Figure 5 shows trends in employment rates by age, gender and education level. In 2018, 28.5 percent of young people 15-24 years old were not in employment, education or training (NEET), which is higher than in most OECD countries.

Figure 5. Employment-to-population ratio, % of population aged 15-64, 2012-2018

a. By age and gender

b. By educational level

Source: Own estimates using the 2012-2018 Kosovo LFS. Note: Secondary refers to upper secondary.

Informality remained high in recent years and was more common among youth, males, the less educated and residents in rural areas. As depicted in Figure 6 Panel a, 42.4 percent of overall employment was informal in 2018.¹⁶ Among young individuals (aged 15-24), the percentage was 56.5. Informality was also negatively correlated with educational attainment, with larger increases observed among workers with less than primary school.

Figure 6. Informality rate, % of employed population aged 15-64, 2012-2018

a. By age and gender

b. By educational level

Source: Own estimates using the 2012-2018 Kosovo LFS.

¹⁶ We define informality in Section 2. The estimates can vary depending on the definition; as a sensitivity check, we re-estimate the informality rate defining *informally employed worker* as an employee with no written contract, self-employed in firms with fewer than 5 workers and self-employed in non-professional occupations or unpaid family workers. Using this alternative definition, the informality rate is slightly lower: 35.6 percent compared to 42.4 percent in 2018.

Temporary employment and part-time work were relatively common in Kosovo. Most employees in Kosovo had temporary contracts (74.8 percent in 2018) and only 4.5 percent had a part-time job. Firms were concentrated in the commerce and services sectors. The share of public sector employment constituted 41.6 percent and the share of private sector employment was 58.4 percent.

Recent trends in wages

There is a public-sector wage premium, and real wages in the public sector increased faster than in the private sector; gender, age and education wage disparities were also common. In 2018, the average net monthly wage in Kosovo was approximately 393 euros, constituting 457.3 euros in the public sector and just 344 euros in the private sector. Nevertheless, because the average wage may be overestimated or underestimated due to the presence of outliers, the median wage tends to be a more useful comparison. Median wages were lower than mean averages, set at 378 euros in 2018. Median wages grew faster in the public sector than in the private sector, as shown in Figure 7 Panel a and can be expected to grow even faster with approval of the new wage law for public sector employees in early 2019.¹⁷ When using median wages, there is still a sizable public-sector premium, especially among workers with higher educational attainment (Figure 7 Panel b). Wages were considerably lower for young people; in 2018, the average earnings for those younger than 35 was 351 euros (median 330 euros). For those older than 35, it was 414.6 euros (median 404 euros). In 2018, the employed population with post-secondary education was earning on average 121.5 euros more than those with secondary education and 172.2 euros more than those with primary education. Only about 3.5 percent of workers in 2018 earned a wage around the minimum wage. (The decomposition of minimum wage workers can be found in Section III.)¹⁸

Figure 7. Real median net wages (2015 EUR)

a. By sector (private and public)

¹⁷ Average and median wage are estimated using Kosovo LFS and wages are deflated using CPI with 2015 as a base year. Series for CPI are obtained from Kosovo Agency of Statistics estimates (<http://ask.rks-gov.net/en/kosovo-agency-of-statistics/add-news/harmonized-index-of-consumer-prices-hicp-april-2018>).

¹⁸ The proportion of minimum wage workers is computed using the 2018 LFS as the proportion of workers with non-missing wage who reported having a wage between 0 and 200 euros.

b. By sector (private and public) and educational levels

Source: Own estimates using the 2012-2018 Kosovo LFS. Nominal wages deflated with official CPI estimates from Kosovo Statistics Agency (Harmonized Indices of Consumer Prices; 2018).

To summarize, Kosovo’s labor market is characterized by high unemployment and informality rates, which must be taken into consideration for minimum wage policy design. First, high unemployment rates could suggest high elasticity of labor demand, which may result in substantial job loss due to an increase in the minimum wage. Second, workers earning the minimum wage were on average younger, less educated, and employed in non-professional occupations. Given the high concentration of low skilled workers among minimum wage workers in Kosovo and given empirical evidence that labor demand elasticity was higher for low-skill occupations (Lichter, Peichl and Siegloch [2015] among others), employment loss could be significant. However, even assuming no adverse effects of the policy (i.e., no job losses), because the employment rate was low (28.8 percent) and only about 8-9 percent of workers would be potentially affected by the policy assuming the baseline scenario (an increase to 250 euros), only 2.3-2.6 percent of the total population would gain from the minimum wage policy. When considering alternative minimum wage policies (see Table 1), the potential share of affected workers varies from 0.2 percent (Scenario 4: a rule based minimum wage accounting for core inflation and private sector wage growth) to 5.6 percent (Scenario 2: an increase to 230 euros). Therefore, the poverty reducing effect of the minimum wage increase is expected to be modest in all considered scenarios and potentially adverse and thus should be viewed more as a tool to reduce wage inequality. In Section IV, we provide a comprehensive ex-ante policy evaluation using a micro-simulation technique.

III. Distributional Implications

In the first section we discussed three main potential effects caused by a minimum wage increase assuming the baseline scenario (an increase to 250 euros). In this paper, we focus on disemployment and distributional effects, rather than compositional effects. The disemployment effect of the minimum wage might stem from employers moving away from the now more expensive labor and towards other inputs. Also, as a result of higher costs of labor, product prices rise, which further reduces consumption and, consequently, labor demand.¹⁹ Economic theory suggests that low-skilled workers can be substituted more

¹⁹ An increase in goods prices due to the minimum wage might also directly reduce the policy’s effect on poverty reduction. In fact, MaCurdy (2015) found that an increase in prices due to the minimum wage policy was higher for those goods that made up a larger fraction of consumption for the poor. The present study, however, does not consider this effect.

easily than high-skilled workers by other types of inputs when the relative cost of labor rises. These workers are therefore more likely to lose jobs as a result of increases in the minimum wage.²⁰

High minimum wages may have distributional effects, resulting in increased earnings for employed workers but potential job losses among younger and older unskilled workers. On the one hand, minimum wages can be effective in reducing income inequality and poverty because it directly increases the earnings of low wage workers. On the other hand, empirical evidence across various countries indicates that higher minimum wages lead to fewer jobs, particularly among the least-skilled workers. Therefore, we analyze this issue by providing a decomposition of potentially affected groups by skill level (i.e., education level, occupation) and by demographic characteristics. We also analyze whether minimum wage workers are more likely to come from poor households or, in contrast, are young people from households at the top of the welfare distribution.

Who is most likely to be affected?

Because employed workers with earnings between the current minimum wage and the proposed minimum wage (250 euros) are most likely to be affected, we profile this group to assess potential distributional impacts.

The percentage of workers with earnings between the current and the proposed minimum wage is higher among teenagers (age 15-19), women, and unskilled workers. We estimate that in 2018, 8.2 percent of workers earned between the current minimum wage and the proposed minimum wage (henceforth we compare earnings with the proposed net minimum wage deflated with CPI).²¹ Figure 8 shows that the share of potentially affected workers is especially high among teenagers aged 15-19 (23.3 percent). One explanation for why minimum wage disproportionately affects youth is because the increase in minimum wage for those younger than 35 is significantly larger than for older workers. About 20.7 percent of workers without secondary levels of education are potentially affected by the policy, compared to 10.0 percent of those with secondary education and 2.6 percent with post-secondary education. Women are more likely to be affected than men (9.4 percent vs. 7.8 percent). We also analyze whether breadwinners are more likely to be affected, where breadwinner is defined as the sole worker in a household. Our results suggest that unique breadwinners are less likely to be affected by the policy than non-unique breadwinners (6.5 percent vs. 9.5 percent). In 2018, only 0.82 percent of workers reported earnings lower than the minimum wage (almost perfect compliance).

As depicted in Figure 9, the share of the affected group is higher among private-sector workers, workers holding informal-sector jobs, and workers holding permanent contracts. Given the low share of potentially affected workers in the public sector, the impact on the wage bill in the public sector is likely small.²² Figure 10 shows that the minimum wage is more likely to affect agriculture and commerce sectors, and in particular agricultural and service and market sales occupations, which are industries with a higher proportion of low-wage workers.

²⁰ See a review of simple theoretical models in Neumark (2014).

²¹ For estimation we use wages imputed from LFS as described in Section 2. Because wages were reported in brackets, this estimate might vary from 3.5 percent to 11.7 percent, depending on the imputation technique.

²² Additional impacts on consumer prices may also occur as a result of rising minimum wages, but these effects go beyond the scope of this paper.

Figure 8. Workers with earnings between the current and the proposed minimum wage, % workers in selected categories (gender, age, education, location and breadwinner status), 2018

Source: Own estimates using the 2018 Kosovo LFS.

Figure 9. Workers with earnings between the current and the proposed minimum wage, % workers in selected categories (type of job and contract), 2018

Source: Own estimates using 2018 Kosovo LFS.

Figure 10. Workers with earnings between the current and the proposed minimum wage, % workers in selected categories (occupation and industry), 2018

a. By occupation

b. By industry

Source: Own estimates using 2018 Kosovo LFS.

Who are they? Decomposition of the affected group

Certain groups of workers are more likely to be affected by the rising minimum wage, including youth, unskilled workers, workers with non-professional occupations, and informal-sector workers. A large share of workers who earned between the current and the proposed minimum wage were young workers aged 20-34 (50.5 percent). Only 3.5 percent were aged 15-19, given teenagers' low employment rate; 37.4 percent were aged 35-54 and 8.7 percent were aged 55-64. There were more men than women in this group, given women's low employment rate (72.8 percent of men vs. 27.2 percent of women). The majority of potentially affected workers had completed secondary education only (72.5 percent among those aged 15-34 and 55.0 percent among those aged 35-64). Among young potentially affected workers (aged 15-34), 16.7 percent had post-secondary education and the majority were market sales workers. Among those aged 35-64, the majority had secondary education and non-professional occupations. The large majority of affected workers were in the private sector (88.2 percent). Moreover, among young workers the majority of potentially affected workers were

informally employed (62.9 percent). When looking across sectors of economic activity, the potentially affected workers were more likely to be in commerce and services, regardless of age. Figure 11 shows these results.

Figure 11. The decomposition of workers with earnings between the current and the proposed minimum wage, aged 15-64

Source: Own estimates using 2018 Kosovo LFS.

As discussed, minimum wages target individual workers with low wages, rather than families with low incomes; in Kosovo, a large fraction of minimum wage workers are not in poor households. Specifically, Figure 12 shows that the percentage of poor²³ in Kosovo was higher among workers who would be affected by the policy (16.2 percent) compared with workers who would not (8.3 percent), but about 83.9 percent of minimum wage workers were not in poor families.²⁴ As a result, a large share of the higher income from increases in the minimum wage would benefit households at the top of the distribution. This suggests that the impact on poverty may be ambiguous, but likely small. Moreover, the percentage of poor is the highest among non-employed individuals who cannot be directly affected by the policy (19.9 percent).

Figure 12. Decomposition of population by poverty level, aged 15-64

Source: Own estimates using 2017 Kosovo HBS.

Given this analysis, we conclude the following potential effects of the minimum wage policy:

1. The increase in the minimum wage might be effective in reducing the gender pay gap, given that women are overrepresented in low-wage occupations. For the same reason, however, women are also more likely than men to lose their jobs. Because the policy directly affects the active working-age population only, and females have low labor force participation rates, few women are likely to be affected by the policy.
2. The majority of potentially affected workers are unskilled workers. Given the higher wage elasticity for unskilled workers, job losses could be substantial for this group.
3. Young, skilled workers might experience significant increases in earnings without losing their jobs, given that many young minimum-wage workers are skilled.
4. The impact on poverty of an increase in the minimum wage is expected to be small. Poor individuals are overrepresented among potentially affected workers. However, the net effect on labor earnings might be negative because job losses are higher among the unskilled. Leakage is high: about 83.9 percent of workers who could be impacted live in non-poor households. Quantitative evidence from Shapley decompositions indicates that the impact on poverty can be negative but small.

²³ The poor are defined as those living below the national poverty line.

²⁴ Leakage could be even higher considering there is underreporting of income in the HBS.

IV. Ex-ante Evaluation of Policy Reform

This section assesses the potential ex-ante distributional effects of the alternative minimum wage policy using micro-simulation techniques. Specifically, we simulate the percentage of job-losers and wage increase for those who remain employed to estimate economy-wide and micro-level distributional effects of the policy.

Methodology

In this paper we use own-wage labor demand elasticities from international studies to simulate employment and wage changes as a result of changes in minimum wage. We measure the disemployment effect as the fraction of workers with wages between the current and the proposed minimum wage moving to unemployment with zero wages (losers). We also look at those who remain employed and earn the new minimum wage (winners). Note that we assume only employees who earn between the current and the proposed minimum wage could be affected by the policy, given that the self-employed are not covered by the minimum wage legislation. We focus on minimum wage effects at the lower end of the wage distribution, and do not account for the possibility that higher-wage workers might be affected by the policy because this effect is difficult to measure given data availability. For instance, employers may increase the demand for high-skilled workers (substituting low for high-skilled labor). Also, an increase in the minimum wage could place an upward pressure on some wages that are indexed or linked to the minimum wage, especially in the public sector. Finally, we only consider movement along the labor demand curve (under different elasticities), but not shifts of the demand curve.²⁵ These effects could have further implications for employment, unemployment, and productivity.

We assume short- and long-run elasticities using results for Eastern Europe from a meta-analysis provided in Lichter, Peichl and Siegloch (2013). We consider different elasticities for different skill levels, as well as short- and long-term elasticities. This takes into account that employment is more sensitive to minimum wages among unskilled workers and to larger elasticities in the long run than in the short run because employers can fully adjust either in the intensive or extensive margin. In our baseline specification, we use the elasticity values presented in Table 2.²⁶ The interpretation of the baseline elasticity value is the following: if wages of affected skilled workers increase on average by x percent, $x \cdot 0.5$ percent of affected skilled workers would lose their jobs in the short run and $x \cdot 0.8$ percent in the long run.

To the best of our knowledge, prior research has not estimated labor demand elasticity for Kosovo, which in turn can vary substantially from the estimated elasticities for Eastern Europe. To address this issue, we test the sensitivity of our results to the choice of the elasticity values in the next subsection.

The micro-simulation algorithm is as follows:

1. Estimate an expected wage increase (in percentage) for each group defined *by age, education, occupation, gender and skill level*.

²⁵ Some of the negative employment effects that result from wage increases (which are cost increases) may be due to more firms closing rather than firms laying off workers, especially in the long run. Analyzing change in the distribution of firms is difficult given the lack of firm-level data. Further firm-level analysis is required to take this effect into account.

²⁶ The earliest studies of the employment effects of minimum wages used only national variation in the U.S. minimum wage. They found elasticities between -0.1 and -0.3 for teens aged 16-19, and between -0.1 and -0.2 for young adults aged 16-24. Other analyses that attempt to make valid geographic comparisons estimate employment responses from as low as 0 to as high as -0.50 (Newman, 2015).

2. Using wage elasticity values and the expected wage increases estimated in (1), estimate the probability of losing the job by age, education, occupation, gender and skill level.²⁷
3. To select “job losers”, for each individual generate a random variable that takes the value of “1” with the probability computed in (1); in other words, assign unemployment status randomly.
4. Compute simulated earnings and unemployment.
5. Repeat this procedure 1,000 times and compute average earnings and unemployment across simulations and 95 percent confidence intervals.

Table 2. Values of wage elasticity used for baseline simulation

	Baseline		Low		High	
	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term
Skilled	-0.5	-0.8	-0.1	-0.4	-0.7	-1.0
Unskilled	-0.7	-1.0	-0.3	-0.6	-0.9	-1.2

Source: Lichter, Peichl and Siegloch (2013).

Note: Because this is a meta-analysis, the definition of skilled workers is not provided.

Results

Our results show that disemployment effects are relatively modest. The overall unemployment rate is simulated to increase less than 1 percentage point, and the overall effect of the proposed minimum wage policy on earnings is small and positive. Table 3 reports the simulated labor market indicators under the minimum wage policy.²⁸ The overall unemployment rate is simulated to increase by 0.4 percentage point in the short run and by 0.6 percentage point in the long run and this effect is statistically significant at the 5 percent level. Youth unemployment (aged 15-24) is expected to increase by 0.7 percentage point in the short run and by 1.1 percentage points in the long run.²⁹ The overall effect of the proposed minimum wage policy on earnings (including job losers with zero earnings) is small and positive in the short run (0.24 percent) but not significantly different from zero in the long run, suggesting that the overall increase in earnings does not compensate the loss of earnings due to job losses in the long run.

The simulated reduction in wage inequality is small; the change in earnings due to the minimum wage increase is likely to affect only the bottom decile of the income distribution. Figure 13 shows the simulated reduction in earnings inequality. We measure earnings inequality comparing average labor earnings at the 1st, 5th and 9th earnings deciles. The increase in the minimum wage reduces the 50/10 ratio from 1.75 to 1.53 (wages at the median divided by wage at the bottom decile), mostly due to the increase among wages at the bottom decile. However, if we include job losers with zero earnings, it reduces to just 1.72, which suggests that the policy has little effect on earnings inequality. A similar pattern is observed when using the 90/10 ratio.

²⁷ Skilled workers are defined as workers who have professional occupations or post-secondary education.

²⁸ Notice we did not model the potential impact on labor force participation, but rather focus on movements between employment and unemployment, not on movements in and out of the labor force.

²⁹ As shown in Table 3, changes are statistically significant at the 5 percent level.

Table 3. Ex-ante evaluation of the impact of minimum wages: Baseline simulation results (an increase to 250 euros)

	No policy	Short-run	Long-run
Employment rate, %	28.80	28.65 [28.61; 28.68]	28.58 [28.54; 28.60]
Unemployment rate, %	29.59	29.97 [29.90; 30.05]	30.15 [30.07; 30.24]
Youth unemployment rate, %	55.41	56.13 [55.89; 56.40]	56.48 [56.15; 56.78]
Share of youth NEETs, %	30.11	30.28 [30.24; 30.34]	30.34 [30.28; 30.41]
Change in real earnings, %		0.24 [0.15; 0.33]	0.03 [-0.08; 0.12]

Note: Kosovo LFS 2018 is used. Wages are imputed as described in Section 2. Short-run (long-run) labor demand elasticity values are set at -0.5 (-0.8) for skilled labor and -0.7 (-1.0) for unskilled labor. Only employees with wages between the old and the proposed minimum wage are assumed to be affected. Aged 15-64. 95 percent confidence intervals are in brackets.

Figure 13. Simulated reduction in earning inequality as a result of minimum wage increase

Source: Own estimates using 2018 Kosovo LFS.

Although overall disemployment effects are small, unemployment among the young (aged 15-24) is simulated to increase by 1.1 percentage points in the long run; unskilled workers are especially affected; and there are more women than men among job losers. Figure 14 Panel a depicts the effect of the policy on unemployment by demographic characteristics. The youth unemployment (aged 15-24) is simulated to increase by 0.7 percentage point in the short run, and 1.1 percentage points in the long run. The unemployment rate among those with primary school or less is expected to increase up to 0.8 percentage point. There are potentially more women than men among job losers.

When looking at the impact on earnings, the minimum wage increase is effective in increasing earnings among young workers (aged 15-24) in the short run but has little effect on those aged 25-64. The net increase in earnings is slightly higher for women than for men, decreasing the gender gap in

wages. Figure 14 Panel b depicts the effects of the policy on earnings by demographic characteristics. As for earnings, the minimum wage increase is associated with an increase in the earnings of young workers (aged 15-24) in the short run. It has little effect on those aged 25-64, however, because earning losses due to job loss are approximately equal to earning gains due to increases in wages for this age group. The net increase in earnings is slightly higher for women than for men, thus reducing the wage gender gap. For workers with only primary education, the estimated net effect is negative (i.e., average decrease in earnings due to job losses exceeds average increase in earnings due to the increase in wages).

If employers comply with minimum wage regulation, the informal sector may see larger increases in earnings than the formal sector because they hire disproportionately more uneducated workers who earn just above the minimum wage. Figure 14 Panel c shows how the effect of the policy varies by job characteristics. The net effect of the policy is larger for the private sector and for informal workers in the short run, but the overall effect attenuates for all groups in the long run.

Figure 14. Simulated impact on unemployment rate and wages as a result of the minimum wage increase

a. Percentage change in unemployment rate (% labor force aged 15-64), total, by age group, education and gender

b. Percentage change in real earnings, total, by age group, education and gender

c. Percentage change in real earnings, by informality status and sector (public vs. private)

Source: Own estimates using the 2018 Kosovo LFS.

Table 4. Simulated change in the wage bill by sector and firm size

Firm size	Sector	Percentage change in wage bill, short-run	Percentage change in wage bill, long-run
Between 1 and 10 persons	Private	1.34	0.34
11 to 19 persons	Private	0.67	0.18
20 to 49 persons	Private	0.43	0.16
50 or more persons	Private	0.01	-0.08
Unknown but less than 11 persons	Private	0.55	-0.04
Unknown but more than 10 persons	Private	0.14	0.00
Total	Private	0.48	0.06
Between 1 and 10 persons	Public	0.34	0.06
11 to 19 persons	Public	0.14	0.06
20 to 49 persons	Public	0.01	-0.02
50 or more persons	Public	0.01	0.00
Unknown but less than 11 persons	Public	0.10	0.01
Unknown but more than 10 persons	Public	0.01	-0.02
Total	Public	0.14	0.01

Note: Kosovo LFS 2018 is used. Wages are imputed as described in Section 2. Labor demand elasticity value is set at -0.5 (-0.8) for skilled labor and -0.7 (-1) for unskilled labor. Only employees with the wage between the old and the proposed minimum wage are assumed to be affected. Aged 15-64.

Increases in the wage bill are expected to be small. Table 4 shows the simulated increase in a wage bill due to the policy for the public and private sectors. For the public sector, simulation results suggest no increase in the government wage bill. The fiscal rule that came into effect in 2018 establishes that the overall wage bill of the government is capped with the increase in the last available year's nominal GDP growth rate. An increase

in the minimum wage would not lead to a violation of the fiscal rule from increases in public sector wages.³⁰ This is not the case for social protection spending linked to the minimum wage, such as the war veteran scheme. Any decisions on the adjustment of the minimum wage need to account for the budgetary implications of the war veteran scheme being based on the minimum wage.³¹

The expected poverty impact is modest. Using HBS data over the period 2012-2017, we perform Shapley decompositions to quantify the contributions to poverty reduction in recent years stemming from changes in labor income, as well as other factors, including demographics, changes in the share of employed working-age individuals, and changes in non-labor income. The results show that a 1 percentage point increase in the share of occupied adults (relative to the working age population) has been associated, on average, with a 1.39 percentage point reduction in the national poverty rate over the period 2012-2017. On the other hand, a 1 percent increase in average wages per employed adult has been associated with a 0.26 percentage point reduction in the poverty rate. We combine these estimates with our minimum wage simulations to quantify the potential contributions of the simulated changes in employment rates and labor earnings to poverty reduction. We assume that self-employment income does not change, so all increases in labor earnings are derived from higher earnings among salaried workers. These results imply that the lower employment rate and small increases in labor earnings (Table 3) can translate into a 0.1 percentage point increase in poverty in the short run, and a 0.3 percentage point increase in the long run.

Sensitivity checks: Wage elasticity of labor demand

Up to now, we have assumed a value of labor demand elasticity equal to **-0.5 in the short run and -0.8 in the long run for skilled labor and -0.7 in the short run and -1 in the long run for unskilled labor**. According to Lichter and colleagues (2015), the vast majority of estimates of own-wage elasticity lies within the interval of -1 and 0. Therefore, we test how our estimates change depending on the calibrated value of elasticity. We consider three additional cases:

1. Low elastic labor demand: Elasticity -0.1 in the short run and -0.4 in the long run for skilled labor, and -0.3 in the short run and -0.6 in the long run for unskilled labor.
2. High elastic labor demand. Elasticity -0.7 in the short run and -1 in the long run for skilled labor, and -0.9 in the short run and -1.2 in the long run for unskilled labor.
3. Perfectly elastic labor demand, such that all potentially affected workers lose their jobs. This would provide an upper bound for employment losses due to the minimum wage increase.

Can earnings losses due to job losses exceed the earnings gains from higher wages? When the wage elasticity is high, the net effect of an increase in minimum wage may be negative. Table 5 reports the simulated labor market outcomes and net effect of the policy on earnings using different elasticity values. The net long-run effect of an increase in minimum wage on earnings can be negative if the wage elasticity is high (-0.7 in the short run and -1 in the long run). Column 6 (“Perfectly elastic labor demand”) reports the simulated labor market outcomes assuming that the labor demand is perfectly elastic and that all minimum wage workers would lose their jobs as a result of the minimum wage increase. In this extreme case, the unemployment rate is simulated to increase by 4.2 percentage points and the youth unemployment rate by 7.1 percentage points.

³⁰ Note that the underlying assumption is that higher wages are not affected by the policy.

³¹ An increase in the minimum wage to 250 euros/month is estimated to increase the annual cost of the war veteran scheme by approximately 36 million euros annually.

The employment rate would decrease by 1.7 percentage points. The net effect of the policy on earnings would constitute a decrease in earnings of 4.4 percent.

Table 5. Ex-ante evaluation of the impact of minimum wages, sensitivity to the value of elasticity

	No policy	Low Elasticity of labor demand		High elasticity of labor demand		Perfectly elastic labor demand
		Short-run	Long-run	Short-run	Long-run	
Employment rate, %	28.80	28.74 [28.72; 28.76]	28.67 [28.64; 28.70]	28.60 [28.57; 28.63]	28.53 [28.49; 28.56]	27.08
Unemployment rate, %	29.59	29.75 [29.71; 29.79]	29.91 [29.84; 29.98]	30.09 [30.02; 30.16]	30.26 [30.18; 30.36]	33.81
Youth unemployment rate, %	55.41	55.68 [55.53; 55.85]	56.02 [55.81; 56.28]	56.37 [56.09; 56.65]	56.71 [56.34; 57.02]	62.54
Share of youth NEETs, %	30.11	30.20 [30.17; 30.23]	30.26 [30.22; 30.31]	30.32 [30.26; 30.39]	30.38 [30.32; 30.47]	31.40
Change in real earnings, %		0.51 [0.46; 0.56]	0.31 [0.23; 0.40]	0.10 [0.01; 0.19]	-0.11 [-0.23; -0.00]	-4.37

Note: Note: Kosovo LFS 2018 is used. Wages are imputed as described in Section 2. Low labor demand elasticity value is set at -0.1 (-0.4) for skilled labor and -0.3 (-0.6) for unskilled labor in the short (long) run. High labor demand elasticity value is set at -0.7 (-1) for skilled labor and -0.9 (-1.2) for unskilled labor in the short (long) run. Only employees with wages between the old and the proposed minimum wage are assumed to be affected. Aged 15-64. 95 confidence intervals are in brackets.

Expected poverty impacts are still contained, even assuming high labor demand elasticity.

As a result of a slightly larger negative impact on the employment rate, poverty incidence can increase up to 0.2 and 0.4 percentage points in the short run and medium run, assuming a high wage elasticity.

Figure 15 Panel a shows the variation of the effect by demographic characteristics assuming low labor demand elasticity, while Figure 14 Panel b shows the variation of the effect assuming high elasticity. From Figure 15 Panel b we see that, if the demand is highly elastic, the net effect of minimum wage is especially adverse for those with low levels of education (0.6 percent decrease in earnings).

The simulated effect on public sector earnings is minor, but the effect on earnings is stronger among the young and less educated. Figure 16 shows the simulated long-run effect of the minimum wage on private and public sector earnings assuming a range of elasticity values. In the long run, public sector wages can increase between -0.02 and 0.05 percent, while private sector wages can vary between -0.2 and 0.56 percent. Figure 17 shows the simulated change in earnings by demographic characteristics assuming perfectly elastic labor demand (worst-case scenario), suggesting strong negative effects for the young and less educated. In this extreme case, earnings among young (aged 15-19) can be decreased by more than 20 percent.

Figure 15. Simulated change in earnings as a result of the minimum wage increase

a. Low labor demand elasticity

b. High labor demand elasticity

Source: Own estimates using the 2018 Kosovo LFS.

Figure 16. Simulated long-run change in earnings as a result of the minimum wage increase by sector

Source: Own estimates using the 2016 Kosovo LFS. Note: the elasticity value refers to the elasticity for skilled workers. We add -0.2 for unskilled workers.

Figure 17. Simulated change in earnings as a result of the minimum wage increase assuming perfectly elastic labor demand

Source: Own estimates using the 2018 Kosovo LFS.

Sensitivity checks: Wage imputations and misreporting

The main challenge in evaluating the potential effect of the minimum wage policy using the LFS data is that the wages are reported in brackets. Therefore, wage imputation is required, and in the main analysis we have applied a simple imputation technique assuming that wages are uniformly distributed on the reported interval. Alternatively, wages can be imputed conditional on observable characteristics from the 2017 HBS in which exact wages are reported.³² The difficulties with this approach are:

1. There is underreporting of labor income in HBS (compared to LFS). HBS wage distribution is shifted to the left.
2. There is uncommon support³³ in the distributions (difference in observable characteristics between LFS and HBS).

We apply the following algorithm, based on Nopo (2008):

Step 1: Select one individual (without replacement) from the LFS.³⁴

Step 2: Select all individuals who have the same characteristics as the individual selected in step 1 from HBS.³⁵

Step 3: Construct a “synthetic” individual whose synthetic earnings are equal to the average of all individuals selected in step 2 (from HBS) and match him or her to the original individual selected in the LFS.

³² Because of data availability, we match the 2017 LFS with the 2017 HBS survey. In the main analysis, we use the 2018 LFS.

³³ In probability theory, the support of a probability distribution can be loosely thought of as the closure of the set of possible values of a random variable having that distribution.

³⁴ We match only employees with non-missing wages.

³⁵ Specifically, we match individuals by the following characteristics: gender, age, urban status, education level, marital status, relationship to the head of the household, and occupation.

Step 4: The observations of both individuals (the “synthetic” individual and the individual selected in step 1) are part of the new sample of matched individuals. These samples include, for each individual, the wage in brackets and the synthetic wage.

Repeat steps 1-4 until it exhausts the original sample of individuals in the LFS. We end up with the sample of matched individuals (those who have similar characteristics in both surveys) and another sample of unmatched individuals (those who have different characteristics). For the matched sample, we assign earnings equal to synthetic earnings if their synthetic earnings fall in the corresponding interval. Otherwise, we assign earnings equal to the midpoint of the bracket. For the unmatched sample, we assign earnings equal to the midpoint of the bracket. In total, 65 percent of LFS respondents were successfully matched with HBS respondents; for the other 35 percent, wages were imputed using the average value of the interval reported in LFS.

The results are robust to the imputation technique. Table 6 reports the simulated labor market indicators obtained using wages imputed from the HBS,³⁶ and using a uniform imputation technique. The results suggest that there are no significant differences in the effect on unemployment and wages simulated using different wage imputation techniques.

Table 6. Ex-ante evaluation of the impact of minimum wages, sensitivity to wage imputation

	No policy	Imputation HBS		Imputation uniform	
		Short-run	Long-run	Short-run	Long-run
Employment rate, %	29.75	29.60 [29.57; 29.63]	29.53 [29.50; 29.57]	29.56 [29.52; 29.60]	29.47 [29.43; 29.51]
Unemployment rate, %	30.48	30.84 [30.78; 30.91]	31.00 [30.92; 31.07]	30.94 [30.85; 31.03]	31.15 [31.04; 31.25]
Youth unemployment rate, %	52.75	53.49 [53.27; 53.77]	53.82 [53.54; 54.13]	53.75 [53.53; 54.01]	54.18 [53.88; 54.45]
Share of youth NEETs, %	27.41	27.64 [27.59; 27.69]	27.70 [27.64; 27.77]	27.70 [27.65; 27.76]	27.80 [27.72; 27.86]
Change in real earnings, %		0.22 [0.13; 0.30]	0.03 [-0.07; 0.12]	0.29 [0.18; 0.41]	0.03 [-0.11; 0.16]

Note: Kosovo HBS and LFS 2017 are used. Uniform wage imputation is described in Section 2 and HBS wage imputation is described in Section 6.2. Short- (long-) run labor demand elasticity value is set at -0.5 (-0.8) for skilled labor and -0.7 (-1) for unskilled labor. Only employees with the wage between the old and the proposed minimum wage are assumed to be affected. Aged 15-64. 95 percent confidence intervals are in brackets.

³⁶ Baseline short- (long-) run labor demand elasticity is used: -0.5 (-0.8) and -0.7 (-1) for skilled and unskilled labor respectively.

Alternative policies

We also consider alternative scenarios of minimum wage increase in addition to the 250 euros that were envisioned by policy makers: (a) 230 euros; (b) 212 euros (minimum living wage); (c) 180 euros for those 35 years and older and 137.6 euros for those younger than 35 (a current rule-based minimum wage increase accounting for core inflation and private sector wage growth); (d) 193.6 euros (equivalent to 50 percent of the median wage). Overall, the anticipated effect of these alternative scenarios (with the exception of 230 euros) on both employment and earnings are relatively small (Table 7). For the young (aged 15-24), unemployment is simulated to increase by 0.26 (0.37) percentage points in the short term (long term) with a uniform increase of the minimum wage to 212 euros (minimum living wage) and by 0.14 (0.2) percentage point in the short term (long term) with a uniform increase to 193.6 euros (equivalent to 50 percent of the median wage). With a rule-based minimum wage increase accounting for core inflation and private sector wage growth, the effect on unemployment is not significant, as well as the overall effect on earnings because in this share only a very small share of workers would be affected (0.22 percent). In the long term, none of the policies considered is expected to have a significant overall effect on earnings.

Table 7. Ex-Ante Evaluation of the Impact of Minimum Wages: Alternative Policies

	No policy	230 Euros 2018 Gross		212 Euros 2018 Gross		180 (137.6) Euros 2018 Gross for 35+ (34-) year olds		50% of Median Wage (193.6 Euros Gross)	
		Short-run	Long-run	Short-run	Long-run	Short-run	Long-run	Short-run	Long-run
Employment rate, %	28.80	28.72	28.68	28.76	28.74	28.80	28.80	28.78	28.77
		[28.69; 28.74]	[28.65; 28.70]	[28.74; 28.77]	[28.72; 28.76]	[28.80; 28.80]	[28.80; 28.80]	[28.77; 28.79]	[28.76; 28.79]
Unemployment rate, %	29.59	29.80	29.90	29.70	29.75	29.59	29.60	29.64	29.67
		[29.75; 29.86]	[29.84; 29.97]	[29.67; 29.75]	[29.71; 29.81]	[29.59; 29.60]	[29.59; 29.60]	[29.62; 29.68]	[29.63; 29.70]
Youth unemployment rate, %	55.41	55.85	56.07	55.67	55.79	55.41	55.41	55.55	55.61
		[55.69; 56.07]	[55.84; 56.32]	[55.55; 55.84]	[55.64; 55.99]	[55.41; 55.41]	[55.41; 55.41]	[55.45; 55.65]	[55.49; 55.74]
Share of youth NEETs, %	30.11	30.23	30.27	30.19	30.21	30.15	30.15	30.17	30.18
		[30.19; 30.27]	[30.22; 30.31]	[30.17; 30.23]	[30.18; 30.25]	[30.15; 30.15]	[30.15; 30.15]	[30.15; 30.19]	[30.16; 30.21]
Change in real earnings, %		0.12	0.02	0.06	0.01	0.00	0.00	0.02	0.00
		[0.06; 0.18]	[-0.06; 0.08]	[0.01; 0.09]	[-0.05; 0.05]	[-0.01; 0.00]	[-0.01; 0.00]	[-0.01; 0.05]	[-0.03; 0.04]

Note: Kosovo LFS 2018 is used. Wage imputation is described in Section 2. Short- (long-) run labor demand elasticity value is set at -0.5 (-0.8) for skilled labor and -0.7 (-1) for unskilled labor. Only employees with wages between the old and the proposed minimum wage are assumed to be affected. Aged 15-64. Confidence intervals are in brackets.

Figure 18. Simulated percentage change in earning as a result of the minimum wage increase

Source: Own estimates using the 2018 Kosovo LFS.

Figure 19. Simulated percentage point change in unemployment rate as a result of the minimum wage increase

Source: Own estimates using the 2018 Kosovo LFS.

V. Conclusions and Policy Insights

Currently the minimum wage in Kosovo is 130 euros for people under the age of 35 and 170 euros for people 35 and older; this minimum wage is relatively high, when measured as the ratio of the minimum wage to the median wage. The ratio of the minimum wage to the median wage in Kosovo is slightly lower than this ratio in European countries: 0.38 for those aged 15-34 and 0.40 for those aged 35-64. The minimum wage has not changed since 2011 and has not grown with the inflation rate. In this study we analyze the potential employment, income, and poverty effects of an anticipated minimum wage increase.

Kosovo's labor market is characterized by high unemployment and informality rates, which must be taken into consideration when designing minimum wage policy. According to Rutkowski (2003), in countries with high unemployment among young and low-skilled workers, the ratio of the minimum wage to the median wage should not surpass one-third. High and "binding" minimum wages may hinder job creation and/or increase job destruction among low-skilled workers. This could result in even higher rates of unemployment and informality. Moreover, given the high unemployment rate, a minimum wage increase might

be ineffective in targeting the poor mainly because the poor are more likely to be unemployed or employed in the informal sector.

To assess potential employment effects and net effect on earnings, we use microsimulation techniques considering different values of own-wage elasticity of labor demand; our results show that the overall impacts of a minimum wage increase in a baseline scenario are likely to be modest (which is in accordance with the literature), although the impacts for some groups, including the youth, may be stronger.

- The baseline policy that we evaluate, which has been under consideration by policy makers, is to increase the minimum wage to 250 euros for the total population, which would increase the minimum-to-median wage ratio to 0.63, against an average of 0.5 in OECD countries – so, the increase would be really high if compared to international benchmarks, especially for a country with fragile labor markets.
- Assuming a conservative value of own-wage elasticity (baseline specification), our findings suggest that overall unemployment could increase by 0.7 percentage point. Youth unemployment (aged 15-24) may increase by about 1.1 percentage points in this baseline case, which is a relatively large increase considering the already high levels of unemployment. If labor demand is highly elastic, youth unemployment could rise by up to 1.3 percentage points.
- The average net effect on earnings is positive but modest in the short run and not significant in the long run because the decrease in earnings due to job losses is almost equal to the increase in earnings due to the increase in wage. The minimum wage increase is effective in increasing the earnings of young workers aged 15-24 in the short run but attenuates over time.
- Some groups are disproportionately affected by this policy. In 2018, 8.2 percent of workers earned between the current minimum wage and the proposed minimum wage, and this share is larger among the young (aged 15-34), females, individuals with low levels of education (up to only secondary education completed) and those working in non-professional occupations. These groups are thus more likely to be affected by the increase in the minimum wage.

As a worst-case scenario, we consider the effect of the policy if all potentially affected workers lost their jobs; in this case, large impacts are expected, with the unemployment rate increasing by 4.2 percentage points and the overall effect on earnings decreasing by 4.4 percent. As a baseline, we consider an average wage elasticity value equal to -0.5 in the short run and -0.8 in the long run for skilled workers and -0.7 in the short run and -1.0 in the long run for unskilled workers. However, given the high unemployment rate in Kosovo, labor demand might be more elastic. We simulate that the net effect of an increase in the minimum wage on earnings can be negative if wage elasticity is sufficiently high: -0.7 in the short run and -1 in the long run for skilled workers and -0.9 in the short run and -1.2 in the long run for unskilled workers. As a word of caution, the analyses are performed using values of labor demand elasticities from the literature (as no estimates are available for Kosovo). The most extreme scenario of an increase to 250 euros would increase the minimum to the median wage ratio to 0.63 on average (and to 0.73 for young workers aged 15-35). None of the OECD countries have a rate close to this level and the true employment losses may therefore be larger.

The overall effect of the minimum wage policy on earnings is not significant in the long term when other scenarios of minimum wage policy are considered. We consider several alternative scenarios of the minimum wage increase: (a) 230 euros; (b) 212 euros (minimum living wage); (c) 180 euros for those 35 and older and 137.6 euros for those younger than 35 (a rule-based minimum wage increase accounting for core inflation and private sector wage growth); and (d) 193.6 euros (equivalent to 50 percent of the median wage).

Overall, the anticipated effect of these alternative scenarios is not significant in the long run because the share of the affected population is very low given low employment rates and low share of minimum wage workers among the employed population; and also because the decrease in earnings due to job losses is predicted to be of similar size to the increase in earnings due to higher wages.

An outbreak of the coronavirus disease (COVID-19) has been spreading rapidly across the world since December 2019, and measures to protect lives have been adversely affecting labor markets. Restrictions on movement and social distancing have affected labor supply and demand, transport and travel in unprecedented ways. Whole sectors of national economies have been shut down—restaurants, hotels, nonessential retail trade, tourism, transport, and much manufacturing. Despite government support packages, businesses throughout the economies have been suffering losses that threaten their operations and solvency. The most affected are small and medium-sized firms and informal businesses. The impact on income-generating activities is especially harsh for unprotected workers and the most vulnerable groups in the informal economy (World Bank, 2020a).

The COVID-19 pandemic poses a serious social and economic challenge to Kosovo and now more than ever it is important for the government to ensure that possible work disincentive effects of an excessively high or undifferentiated minimum wage policy are carefully assessed, in addition to protecting or mitigating impacts on the most affected groups. Before the pandemic, Kosovo's economy was projected to grow by 4 percent in 2020. However, because of the pandemic and the associated public health containment measures, economic activity is now expected to contract by 4.5 percent (World Bank, 2020b).³⁷ The economic downturn arising from the measures to contain the outbreak will not only affect the poor but may also propel large numbers of people into poverty. Experience suggests that unemployment rates can rise sharply during such a global crisis. In Kosovo, the supply and demand shocks to the economy arising from the containment measures adopted by the government are expected to reduce household earnings and increase the already large pool of untapped labor, which may moderate wage pressures further.

Several policy recommendations arise from this analysis:

First, the analysis shows the importance of producing high-quality labor market data. The analysis provided in this note is limited to the LFS which does not provide exact wage data. Measurement of wages in the LFS should be improved and complimented by other surveys and administrative data. To monitor labor market response to minimum wages in a robust way, a matched employer-employee panel data set needs to be built (see Portugal and Cardoso [2006] for a discussion of the potential use of matched employer-employee data for the analysis of the impact of minimum wages). Data limitations not only prevent us from determining a precise estimate of the minimum wage impact but also from estimating the wage distribution. Precise estimates of the median and minimum wages are critical for setting the minimum wage because they allow us to evaluate the extent to which the minimum wage is binding.

Second, monitoring the labor market is essential, as well as accurately estimating the wage elasticity of labor demand. The minimum wage can have different effects depending on the context of the country at a certain point in time. Therefore, in order to set a minimum wage and to impose an adjustment formula, a detailed monitoring of the labor market and the estimation of the key parameters which determine the effect of the minimum wage are needed. In this note, we consider several scenarios based on the estimates of the wage elasticity of labor demand from international evidence, which might not apply for Kosovo. In fact, the economy of Kosovo—characterized by extremely high levels of informality and unemployment—might be not

³⁷ These estimates assume that the outbreak affects only the second quarter and economic activity picks up in the second half of 2020. If the epidemic and the corresponding containment measures are prolonged into the third quarter, Kosovo could fall into a deeper recession associated with a contraction of above 10 percent in 2020.

comparable to neighboring countries. An introduction of several minimum wage scenarios in local labor markets at a small scale and a monitoring of its effects may help to accurately evaluate the potential effect of the minimum wage in the short and long term in Kosovo. These estimates can then be used to expand the policy at the national level.

Third, a drastic increase from 170 euros (130 euros for youth) to 250 euros would increase the minimum to the median wage ratio to a level much higher than those observed in OECD countries and employment losses may be larger than estimated, especially in the context of the COVID-19 pandemic. Even if raising the minimum wage is long overdue due to decreasing nominal wages in real terms, increasing the minimum wage substantially and at once can have a detrimental impact for some low productivity groups, including the young, especially in the context of the COVID-19 crisis as firms are more likely to shut down, increase job destruction and decrease job creation. **A gradual increase over several years, accompanied by monitoring of labor market reactions, would be advisable under current circumstances.**

Finally, as the minimum wage policy may lead to unemployment, particularly for some groups, it needs to be complemented by other social protection instruments. Minimum wage increases are an imperfect tool for income redistribution. Given the high rates of poverty and unemployment in Kosovo, direct redistribution in the form of taxes and targeted social assistance could be more effective in targeting beneficiaries than increasing the minimum wage which, in turn, may have other benefits. In general, the minimum wage can be used as a redistributive tool if accompanied by a safety net for the unemployed (Cunningham, 2007). Kosovo does not have unemployment insurance, and the poverty-targeted social assistance scheme suffers from high errors of exclusion (due to categorical and exclusionary filters in the beneficiary selection process), reaching only 10 percent of all households and excluding nearly two-thirds of households in the bottom quintile (World Bank, 2019). Improving social protection for poor households and vulnerable workers in Kosovo requires a combination of reform and policy.

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