WAGE RIGIDITY AND INFORMALITY IN THE LABOR MARKET IN TURKEY

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Executive Summary

International comparisons show that the formal labor market in Turkey is rather rigid regarding the wage level. This research brief analyzes the wage rigidity in the formal labor market based on the earnings of formal workers in the private sector. Using a similar methodology to that of the OECD, we calculate the ratio of minimum gross wage to median earnings to be 0.80. This is rather high ratio indicates a high wage rigidity. However, when regional labor markets are considered, the level of rigidity varies a lot. For example, while the ratio of gross minimum wage to median earnings is well below the country average in Istanbul and Ankara, it becomes close to one in number of regions, particularly in the Southeast.

A simple computation shows that the correlation between the wage rigidity and the informality is quite high, and much higher in the services than in the industry. In order to increase the competitiveness of the industry in Turkey and to accelerate economic development in less developed regions, the wage rigidity across regions should be evaluated with a view of economic rationality. Moreover, the relation between the wage rigidity and informality should be scrutinized more closely.

The concept of wage rigidity, methodology and data base

In our research brief titled "Labor Market Outlook" in May, we compared Turkey with OECD countries in terms of the ratio of gross minimum wage to median gross wage and pointed out that this ratio was the highest among the OECD members at 0.71 in 2011.[1] The ratio of minimum wage to median wage is considered to be an indicator of wage rigidity in the labor economics literature. The closer the minimum wage to the median wage, the more rigid the labor market. The minimum wage determines a safety net for a worker whatever their labor productivity. If the minimum wage is set close to the median wage, the number of workers with productivity below the minimum wage will be larger. In this case, firms willing to hire these workers will be discouraged.

Economic theory asserts that employment will be constrained under these conditions. However, in the labor markets where labor laws are not fully implemented, this kind of wage rigidity can possibly encourage informality instead of limiting the hiring. Despite the eventuality of facing fines, firms may prefer to use part of its workers, the less productive ones, informally, i.e. by avoiding registering them at the Social Security Institution. Doing so decreases labor costs considerably. Finally, wage rigidity emerges as one of the factors determining the extent of the informal segment where an absolute flexibility prevails.

Comparisons among national labor markets using national median wage could give an idea about the average rigidity of national labor market with respect to other markets. However, wage rigidity can vary considerably between regions of a national labor market. Turkey is a good example. While the formal labor market in Turkey is the most rigid among the OECD countries in this measure, the picture is

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[1] OECD uses median earnings. The World Bank Report released on May 27th, 2013, titled "Turkey - Managing the Labor Markets through the Economic Cycle" emphasizes that Turkey has the highest ratio (0.71) of minimum wages to median earnings among the OECD countries.

quite different across its regions. The scope of this research brief is to shed light on the rigidity of regional labor markets within Turkey and try to estimate the extent to which it affects informality.

Since we focus on wage rigidity, we limit our analysis to full time wage earners in the private sector. We consider the ratio of gross minimum wage (the cost of labor to the firm) to median earnings, the concept of rigidity being related to firm's behavior. The earnings include overtime and other side payments and hence are slightly higher than gross wages but the difference is negligible in our framework. Admittedly, it would have been preferable to use the median gross wages instead of median earning. However, this requires firm level data, which entails under reporting: firms declaring part of their workers at minimum wage while they receive *de facto* higher wages. So we use the micro data of Labor Household Surveys (of 2011, the latest data available) where the wage earners declare their net earnings. So, we have to translate the net earnings to the gross earnings. In order to estimate gross earnings we use the methodology developed by OECD for this purpose by adding estimated income taxes and social security premiums to the net earnings.[2]

Ratio of minimum wage to median earnings is quite high in the formal labor market

According to micro data of 2011 Household Labor Surveys the ratio of the gross minimum wage to gross median earnings is 0.80 (Figure 1). Using net wages yields similar results: The ratio of net minimum wage to net median earnings is calculated to be 0.81 (Figure App 1 in Appendix).

In the economics literature, using median wages is preferred to using average wages since wages are not normally distributed. High wages, albeit a few, raise the average wages (or earnings) significantly. Therefore, the median provides a better measure of central tendency, as it is less affected by outliers. However, we computed the ratios of gross minimum wage to average earnings as well (Figure 2). Since average median earnings is larger than median earnings, the ratio decreases to 0.60 at the national level. When we exclude the labor taxes the outcome does not change significantly. Net minimum wage / net average earnings is computed at 0.62 (Figure App 2 in Appendix).

Figure 1 The ratio of gross minimum wage to gross median earnings across regions (2011)
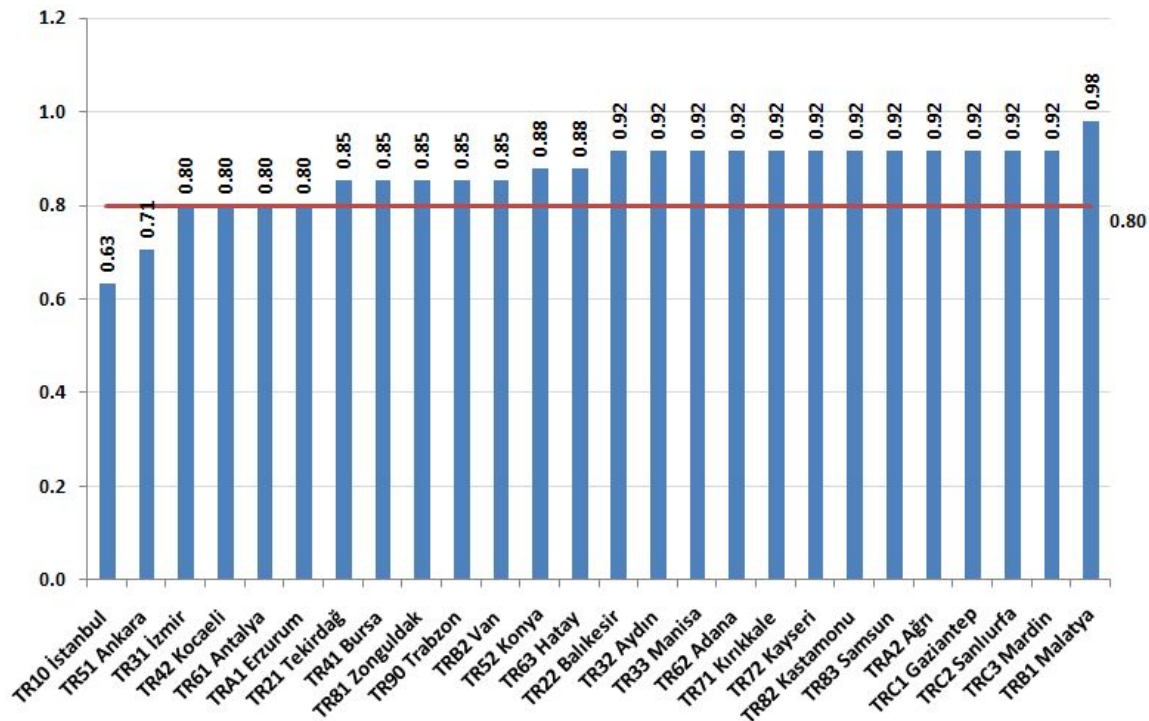
Source: Households Labor Surveys; TurkStat, Betam
Note: Only full time wage earners in the private sector are considered.

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[2] We can provide the table created and published by OECD (www.oecd.org/els/social/workincentives). Different ratios are calculated for 21 different earning ranges. According to the calculation, net average earning and net median earning increased 34 percent and 31 percent, respectively.

To summarize, using the net or gross earnings, means or medians, changes only the levels but not the gist of the issue. So, we use the ratios of the gross minimum wage to gross median earnings across regions then we will repeat this analysis by using regional average earrings.

Wage rigidity increases from West to East

Figure 1 ranks the ratios of gross minimum wage to gross median earnings in the each region from the lowest to the highest in 2011, in other words from less rigid to more rigid. Most of the regional ratios are over the national average of 0.80. The ratios for İstanbul and Ankara regions are important exceptions. These regions constitute an important part of total employment. The other regions have ratios that are closer to the national average or above. The ranking is generally evolves from West to the East, as expected. However, it is worth noting that in some industrialized regions of the West like Balıkesir, Aydın, Manisa, the level of the wage rigidity is quite close to those of Eastern regions.

When the average gross earnings are considered instead of gross median earnings, regional differences become even more apparent (Figure 2). Let us point out that average earnings are always higher than the median earnings. Manisa and Gaziantep, the former in the West and the latter in the Southeast, have the highest ratios. In other words, average wages are much closer to the median wages in these two regions than others. These two regions are also among the most industrialized regions. Indeed, the shares of industrial employment in full time non-agricultural employment are 53.1 percent for Manisa and 50.4 percent for Gaziantep. These shares are well above the national average of 38.7 percent. [3]

Figure 2 The ratio of gross minimum wage to gross average earnings (2011)
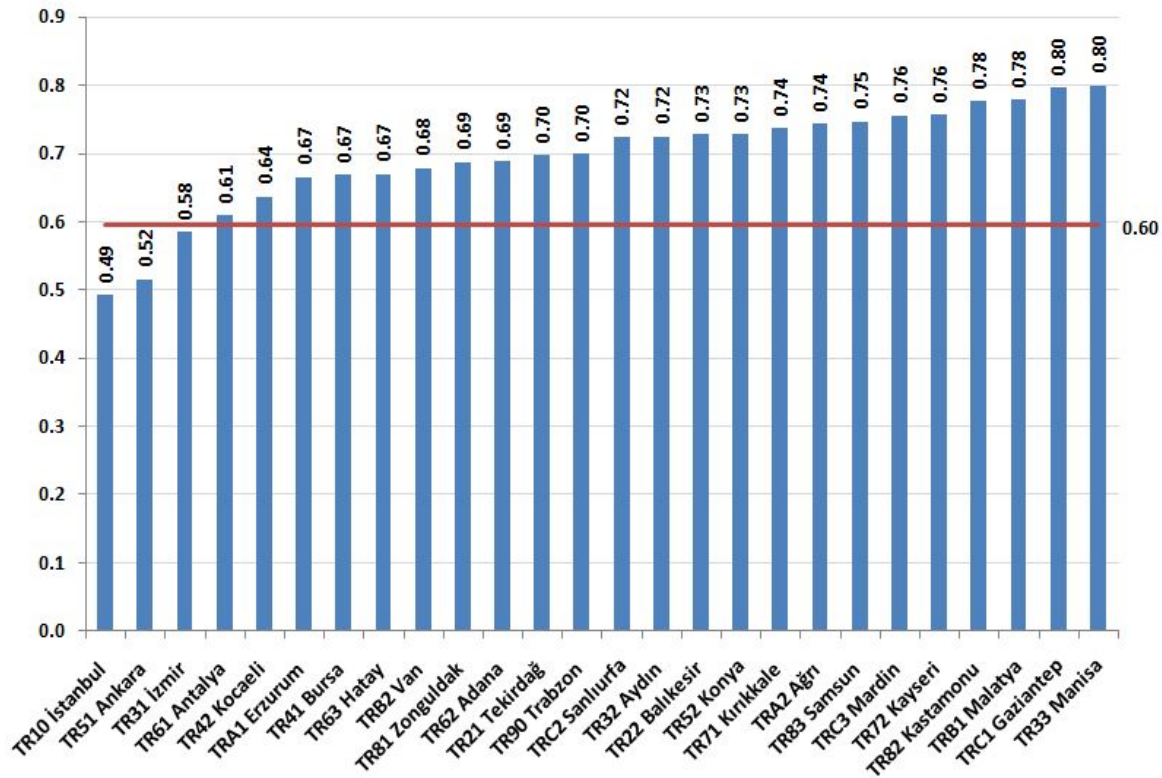
Source: Households Labor Surveys; TurkStat, Betam
Note: Only full time wage earners in the private sector are considered.

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[3] The 5 regions with the highest share of full time and formal wage earners in private manufacturing sector in full time and formal wage earners in private non-agricultural sector are as follows: Tekirdağ-Edirne-Kırklareli (64.9 percent), Bursa-Eskişehir-Bilecik (56.9 percent), Kocaeli-Sakarya-Düzce-Bolu-Yalova (54.3 percent), Manisa-Afyon-Kütahya-Uşak (53.1 percent), Gaziantep-Adıyaman-Kilis (50.4 percent). Given the fact that higher ratios of Manisa and Gaziantep regions than Tekirdağ, Kocaeli and Bursa regions, we suppose that composition of manufacturing in these regions is different.

We can summarize the wage rigidity across regions as follows: Admittedly, the value of the consumption basket based on nominal prices is higher in more developed regions than in underdeveloped ones. In other words, the cost of life increases with the level of development, but so do incomes. Skilled labor which is a factor of economic development as well as its outcome is much more abundant in the West than in the East. All of these factors indicate that net minimum wage as a safety net is not sufficient in the more developed regions while gross minimum wage is relatively low for the firms. On the other hand, we observe that the more developed the region, the closer the median earnings to the minimum wage.

Note that in the East and Southeast the minimum wage is very close to the median earning, with some exceptions. This means that a large majority of the formal wages in these regions is set at the level of the minimum wage or very close to it. We conclude that the minimum wage is relatively high in these regions.

Wage rigidity affects the size of the informality

The informality (workers not registered at the Social Security) remains still high in Turkey despite the decrease in recent years. The share of unregistered workers declined from 32 percent in 2004 to 25 percent in 2011.[4] Informality continues to be an important structural problem in the labor market in Turkey. As we mentioned above, one should expect that wage rigidity in the private sector affects the size of the informality. In order to provide some insight on this effect, we calculated the correlation between wage rigidities and informality ratios (unregistered wage earners / total wage earners) in the private sector.

The correlation coefficient is estimated at 0.40 for 2011 (Figure 3). This rather high coefficient shows that wage rigidity affects the size of informality and at the same time points to the existence of other factors affecting informality. For example we know that firm size is negatively correlated with informality. Therefore, the unequal distribution of the big firms across regions would also affect the distribution of regional informality.

Figure 3 Correlation between wage rigidity and the size of informality among 26 regions (2011)
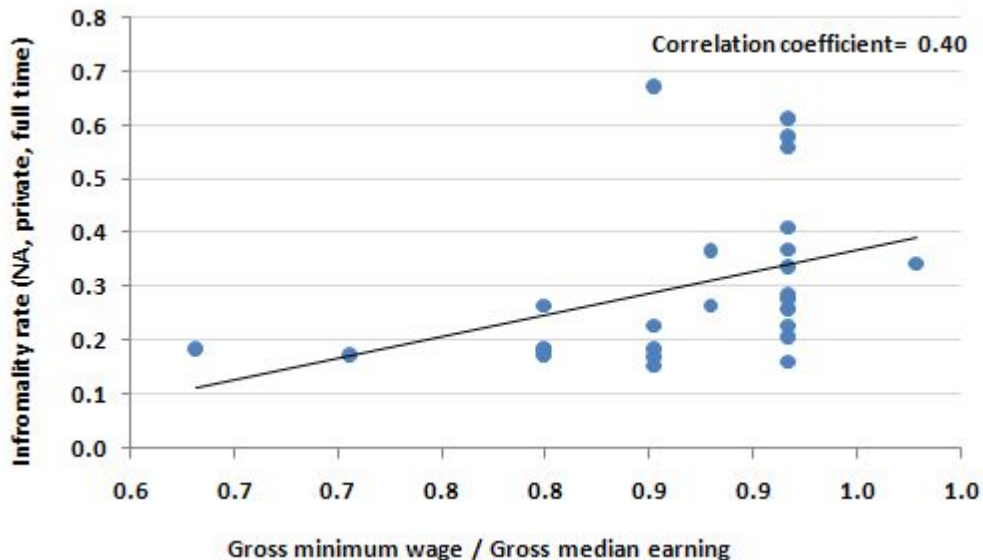
Source: HLS TurkStat, Betam
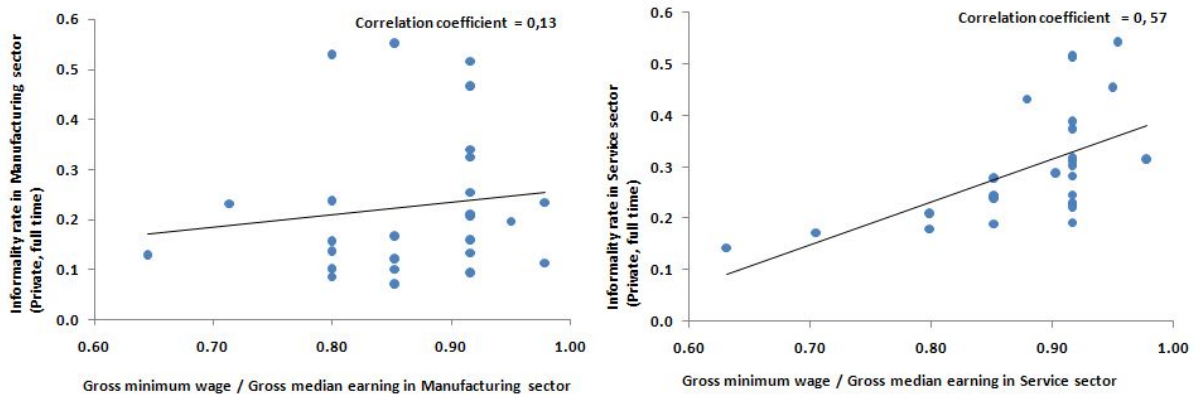Note: Only full time wage earners in the private sector are considered.

However, the striking aspect of the correlation is the big difference between the industrial and service sectors with regards to the effect of wage rigidity effect on informality. Indeed, when correlations are computed for each of these two sectors, the coefficients differ significantly. For the industrial sector the correlation coefficient is limited to 0.13, while it reaches 0.57 in the service sector. The result is clear:

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[4] Informality rate among wage earners decreased to 21.9 in 2012. However, we do not include micro data of 2011.

Wage rigidity affects the size of informality very weakly in the industry while it is an overwhelming factor in services.

This is an interesting finding. Before suggesting some possible hypothesis about the issue, let us note that the share of informality is 0.18 percent in industry and 0.23 percent in services among the full time wage earners working in the private sector (Table App 2 in Appendix). One of the factors explaining lower informality in the industrial sector compared to services could be the difference in average firm sizes between these two sectors. We noted above that there is a negative correlation between informality and firm size. However, this factor cannot explain fully the reason why wage rigidity has a weaker effect on informality in the industrial sector.

Figure 4 Correlation between wage rigidity and informality ratio by sector (2011)

Source:: HLS TurkStat, Betam
Note: Only full time wage earners in the private sector are considered.

The analysis must be deeped by taking other possible factors into consideration. For example, it is possible that access to banking loans matter more for industrial firms than for the firms in services, thus industrial firms are more inclined to create informal jobs to lower their production costs. Another possibility is the existence of a more severe monitoring in industry than in services.

Concluding remarks and policy recommendations

The conclusions and policy recommendations regarding competitiveness and the fight against informality can be summarized in two points:

1- Wage rigidity, as defined in this research brief (minimum wage / median earning) is quite high in Turkey compared to its competitor countries. This is caused by very high rigidity ratios prevailing in the underdeveloped regions in the East and Southeast as well as in some industrial centers of the West. Current regional investment subsidies like social security premium exemptions aim, among other goals, to mitigate these high wage rigidities. Nevertheless, these subsidies place a burden on public finances. So, regionalization of the minimum wage should be included in the reform agenda of the government and this issue should be debated disregarding ideological arguments. We can suggest to leave the setting of the minimum wage in each 26 regions to the collective decision of regional social partners and regional development agencies representing the public authority.

2- We do not know the extent to which wage rigidity is constraining employment. In this research brief, we investigated the effect of wage rigidity on the size of informality using a simple correlation. The striking result is the weak effect of the wage rigidity on informality in the industrial sector while this effect is quite important in the service sector. This work is clearly not sufficient. The factors encouraging informality should be analyzed separately in each sector. The existence of a relatively high informality in the labor market in Turkey continues to be an important structural problem that affects efficient functioning of the economy adversely through multiple channels like ability to access to banking credits and to reach optimal scales. It is worthy to make more comprehensive research on the effects of the wage rigidity on the size of informality.

Appendix

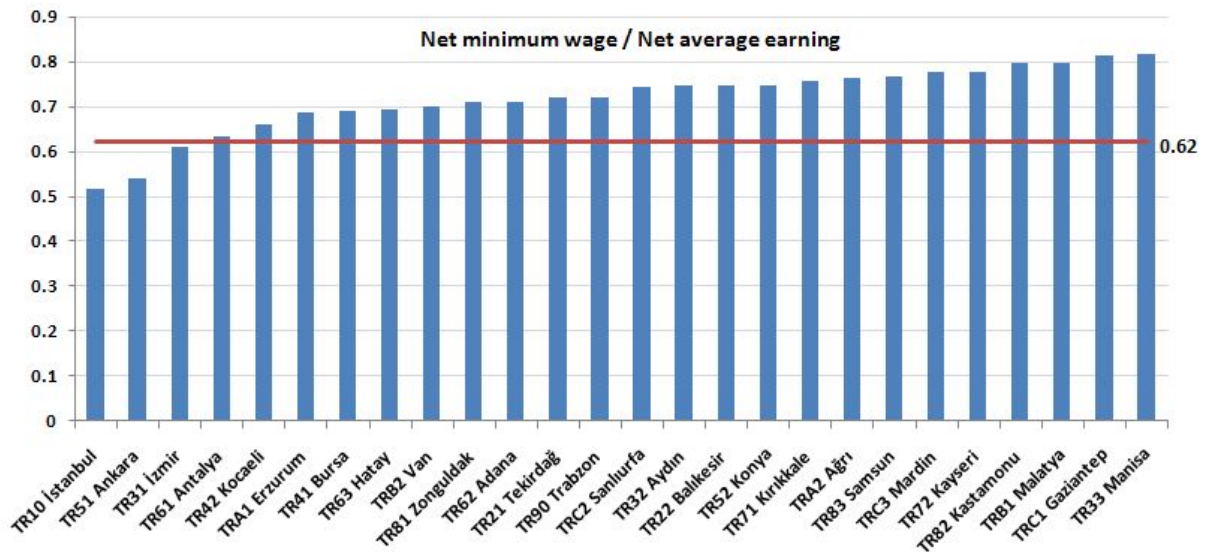**Figure App 1 The ratio of net minimum wage to net median earnings (2011)**
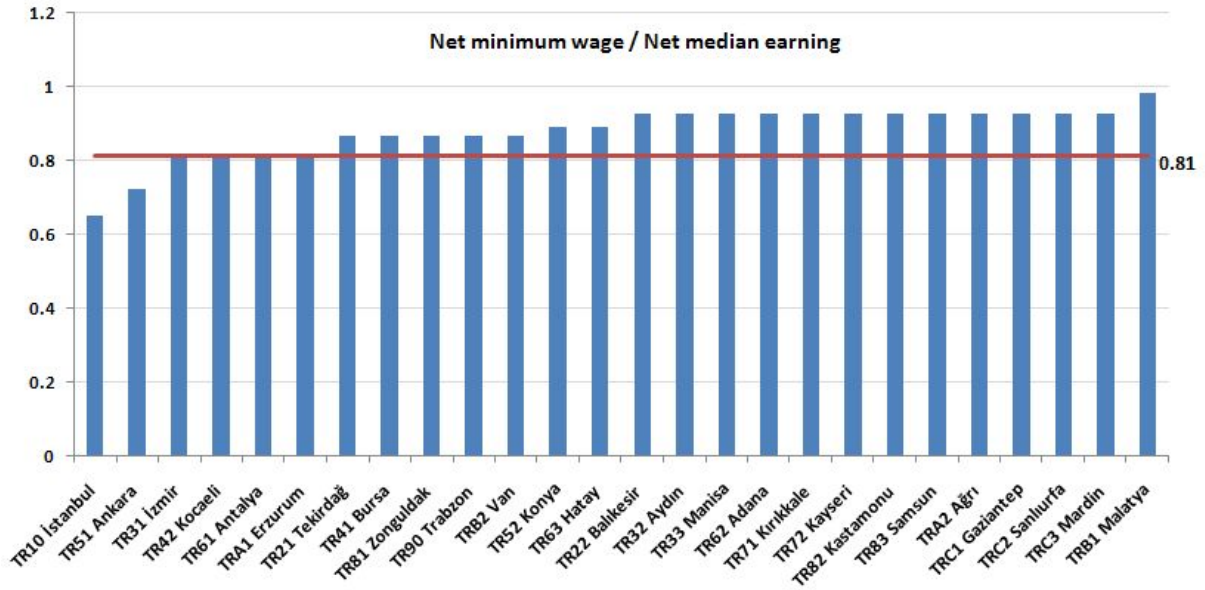
Source: Households Labor Surveys; TurkStat, Betam
Note: Only full time wage earners in the private sector are considered.

Figure App 2 The ratio of net minimum wage to net average earnings (2011)

Source: Households Labor Surveys; TurkStat, Betam
Note: Only full time wage earners in the private sector are considered.

Table App 1 Gross average & median earnings and net average & median earnings

NUTS2 Regions	Gross average earning (TL)	Gross median earning (TL)	Gross minimum wage (TL)	Net average earning (TL)	Net median earning (TL)	Net minimum wage (TL)
TR10 (İstanbul)	1699	1325	837	1255	1000	650
TR21 (Tekirdağ, Edirne, Kırklareli)	1200	982	837	905	750	650
TR22 (Balıkesir, Çanakkale)	1151	913	837	869	700	650
TR31 (İzmir)	1432	1047	837	1066	800	650
TR32 (Aydın, Denizli, Muğla)	1155	913	837	871	700	650
TR33 (Manisa, Afyon, Kütahya, Uşak)	1046	913	837	795	700	650
TR41 (Bursa, Eskişehir, Bilecik)	1251	982	837	940	750	650
TR42 (Kocaeli, Sakarya, Düzce, Bolu, Yalova)	1314	1047	837	985	800	650
TR51 (Ankara)	1623	1185	837	1201	900	650
TR52 (Konya, Karaman)	1150	952	837	869	730	650
TR61 (Antalya, Isparta, Burdur)	1373	1047	837	1026	800	650
TR62 (Adana, Mersin)	1214	913	837	913	700	650
TR63 (Hatay, Kahramanmaraş, Osmaniye)	1249	952	837	938	730	650
TR71 (Kırıkkale, Aksaray, Niğde, Nevşehir, Kırşehir)	1137	913	837	859	700	650
TR72 (Kayseri, Sivas, Yozgat)	1105	913	837	837	700	650
TR81 (Zonguldak, Karabük, Bartın)	1217	982	837	916	750	650
TR82 (Kastamonu, Çankırı, Sinop)	1077	913	837	817	700	650
TR83 (Samsun, Tokat, Çorum, Amasya)	1120	913	837	847	700	650
TR90 (Trabzon, Ordu, Giresun, Rize, Artvin, Gümüşhane)	1196	982	837	901	750	650
TRA1 (Erzurum, Erzincan, Bayburt)	1258	1047	837	945	800	650
TRA2 (Ağrı, Kars, Iğdır, Ardahan)	1127	913	837	852	700	650
TRB1 (Malatya, Elazığ, Bingöl, Tunceli)	1075	855	837	815	660	650
TRB2 (Van, Muş, Bitlis, Hakkâri)	1233	982	837	927	750	650
TRC1 (Gaziantep, Adıyaman, Kilis)	1051	913	837	799	700	650
TRC2 (Şanlıurfa, Diyarbakır)	1156	913	837	874	700	650
TRC3 (Mardin, Batman, Şırnak, Siirt)	1108	913	837	838	700	650
Türkiye	1404	1047	837	1047	800	650

Source: Households Labor Surveys; TurkStat, Betam

Table App 2 Gross average & median earnings and net average & median earnings by sector

	Informality rate in NA sector (%)	Informality rate in manufacturing sector (%)	Average earning in manufacturing sector (TL)	Median earning in manufacturing sector	Informality rate in service sector (%)	Average earning in service sector (TL)	Median earning in service sector (TL)
TR10 (İstanbul)	0.18	0.23	1487	1172	0.14	1829	1325
TR21 (Tekirdağ, Edirne, Kırklareli)	0.17	0.07	1228	982	0.29	1121	926
TR22 (Balıkesir, Çanakkale)	0.23	0.12	1199	982	0.23	1102	913
TR31 (İzmir)	0.19	0.14	1417	1047	0.21	1443	1047
TR32 (Aydın, Denizli, Muğla)	0.20	0.11	1094	855	0.23	1191	913
TR33 (Manisa, Afyon, Kütahya, Uşak)	0.16	0.09	1038	913	0.19	1059	913
TR41 (Bursa, Eskişehir, Bilecik)	0.15	0.10	1269	1047	0.19	1216	982
TR42 (Kocaeli, Sakarya, Düzce, Bolu, Yalova)	0.17	0.09	1329	1047	0.24	1256	982
TR51 (Ankara)	0.17	0.13	1712	1299	0.17	1553	1185
TR52 (Konya, Karaman)	0.27	0.21	1109	913	0.28	1187	982
TR61 (Antalya, Isparta, Burdur)	0.18	0.16	1369	1047	0.18	1352	1047
TR62 (Adana, Mersin)	0.37	0.33	1321	913	0.37	1180	913
TR63 (Hatay, Kahramanmaraş, Osmaniye)	0.36	0.26	1143	913	0.43	1281	952
TR71 (Kırıkkale, Aksaray, Niğde, Nevşehir, Kırşehir)	0.28	0.17	1192	982	0.31	1095	913
TR72 (Kayseri, Sivas, Yozgat)	0.34	0.21	1078	913	0.32	1082	913
TR81 (Zonguldak, Karabük, Bartın)	0.18	0.10	1334	982	0.22	1106	913
TR82 (Kastamonu, Çankırı, Sinop)	0.26	0.16	1015	913	0.30	1088	913
TR83 (Samsun, Tokat, Çorum, Amasya)	0.28	0.20	1033	881	0.28	1128	913
TR90 (Trabzon, Ordu, Giresun, Rize, Artvin, Gümüşhane)	0.23	0.13	1065	913	0.25	1166	913
TRA1 (Erzurum, Erzincan, Bayburt)	0.27	0.24	1137	1047	0.24	1231	982
TRA2 (Ağrı, Kars, Iğdır, Ardahan)	0.61	0.46	1113	913	0.45	1054	881
TRB1 (Malatya, Elazığ, Bingöl, Tunceli)	0.34	0.23	1001	855	0.31	1094	855
TRB2 (Van, Muş, Bitlis, Hakkâri)	0.67	0.55	1159	982	0.51	1174	913
TRC1 (Gaziantep, Adıyaman, Kilis)	0.41	0.34	1031	913	0.39	1077	913
TRC2 (Şanlıurfa, Diyarbakır)	0.56	0.52	1145	913	0.51	1120	913
TRC3 (Mardin, Batman, Şırnak, Siirt)	0.58	0.53	1166	1047	0.54	1074	877
Türkiye	0.24	0.18	1326	1047	0.23	1452	1047

Source: Households Labor Surveys; TurkStat, Betam