

## REGIONAL EFFECTS OF THE MINIMUM WAGE INCREASE

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### Executive Summary

This research brief aims to estimate the possible effects of a relatively high increase in minimum wages to wage distribution. The 2013 micro dataset of Household Labor Survey was used in the analysis. The earning data indicates that, by November of 2015, 57.3 percent of formal, full-time wage-earners working in private sector, i.e. more than half of the wage-earners in Turkey are receiving a monthly salary less than expected net minimum wage. When the regional disparities in the labor market are considered, the wage shock is expected to increase average wages moderately in certain regions (high-wage regions) and significantly in the others. When the minimum wage increases to 1300 TL, the regional median wages are expected to rise to 1300 TL, except in Istanbul and Ankara. In other words, we expect a considerable increase in the wages and this increase to have an effect on more than half of formal and full-time wage-earners working in private sector. No doubt that in Turkey, which has low rates of labor force participation, the minimum wage hike will encourage participation in the labor force. On the other hand, increases in labor costs following the minimum wage hike will also strengthen firms' incentives to create informal employment.

### Minimum wage debate

By the 1<sup>th</sup> of January, net minimum wage has been increased by 30 per cent to 1300 TL. Gross minimum wage has increased from 1274 TL to 1647 TL.<sup>1</sup> Suggesting that they cannot bear the costs of this large rise in minimum wage, firms had been requesting help from the government for some time. Finally, this help has been granted. For only year of 2016, the government will provide a yearlong subsidy of 110 TL per month for all workers who earn minimum wage.

This research brief aims to make an estimation on the extent of the wage shock in labor market due to the minimum wage hike. Accordingly, we would like to make some simplifying assumptions for ease of calculation. We assume that minimum wage increases will not cause any increases in the earnings above the new minimum wage. For example, it is assumed that the wage of an individual earning 1400 TL in February of 2016 will not be affected by the rise of minimum wage to 1300 TL. Hence, we assume that the hike in minimum wage will only affect the wages between previous year's minimum wage and the new one.

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<sup>1</sup> Please visit the following internet site for more information on the calculation of minimum wage for the year of 2015: [http://www.turmob.org.tr/arsiv/mbs/pratikBilgiler/asgari\\_ucret2015.pdf](http://www.turmob.org.tr/arsiv/mbs/pratikBilgiler/asgari_ucret2015.pdf) (In Turkish)

Likewise, the research brief ignores the effects of minimum wage hike to wages earned in informal employment. However, minimum wage may have a lighthouse effect on informal employment as well as formal employment. In other words, the minimum wage hike will probably increase wages in the informal labor market which takes the minimum wage as a reference. Surely, this simplifying assumptions do not hold necessarily. Therefore, the estimates in this research brief are more likely to be a lower bound on the wage effects of the minimum wage hike.

**Regional aspects of the effects of minimum wage hike**

In this research brief, we use the micro dataset of Household Labor Force Survey conducted in 2013 by TurkStat. Minimum wage is a binding especially for the firms creating formal employment. Accordingly, we focus on the employees working in the private sector or non-profit organizations such as foundations, NGO's and think tanks. In addition, the minimum wage hike will affect public and private sectors differently because the additional labor cost of the public sector will be undertaken by the government via the central government budget. Therefore, employees in the public sector are not included in the analysis. Hence, the data used represents the wages of formally employed, full time workers in the private sector or non-profit organizations such as foundations, NGO's or think tanks. The data on earnings collected in the year of 2013 is inflated to November 2015 using the Consumer Price Index.

Table 1 indicates that there are 9.5 million employees in Turkey who are working formally and full time in the private sector as wage-earners or casual workers. Note that 57.3 percent of the employees earn less than 1300 TL. Even a basic calculation is enough to reveal that the minimum wage hike will have extensive impacts on the labor market.

**Table 1 Number of persons earning net monthly wage below of TL 1300 and its share**

	<b>Number of persons (in thousands)</b>	<b>Per cent</b>
<b>&gt;1300</b>	4,091	42.7
<b>&lt;1300</b>	5,484	57.3
<b>Total</b>	<b>9,575</b>	<b>100.0</b>

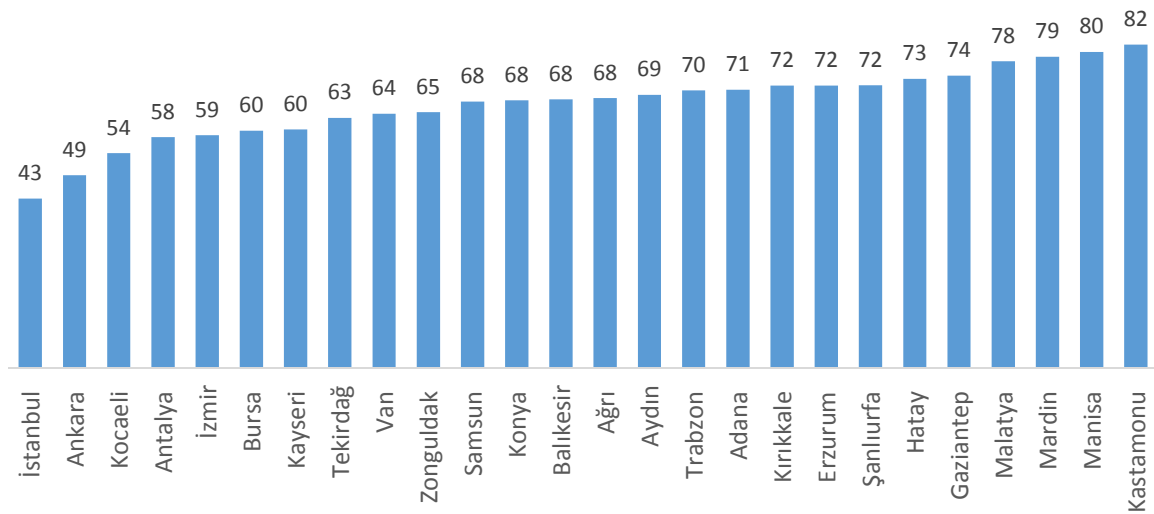
Source: HLFS 2013, Betam update for November 2015

Previous studies has showed that regional labor markets in Turkey are structurally different. Hence, the intensity of the effect of the minimum wage hike will also differ regionally. Figure 1 indicates the shares of employees earning below 1300 TL in each of the 26 regions of Turkey<sup>2</sup>. The data reveals that the share of employees earning below of 1300 TL is by far the lowest in the region of Istanbul (43 percent). The second lowest share of employees earning below of 1300 TL is in the Ankara region (48.9 percent). The two of the highest shares of employees earning below 1300 TL are in the Kastamonu and Manisa regions with 82 and 80.1 percentages, respectively.

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<sup>2</sup> Even though there may be more than one province in a NUTS2 region, NUTS2 regions take the name of the province that has the largest population in that particular region. All the provinces in regions are clearly indicated in following tables.

**Figure 1 Share of persons earning below of TL1300 in total wage-earners (%)**



Source: HLFS 2013, Betam update for November 2015

### The effects of minimum wage rise to wage distribution

Examining the median and mean wages in the regional labor markets will shed light on the extent of the wage shock created by the minimum wage hike. The first column in Table 1 provides the current mean wages for 26 different regions in November of 2015. Surely, the mean wages will change when the new minimum wage is implemented. Therefore, the second column provides the estimated mean wages when a minimum wage of 1300 TL is imposed and under the assumption that the wages above 1300 TL are not affected. The third column gives the increase in mean wages following the minimum wage hike and lastly, the fourth column indicates the percentage increase. At this point, let us note again that this estimate is a lower bound given that it is very likely that the wages above the new minimum wage will increase as well, albeit with a lag.

**Table 1 Effects of minimum wage hike to average wages by region**

	Mean of wage(TL)	Estimated mean wage by 1300TL minimum wage (TL)	Amount of increase in mean of wages (TL)	Increase in mean of wages (%)
İstanbul (İstanbul)	1,935	2,031	96	5.0
Tekirdağ (Edirne-Tekirdağ-Kırklareli)	1,385	1,564	179	12.9
Balıkesir (Balıkesir-Çanakkale)	1,316	1,518	202	15.3
İzmir (İzmir)	1,564	1,720	156	10.0
Aydın (Denizli-Aydın-Muğla)	1,319	1,525	206	15.6
Manisa (Manisa-Afyonkarahisar-Kütahya-Uşak)	1,182	1,417	235	19.9

<b>Bursa (Bursa-Eskişehir-Bilecik)</b>	1,469	1,620	151	10.3
<b>Kocaeli (Kocaeli-Sakarya-Düzce-Bolu-Yalova)</b>	1,624	1,770	146	9.0
<b>Ankara (Ankara)</b>	1,760	1,876	116	6.6
<b>Konya (Konya-Karaman)</b>	1,347	1,528	181	13.4
<b>Antalya (Antalya-Isparta-Burdur)</b>	1,535	1,693	158	10.3
<b>Adana (Adana-Mersin)</b>	1,333	1,552	219	16.4
<b>Hatay (Hatay-Kahramanmaraş-Osmaniye)</b>	1,280	1,504	224	17.5
<b>Kırıkkale (Nevşehir-Aksaray-Niğde-Kırıkkale-Kırşehir)</b>	1,282	1,493	211	16.5
<b>Kayseri (Kayseri-Sivas-Yozgat)</b>	1,434	1,612	178	12.4
<b>Zonguldak (Zonguldak-Karabük-Bartın)</b>	1,422	1,616	194	13.6
<b>Kastamonu (Kastamonu-Çankırı-Sinop)</b>	1,150	1,419	269	23.4
<b>Samsun (Samsun-Tokat-Çorum-Amasya)</b>	1,339	1,547	208	15.5
<b>Trabzon (Trabzon-Ordu-Giresun-Rize-Artvin-Gümüşhane)</b>	1,334	1,531	197	14.8
<b>Erzurum (Erzurum-Erzincan-Bayburt)</b>	1,320	1,520	200	15.2
<b>Ağrı (Kars-Ağrı-Iğdır-Ardahan)</b>	1,316	1,510	194	14.7
<b>Malatya (Malatya-Elazığ-Bingöl-Tunceli)</b>	1,188	1,433	245	20.6
<b>Van (Van-Muş-Bitlis-Hakkâri)</b>	1,333	1,506	173	13.0
<b>Gaziantep (Gaziantep-Adıyaman-Kilis)</b>	1,289	1,497	208	16.1
<b>Şanlıurfa (Diyarbakır-Şanlıurfa)</b>	1,332	1,551	219	16.4
<b>Mardin (Siirt-Mardin-Batman-Şırnak)</b>	1,228	1,491	263	21.4
<b>Türkiye</b>	1,595	1,749	154	9.7

Source: HLFS 2013, Betam update for November 2015

The data shows that mean wages are very close to 1300 TL. Hence, mean wages will increase by more than 10 percent in all regions, but three. The increase will be less than 10 percent only in İstanbul, Kocaeli, and Ankara regions. The increases in the regions of Manisa, Kastamonu, Malatya and Mardin are estimated to be greater than 20 percent. More generally, mean wages in Turkey are expected to increase by 9.7 percent. The reason behind the relatively moderate rise is that 44.8 percent of wage-earners are clustered in the three regions which have the lower rates of increase. These three regions are the ones that have highest mean wages (Table 1).

It is well-known that the distribution of wages is skewed compared to a normal distribution. In other words, very high wages, even though they are rare, increase the mean wage, whereas lower wages are more common. Under these conditions, the median provides a better estimate of the central tendency. Median wage corresponds to mid-point when wages are sorted in ascending/descending order. Put differently, half of all wages are below of the median wage, and half are above. Table 3 represents current median wages, the expected median wage following a minimum wage hike, the expected increase in median wages in levels and in percentages.

Analysis on current values of median wages reveals that only in Istanbul and Ankara regions, median wage are above of 1300 TL, That is, in other regions, more than half of formally employed, full-time workers in private sector are earning less than 1300 TL. The median wages in Istanbul and Ankara, remain the same following the minimum wage hike. On the other hand, in all of 24 remaining regions, median wage will increase to 1300 TL, i.e. minimum wage hike will make increase the wages of more than half of all formal and full-time workers employed in private sector in these 24 regions.

**Table 2 Effects of minimum wage hike to median of wages by region**

	<b>Median of wages (TL)</b>	<b>Estimated median of wages by 1300TL minimum wage (TL)</b>	<b>Increase in median of wages (TL)</b>	<b>Increase in median of wages (TL)</b>
<b>İstanbul (İstanbul)</b>	1,452	1,452	0	0.0
<b>Tekirdağ (Edirne-Tekirdağ-Kırklareli)</b>	1,177	1,300	123	10.5
<b>Balıkesir (Balıkesir-Çanakkale)</b>	1,089	1,300	211	19.4
<b>İzmir (İzmir)</b>	1,210	1,300	90	7.4
<b>Aydın (Denizli-Aydın-Muğla)</b>	1,089	1,300	211	19.4
<b>Manisa (Manisa-Afyonkarahisar-Kütahya-Uşak)</b>	1,028	1,300	272	26.5
<b>Bursa (Bursa-Eskişehir-Bilecik)</b>	1,210	1,300	90	7.4
<b>Kocaeli (Kocaeli-Sakarya-Düzce-Bolu-Yalova)</b>	1,210	1,300	90	7.4
<b>Ankara (Ankara)</b>	1,331	1,331	0	0.0
<b>Konya (Konya-Karaman)</b>	1,149	1,300	151	13.1
<b>Antalya (Antalya-Isparta-Burdur)</b>	1,210	1,300	90	7.4
<b>Adana (Adana-Mersin)</b>	1,052	1,300	248	23.6
<b>Hatay (Hatay-Kahramanmaraş-Osmaniye)</b>	1,046	1,300	254	24.3
<b>Kırıkkale (Nevşehir-Aksaray-Niğde-Kırıkkale-Kırşehir)</b>	1,089	1,300	211	19.4
<b>Kayseri (Kayseri-Sivas-Yozgat)</b>	1,210	1,300	90	7.4
<b>Zonguldak (Zonguldak-Karabük-Bartın)</b>	1,125	1,300	175	15.6

<b>Kastamonu (Kastamonu-Çankırı-Sinop)</b>	1,004	1,300	296	29.5
<b>Samsun (Samsun-Tokat-Çorum-Amasya)</b>	1,089	1,300	211	19.4
<b>Trabzon (Trabzon-Ordu-Giresun-Rize-Artvin-Gümüşhane)</b>	1,089	1,300	211	19.4
<b>Erzurum (Erzurum-Erzincan-Bayburt)</b>	1,089	1,300	211	19.4
<b>Ağrı (Kars-Ağrı-Iğdır-Ardahan)</b>	1,089	1,300	211	19.4
<b>Malatya (Malatya-Elazığ-Bingöl-Tunceli)</b>	1,028	1,300	272	26.5
<b>Van (Van-Muş-Bitlis-Hakkâri)</b>	1,210	1,300	90	7.4
<b>Gaziantep (Gaziantep-Adıyaman-Kilis)</b>	1,089	1,300	211	19.4
<b>Şanlıurfa (Diyarbakır-Şanlıurfa)</b>	1,028	1,300	272	26.5
<b>Mardin (Siirt-Mardin-Batman-Şırnak)</b>	1,028	1,300	272	26.5
<b>Türkiye</b>	<b>1,210</b>	<b>1,300</b>	<b>90</b>	<b>7.4</b>

Source: HLFS 2013, Betam update for November 2015

Minimum wage rise to 1300 TL is also expected to cause significant differences in percentage terms for the median wages in these regions. Median wages in the regions of Balıkesir, Aydın, Kırkkale, Samsun, Trabzon, Erzurum, Ağrı and Gaziantep are expected to increase by approximately 20 percent. In addition, the median wages will increase by 23-24 percent in Adana and Hatay, and by 25 percent in Manisa, Kastamonu, Malatya, Şanlıurfa and Mardin. These figures indicate that the increase in median wages will exceed 20 percent in 15 out of 26 regions.

In light of this data, we can conclude that the increase in the minimum wage will have a sizeable impact on the wage distribution and thus on the labor costs of firms, even when we assume effects are limited to those who earn between 1647 TL (the new gross minimum wage) and 1274 TL (the gross minimum wage in from July to December 2015). Under these assumptions, in absence of government subsidies, we estimate the total cost to be 18 billion TL annually.

When the government subsidy of 110 TL on gross wages is taken into account, the labor cost to the employers falls to 1547 TL (1647-110=1547). Under the same assumptions, we estimate that the mean wage will increase to 1689 TL and the median wage to 1210 TL, respectively. Using gross wages, we estimate the increase in the labor cost to be 16 billion TL annually.

### **Heavy burden on small and medium sized firms**

Table 3 provides data on the shares of the employees whose wages will be affected by the policy change by firm size. The data indicates that relatively smaller firms will suffer relatively more by the minimum wage increase as 67.7 percent of total employment in the firms with less than 10 employees will be affected. In addition, the firms having less than 10 employees constitute 27.7

percent of total employment.<sup>3</sup> Overall, the data shows that more than half of total employment in the firms with less than 250 employees will be affected by the minimum wage hike and these firms create 87.1 percent of total employment in Turkey.

The increase in labor costs will be relatively smaller in larger firms. This finding confirms that firm size and labor productivity are positively correlated. That is, employees with the lowest labor productivities are clustered in small and medium sized firms. Hence, the data signals that minimum wage hike will place a relatively heavier burden on small and medium sized firms. In turn, these firms will benefit from the subsidy of 110 TL more.

**Table 3 The effects of minimum wage hike by firm size**

<b>Firm Size</b>	
<b>Less than 10 employee</b>	67.7
<b>Between 10 and 24 employee</b>	57.6
<b>Between 25 and 49 employee</b>	56.1
<b>Between 50 and 249 employee</b>	53.9
<b>Between 250 and 499 employee</b>	49.8
<b>500 employee and more</b>	37.7
<b>Total</b>	57.3

Source: HLFS 2013, Betam update for November 2015

**An overview**

Minimum wage can be considered as a social policy tool to provide humanitarian living conditions to individuals. Particularly, in the countries with low rates of labor force participation like Turkey, minimum wage hike can encourage the inactive individuals to participate in the labor force. Hence, an sizeable increase in the minimum wage will definitely help these countries use their human capital more efficiently.

On the other hand, literature on economics shows that minimum wage hikes cause increases in informality in countries where informality is already widespread. Around 18 percent of wage earners in Turkey are currently not registered at the Social Security Institution. Moreover, we estimate that a similar percent suffers from underreporting of their wages at the Social Security Institution for tax evasion purposes. Informality is concentrated in small and medium size firms given lower productivity levels and lower wages. Besides, these firms will face a substantial increase in labor costs despite the subsidy. Under these conditions, a hike in the minimum wage will probably cause informality to increase as well.

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<sup>3</sup> The distribution of job creation by firm size is reported in Additional Table 1.

**Additional Table 1 The distribution of total employment by firm size**

<b>Firm size</b>	<b>Share in employment</b>
Less than 10 employee	27.7
Between 10 and 24 employee	13.8
Between 25 and 49 employee	20.6
Between 50 and 249 employee	25.1
Between 250 and 499 employee	5.7
500 employee and more	7.2
<i>Total</i>	100.0