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## Minimum wage affects formal employment negatively

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### Executive Summary

In the research note “Minimum wage increase is adversely affecting informal employment” (Betam Research Note 16/196) which we published earlier, we examined the effects of the minimum wage increase in 2016 on informal employment and found strong evidence for a positive effect. In the same research which used data up to first quarter of 2016, we suggested one should be cautious about these first findings and emphasized that we will return to this topic again once more data is available. Unfortunately, we cannot publish this update on a single research note. Thus, we decided to report the effects of minimum wage increase on informality with three research notes.

This first note will analyse general trends and year-on-year changes by employment status. The second note is closer to the approach used in the research note published the last year. In this approach, the ratio of low-wage employees in each sector is considered as a proxy for the effect of minimum wage hike on informality for the sector. If this claim is true, the minimum wage increase will affect more heavily low-wage sectors and the increase in informality will be higher in these sectors compared to other sectors. The third and final note will test the above claim using econometric methods and Household Labor Force Survey micro data. The common finding of these three notes confirms the first findings of the research note we published earlier (Betam Research Note 16/196). Accordingly, minimum wage increase influences informal employment.

In this research note, we use all data of 2016 to examine informal employment for salaried and non-salaried workers based on employment status. Initial findings show that minimum wage increase in 2016 is stronger especially for employers and own account workers. The effect of the minimum wage increase on informal employment evolves over time and is present in 2017 as well.

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## Introduction

In this research note, we examine how the minimum wage increase (from 1000 TL to 1300 TL) on January 1, 2016 affected the informal employment. There is no consensus regarding the effect of minimum wage increases on employment in the literature. On the other hand, there are a few studies showing that minimum wage hikes affect negatively formal employment in emerging economies. Khamis (2013) studies the effect of minimum wage increases in Argentina, and she finds positive effects for the wage levels in the informal sectors. On the other hand, there are two studies that examine the effects of minimum wage increase in 2004 in Turkey, on informal employment of wage earners. Pelek (2015) finds no evidence of employment effects for young and low educated wage earners while significant and positive effects in the case of informal employment. Yüncüler and Yüncüler (2016) reports that the hike in the minimum wage in 2004 increased wages of both formal and informal sector workers without any significant effect on total employment. More importantly, this paper states that the rise in minimum wage in 2004 increases the informality of both low and high educated employment.

At Betam, we examined the effects of the minimum wage increase on informal employment when the data on total and informal employment for the first quarter of 2016 was published (Betam Research Note 16/196, "Minimum wage increase is adversely affecting informal employment"). We found a strong sign for a positive correlation; however, it was necessary to wait the micro data set of TurkStat for decisive results. Now, we can make the analysis we promised since TurkStat published the 2016 HLFS. We updated the research note we mentioned before and will share the results with our readers with a series of three research notes.

The contribution of this research note is to examine the effect of the minimum wage increase on informal employment over time on the basis of employment status (wage earners, employers, own account workers and unpaid family workers). As far as we know, there is no previous work that considers the informal employment of non-salaried workers. However, data shows that in 2016 the period of the minimum wage increase, employers and own account workers experienced a stronger increase in informal employment compared to salaried workers.

In the period of 2005-2016, the informal employment rates of salaried workers showed a decreasing tendency while the lowest decrease rate was observed in the period of 2016 (0.1 percentage points) including the crisis period (Table 2). In the period of 2005-2015, the decline in informality rate is an average of 1.3 percentage point including a 0.2 percentage point decrease during the crisis period. In 2016, a limited reduction of 0.1 percentage points is a clear indication of the existence of an informality increasing effect.

On the other hand, informal employment which shows a steady declining trend after 2008 for employers and own account workers, increased only in 2016. While the effect of minimum wage increase on informality continue throughout the year for employers and own account workers, it dampens toward the end of the year for wage earners. We would like to remind that increase in informality observed in non-salaried workers is driven by non-agricultural sectors.

### Employment and informality by employment status

Studies examining informal employment focus usually on wage earners. They count for 60 percent or more of total employment in the 2005-2016 period. Also, the share of salaried workers in total employment increased steadily during this period (except the crisis year of 2009). Own account workers have the second highest share in total employment after salaried workers (19.7 percent, on average). This group is followed by unpaid family workers whose average share in total employment is 12.9 percent. Finally, the employers have the least share in total employment (5.2 percent on average).

**Table 1: The share of employees in total employment by employment status**

Years	Total (thousand)	Wage earners (%)	Employers (%)	Own account workers (%)	Unpaid family worker (%)
2005	20 066	57.0	5.5	23.4	14.2
2006	20 423	58.9	5.7	22.3	13.1
2007	20 738	60.4	5.7	21.1	12.7
2008	21 194	61.0	5.9	20.4	12.7
2009	21 277	60.0	5.7	20.8	13.5
2010	22 594	60.9	5.3	20.1	13.6
2011	24 110	61.7	5.2	19.4	13.7
2012	24 821	62.9	5.0	18.9	13.2
2013	25 524	64.1	4.6	18.7	12.6
2014*	25 933	66.0	4.5	17.3	12.2
2015	26 621	67.0	4.4	16.8	11.8
2016	27 205	67.6	4.6	16.7	11.2

**Source:** TurkStat HLFS (<http://www.tuik.gov.tr>, Date of access 10.11.2017) **Note:** The new labor force series published by TurkStat covers 2014 and after. For 2013 and earlier years, the old labor force series were used. Thus, it is not possible to compare levels between 2013 and 2014.

Informal employment which deprives employees of social insurance, retirement, legal working hours and government of an important tax revenue continues to be one of the main problems of Turkish economy. TurkStat's HLFS in Table 2 show that informal employment declined for each employment type during the 2005-2016 period. The highest decrease is observed among salaried workers (from 32.1 to 18.2). Despite these declines in informal employment, as of 2016, 33 percent of all employees, 15 percent of employers, 61 percent of

own account workers and 90 percent of unpaid family workers are still working informally (Table 2). Turkey continues to be one of the countries which have highest informality rate among OECD countries<sup>1</sup>.

Looking more closely at wage earners that is the group of interest for the literature on informal employment, we see that there is an average decline of 1.3 percentage points per annum since 2005 where HLFS statistics have been published periodically (average of three months) every month. In some years, the decline reached 3 percentage points and it did not fall under 0.3 percentage points in general. There are two exceptions to this observation: 2009 (0.2 percentage points) and 2016 (0.1 percentage points). In 2009, Turkey's economy contracted significantly (-4.7 percent) because of global crisis; moreover, salaried workers have also been negatively affected by the recession. As a matter of fact, 2009 is the only year in which the number of paid employees has declined (167 thousand) in absolute terms. In spite of this, in the year of 2016 growth is positive (3.3 percent) although there is a slowdown in GDP growth rate. As a result, there was 550 thousand increases in salaried workers. However, the decrease in the informal rate is only 0.1 percentage points (Table 2).

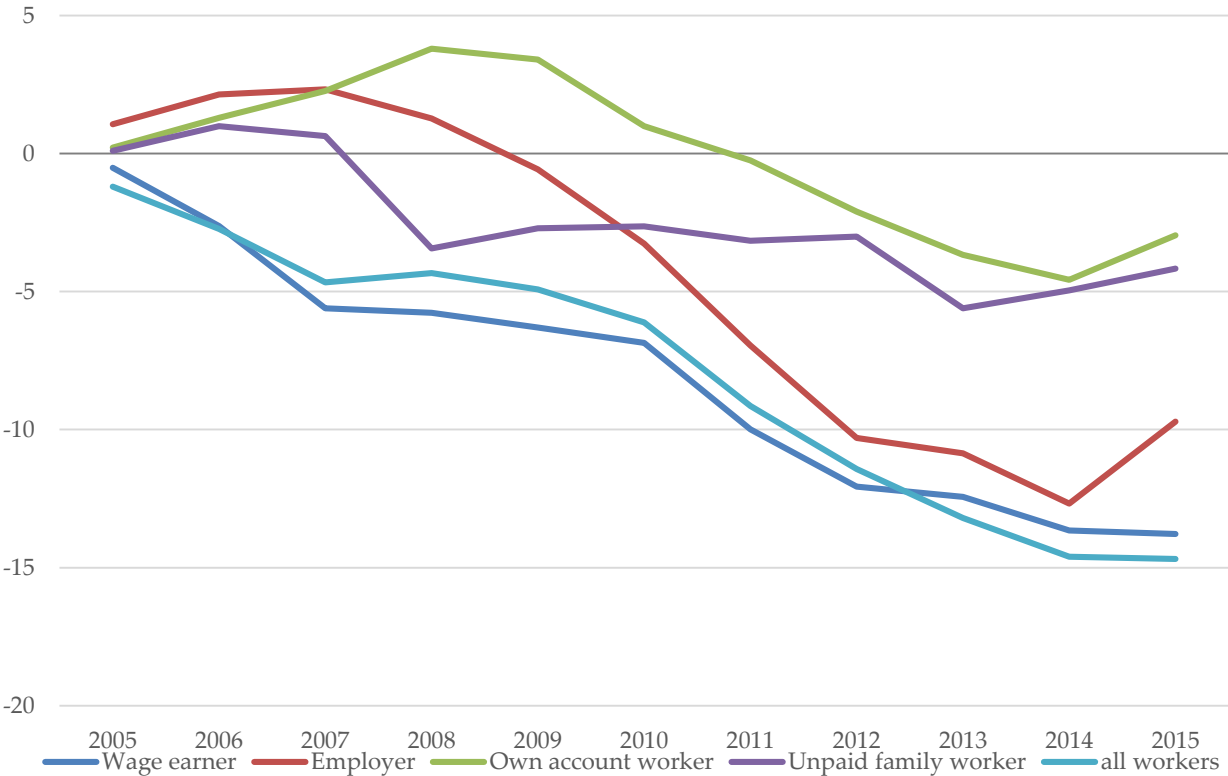
**Table 2: The number of employees (thousand) and the rate of informal employees (%) in terms of employment status**

Years	All workers		Wage earners		Employers		Own account workers		Unpaid family workers	
	Total	Informality rate	Total	Informality rate	Total	Informality rate	Total	Informality rate	Total	Informality rate
2005	20 066	48.2	11 435	32.0	1 101	25.6	4 689	64.6	2 841	94.9
2006	20 423	47.0	12 028	31.5	1 162	26.7	4 555	64.9	2 678	95.0
2007	20 738	45.4	12 534	29.4	1 189	27.8	4 386	65.9	2 628	95.9
2008	21 194	43.5	12 937	26.4	1 249	27.9	4 324	66.9	2 684	95.5
2009	21 277	43.8	12 770	26.2	1 209	26.9	4 429	68.4	2 870	91.4
2010	22 594	43.3	13 762	25.7	1 202	25.0	4 548	68.1	3 083	92.2
2011	24 110	42.1	14 876	25.1	1 244	22.3	4 687	65.6	3 303	92.2
2012	24 821	39.0	15 619	22.0	1 238	18.7	4 695	64.4	3 268	91.7
2013	25 524	36.7	16 353	19.9	1 182	15.3	4 773	62.5	3 217	91.9
2014*	25933	35.0	17125	19.6	1173	14.7	4479	61.0	3155	89.3
2015	26 621	33.6	17 827	18.3	1 175	12.9	4 468	60.1	3 150	89.9
2016	27 205	33.5	18 377	18.2	1 239	15.9	4 536	61.7	3 053	90.7

**Source:** TurkStat HLFS (<http://www.tuik.gov.tr>, accessed on 10.11.2017) **Note:** The new labor force series published by TurkStat covers 2014 and after. For 2013 and earlier years, the old labor force series were used. Thus, it is not possible to compare levels between 2013 and 2014.

<sup>1</sup>OECD countries (34 countries) ranks the first with 28.72 percent of Turkey in the informal economy. The lowest informality among these countries is observed in the US at 7.95 percent.

**Figure 1: Changes in informality rates compared to 2005**



**Source:** TurkStat HLFS (<http://www.tuik.gov.tr>, accessed on 10.11.2017)

Figure 1 presents the changes in informality rates compared to 2005 by employment status. The informality rate of salaried workers has decreased almost regularly from 2005 to 2015. While for non-salaried workers, there seems to be a horizontal trend before 2009, after 2009 this give place to a decreasing one as in the case of salaried workers. From 2015 to 2016, the informality rate for own account workers increased by 1.6 percentage points (from 60.1 percent to 61.7 percent). On the other hand, informality rate for employers increased 3.0 percentage point (12.9 percent to 15.9 percent). Given significant increases in informality rate of these two groups between 2015 and 2016, we cover also own account workers, employers and unpaid family workers in addition to wage earners in this research note.

The inclusion of non-wage earners might suggest that changes in informality could stem from agriculture sector. Table 3 makes sure that this is not the case. According to Table 3, the informality rate of employers, own account workers and unpaid family workers increase in

non-agricultural sectors while it does not change that much (even decrease for some) in agriculture sector. <sup>2</sup>

**Table 3: The agriculture and non-agricultural informality rates of employees: 2014-2016**

	Wage earners		Employers		Own account worker		Unpaid family worker	
	Agriculture	Non-Agriculture	Agriculture	Non-Agriculture	Agriculture	Non-Agriculture	Agriculture	Non-Agriculture
2014	82.42	17.49	49.06	13.11	70.68	51.58	92.50	71.66
2015	73.96	16.40	43.75	11.62	69.40	50.95	93.38	72.47
2016	77.74	16.38	42.59	14.68	70.90	53.09	93.60	77.18

Source: TurkStat HLFS (<http://www.tuik.gov.tr>, accessed on 08.01.2018)

### Wage earners periodical review

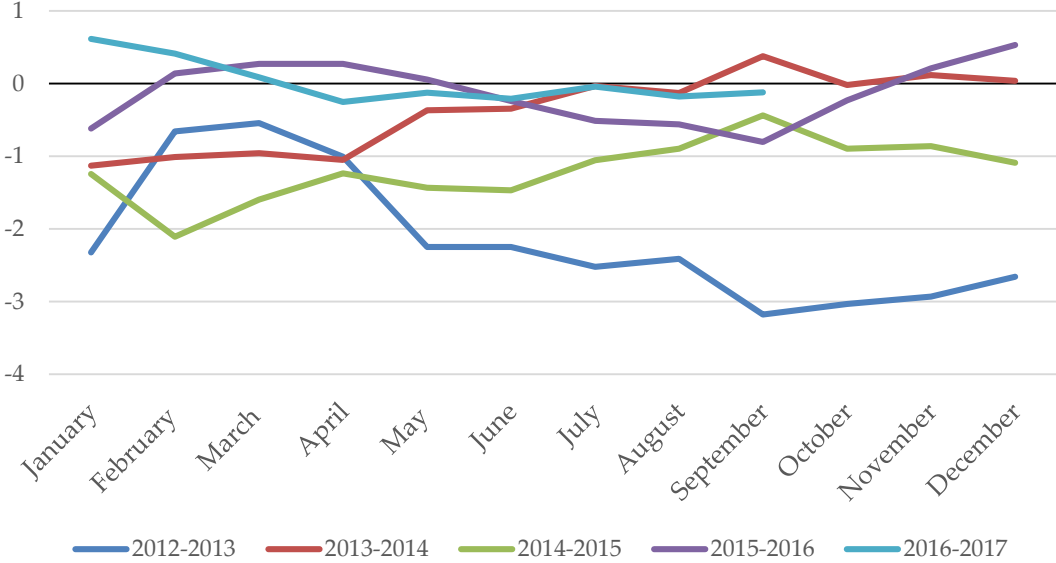
We stated that for wage earners, decreases in the informality rates decelerated from 2015 to 2016. In agriculture, where the ratios of both low-wage earners and informality is high, there is an important increase in informality from 73.9 percent to 77.9 percent while the informality rate of wage earners in non-agricultural sectors remains constant at 16.4 percent.

We constructed Figure 2 to assess the effect of minimum wage hike on informality. It shows the annual changes in the wage earners' informality rates over years. A negative number implies a decrease in informality while a positive one means informality has increased compared to the same month of the previous year. Firstly, comparing figures from different years we see that only changes from 2015 to 2016 and from 2016 to 2017 in initial quarters are positive. It is understood that negative effect of the 30 percent rise in minimum wage in January 2016 on informal employment is observed mainly in initial periods for wage earners. In the following quarters, this effect vanishes. In January 2017 the informality rate is 0.6 percentage points higher compared to January 2016 which means the effect of minimum wage shock on informality is still present in first months of 2017 (Figure 2). Also, the increasing trend in the first and second quarter in 2014 is remarkable. This is not likely to be caused by minimum wage increases since there is no big wage shock between 2013 and 2014 as the one in 2016. This case needs further investigation.

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<sup>2</sup>In agriculture, the increase in the rate of informal employment is relatively high (approximately 4.0 percent points, from 73.96 to 77.74) while employees as a wage earner decrease (Appendix Table 1). On the other hand, in non-agricultural sectors the rate of informal employment is almost constant while employment increases. Although the rate of informality in wage earners in agriculture increases, it decreases in total employment of wage earners since the share of wage earners in total employment of them increases in agriculture (approximately from 3.5 percent to 3.0 percent) (Table 2).

**Figure 2: The periodical changes of wage earners’ informal employment rates (percentage point)**

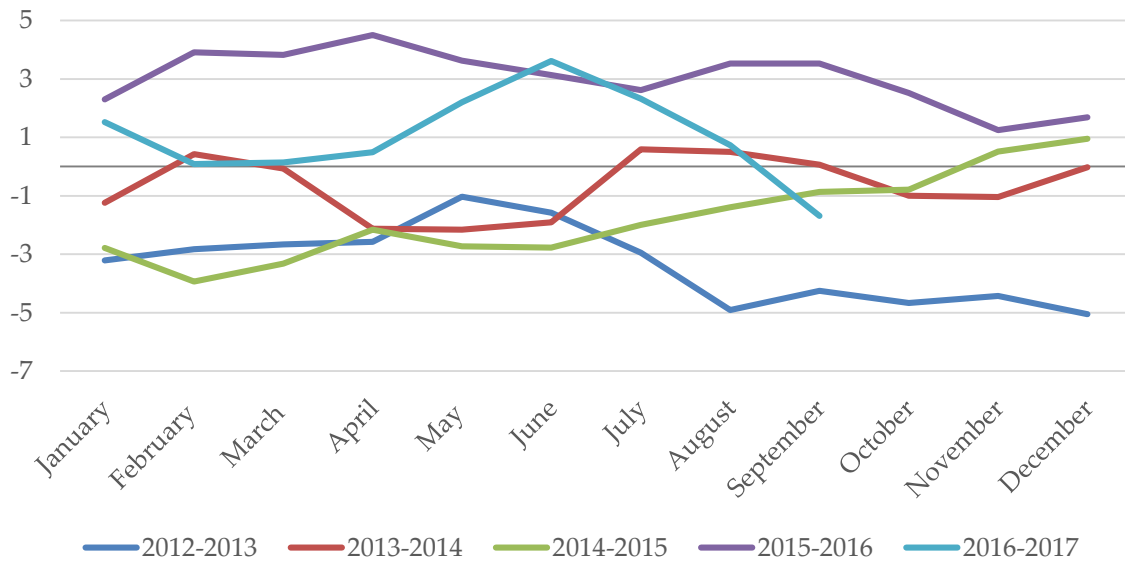


Source: TurkStat HLFS (<http://www.tuik.gov.tr>, accessed on 28.12.2017)

**Employers periodical review**

Above, we stated that employers’ informality rate has increased by 3.0 percentage points (from 12.9 percent to 15.9 percent) between 2015 and 2016 (Table 2). The year-on-year changes of informality rates for employers are reported in Figure 3. Although in previous years, year-on-year changes are all negative this is not the case in 2016 where we see an increase in informality. Toward end of the year, increases slow down (1.7 percentage point, December) while in the first months we have higher increases (4.5 percentage points, April). In 2017, year-on-year changes in informality are generally positive. In the first three quarters of 2017, the highest increase was in June with the 3.6 percentage points (Figure 3).

**Figure 3: The periodical changes of employers' informal employment rates (percentage point)**



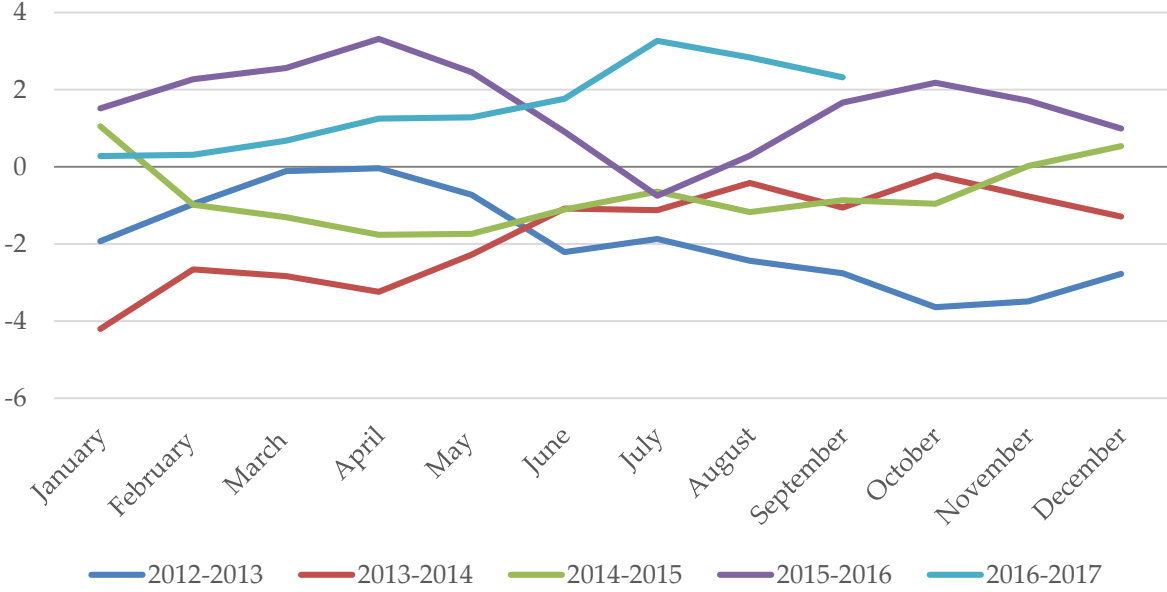
**Source:** TurkStat HLFS (<http://www.tuik.gov.tr>, accessed on 28.12.2017)

### Own account workers periodical review

From Table 2 we know that the informal employment rate of own account workers has increased by 1.6 percentage points (from 60.1 percent to 61.7 percent) from 2015 to 2016. Own account workers have similar informality trends as employers (Figure 4). Except last two months in 2015, year-on-year changes of informality are almost always negative for own account workers for pre-2016 period. On the other hand, the year-on-year changes in 2016 and 2017 are systematically positive except July 2016. The highest increase was in April in 2016 with 3.3 percentage points. In 2017, we observe that informal employment rates continue to increase in all three quarters. The highest increase is in August with 2.8 percentage points (Figure 4).



**Figure 4: The periodical changes of own account workers' informal employment rates (percentage point)**

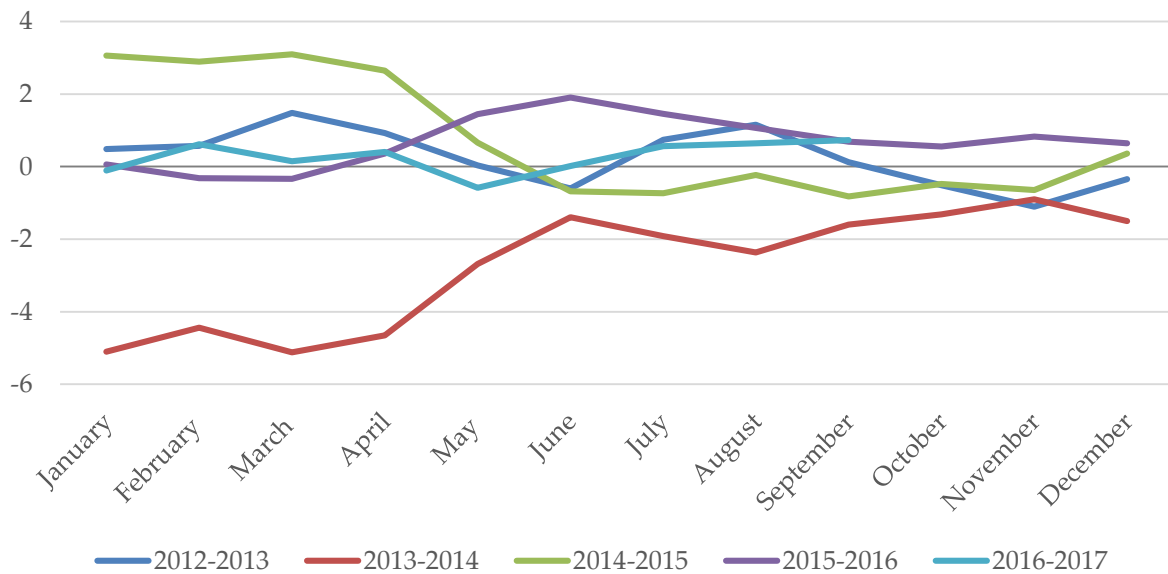


Source: TurkStat HLFS (<http://www.tuik.gov.tr>, accessed on 28.12.2017)

**Unpaid family workers periodical review**

Table 2 shows that, for unpaid family workers, the informality rate increased by 0.8 percentage points (from 89.9 to 90.7) in the period of 2015-2016. We would like to remind that most unpaid family workers are female and in agriculture. The informality trends for unpaid family workers are similar to ones for own account workers. Although in previous years, year-on-year changes are all negative, in 2016, there is generally an increase in informality for unpaid family workers. The only months with decreases in informality are February and March in 2016 where informal employment decreased by 0.3 percentage points. The highest increase is in January in 2016 with 1.9 percentage points. In 2017, the general upward trend in informality is still there with exceptions of January and May. The highest increase in this period was in the period of September by 0.7 percentage points (Figure 4).

**Figure 5: The periodical changes of unpaid family workers' informal employment rates (percentage point)**



**Source:** TurkStat HLFS (<http://www.tuik.gov.tr>, accessed on 28.12.2017)

### Why has informality increased in non-salaried workers?

There are important increases in informal employment rates both in 2016 (where we have an important minimum wage hike) and partly in 2017. This needs to be elaborated. To our knowledge, there is no previous work showing the effect of minimum wage changes on informality of non-wage earners in Turkey.

It may be seen as normal not to focus particularly on non-wage earners when studying the results of a sudden and administratively decided minimum wage increase given that their registration with Social Security Institution is decided at individual or household level. However, the Turkish data show that there is an increase in the informality rate of non-wage earners in non-agricultural sector. Moreover, this increase seems to reverse previously established downward trends.

Establishing an economic link between the minimum wage increase and informality for non-salaried workers is beyond the scope of this research note. However, the working hypothesis that comes to mind can be discussed. The sudden and high minimum wage increase will increase insurance premiums for non-wage earners as well. Thus, the cost of formality increases for non-salaried workers. The increasing cost could lead to postponement of insurance premium payments for current formal workers. Even this is the case, it is not likely that these non-salaried workers would report themselves as an informal worker in the HLFS. On the other hand, the higher cost of formal employment may have a dissuasive effect for non-

wage earners who would register with Social Security Institution for the first time. We also would like to remind that in 2016 economic growth was very low and there was a high increase in unemployment.

It is possible that formal employees earning low wages in non-agricultural sectors are fired in these low growth conditions. These unemployed people might start working informally in small family businesses given increased cost of formal employment.

## **Conclusion and remarks**

Our results in this research note confirm the claim that minimum wage hike on 1 January 2016 increased informal employment. The increase in informality is stronger for non-salaried workers (employers and own account workers). Moreover, it seems that the increase in minimum wage reversed previously established downward trends of informality for these groups. We mentioned two hypotheses that may explain why a minimum wage increase may affect the informal employment in the case of non-salaried workers. On the one hand, a higher minimum wage raises the insurance premiums and as a result the cost of formal employment. This case may cause postponement of insurance payments for people who currently pay their premium. On the other hand, it is possible that someone who loses her job because of higher cost of formal employment may start working in informal jobs in small family business.

We need to be cautious about these findings obtained using only aggregate data. In our next research notes on this subject, we will examine the relationship between minimum wage and informality, in more detail using both sectoral level and micro data. Lastly, even if the increase in informality due to higher minimum wage is deteriorating social welfare, one should not forget that higher minimum wages may imply less income inequality and more social benefits for low-income families. The apparent contradiction between these two facts is eliminated by using social preferences and the weights (importance) attributed to them.

## **References**

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**Appendix Table 1: Informal wage earners in agriculture and non-agriculture sectors**

	Agriculture			Non-Agriculture		
	Informal (thousand)	Total (thousand)	Informality rate (%)	Informal (thousand)	Total (thousand)	Informality rate (%)
2014	450	546	82.4	2 899	16 579	17.5
2015	443	599	74.0	2 826	17 228	16.40
2016	426	548	77.7	2 920	17 830	16.38