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TURKEY MAY NOT ESCAPE FROM THE MIDDLE INCOME TRAP FOR A LONG TIME

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Executive Summary

Recently, "the Middle Income Trap" has become one of the mostly debated topics on Turkish Economy. In the last decade, per capita income increased from $3,000 to $10,500 in Turkey. But the question is, will this striking increase continue in the next decade, and lead Turkey to the group of high income countries, or will the increase in per capita income decelerate, and force Turkey to remain in the group of middle income countries? The government, optimistically, predicts that per capita income in Turkey will reach $25,000 in 2023. However, some economists argue that the increase in per capita income will be much slower from now on, and Turkey will get stuck in the Middle Income Trap. In this research brief, we try to contribute to the discussion by decomposing GDP growth into employment ratio, labor productivity and working age population ratio components.

There are three sources of growth considering the factors of production: capital accumulation (in other words the increase in production capacity through investment), the increase in employment, and productivity gains. In the early stages of economic development, capital accumulation and increases in employment are main sources for growth. However, when per capita income exceeds $10,000, high productivity gains are needed to sustain high growth rates. In this stage (Middle Income), the contribution of capital accumulation and labor force decelerate due to diminishing returns. If productivity gains per worker remains low, per capita income growth also slows down. Before the global crisis (2002-2008), Turkey experienced high growth rates due to strong investment spending (high capital accumulation), increase in non-agricultural employment, and large productivity gains. In addition to these developments, the appreciation of Turkish Lira against USD also helped per capita income to increase quickly. After the crisis until 2012, contributions of the increase in employment ratio and labor productivity gains to high growth were equal. However, per capita income growth declined sharply in the last two years. In the same period, labor productivity first fell and then increased again. In spite of last increases, the contribution of labor productivity to per capita income growth was null in the last two years. If we ignore the limited contribution of the increase in working age population ratio, the increase in employment ratio has been the sole positive contributor to per capita growth in the last two years.

If economic actors and policy makers can't find a way to increase labor productivity in the coming years, per capita income growth will remain low. This means that it could take a very long time for Turkey to escape from the middle income trap.

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There is no exit from the middle income trap on the horizon

In the last year, Betam wrote a research brief titled "Turkey is on the brink of middle income trap" (RB 13/154).[1] In this research note we have analyzed "Middle Income Trap", one of the most hotly debated topics recently.[2] From 2002 to 2012, per capita income increased from $3,000 to $10,500 in Turkey. There are two factors behind the striking increase in per capita income in recent years. The first factor is that economic growth was higher in these years, compared to Turkey's long run trend. In the last decade, real GDP increased by about 6 percent per year on average. The second factor is the large appreciation of Turkish Lira against the USD. Ultimately, Turkey joined the middle income countries group considering its GDP per capita in terms of current USD. Hence, the "Middle Income Trap" became a widely discussed topic in Turkey.

In this regard, our answer to the question of "will this increase continue or will Turkey get stuck in the group of middle income countries?" was that Turkey entered the middle income trap. A year passed since our last note about this issue. GDP per capita in terms of current USD didn't increase significantly in 2013. This stagnation is not surprising because Turkish Lira depreciated almost 10 percent while GDP increased by 4 percent. Moreover, we asserted that labor productivity did not contribute to the growth while the low growth has been resulted mainly from the increase in employment ratio. This finding implies that according to the middle income trap definition[3], Turkey has still a long road ahead in the middle income group. The critical question is that how long it will take for Turkey to escape from the middle income trap. First, stagnation and then the fall of labor productivity during the period of 2011-2012 indicate that the escape can take long time. In other words, our GDP per capita might increase more slowly compared to the last decade.

Determinants of growth in Turkish economy should be studied in detail to understand whether Turkey might get caught in the Middle Income Trap. It is more likely for a country growing on productivity increases to escape from the middle income trap than one where growth is dependent solely on employment and capital accumulation. When we analyze GDP per capita growth by decomposing it into labor productivity gains, the increase in employment ratio and the change in the working age population ratio in our research brief, we observe that labor productivity decelerated in the second half of 2011 and began to decline in 2012. In the last year (2013(1) - 2014(1)) per capita income growth accelerated at some extent, and the contribution of labor productivity increased slightly, but the increase in labor productivity is not enough, and its future is uncertain.

[1] Seyfettin Gürsel and Barış Soybilgen, 2013. " Turkey is on the brink of middle income trap" Betam Research Brief 13/154.

[2] The idea behind the theoretical framework of economic growth for a developing country is, taking technological level fixed, increasing production capacity through investment and at the same time shifting employment from less productive traditional sectors (agriculture) to highly productive modern (manufacturing) sectors. Therefore, the country can reach high growth rates in the early, "take-off", stage of economic development. However, while production capacity (capital accumulation) is increasing, marginal return of capital diminishes. As a result, the increase in per capita income first slowdowns and later stagnates. To resist this iron law of growth, countries should continuously increase the technological level, the level of labor force's knowledge and skills (human capital), and the efficiency of its institutions. Countries that cannot satisfy these conditions struggle to move to the high income group.

[3] Eichengreen suggests three criterions: 1) to reach GDP per capita level of $16,000. 2) to reach 58 percent of United States' GDP per capita. 3) the share of country's manufacturing sector to reach 23 percent of national income. These criterions are not absolute definitions. We should apply these criterions within a flexible framework. See Barry Eichengreen, Donghyun Park ve Kwanho Sin, 2011. "When Fast Growing Economies Slow Down: International Evidence and Implications for China" NBER Economic papers, No 16909. Another work about the middle income trap for Turkey, See Erinç Yeldan, Kamil Taşcı, Ebru Voyvoda ve Mehmet Emin Özsan, 2012. "Orta Gelir Tuzağı'ndan Çıkış: Hangi Türkiye?", Türkonfed, İstanbul.

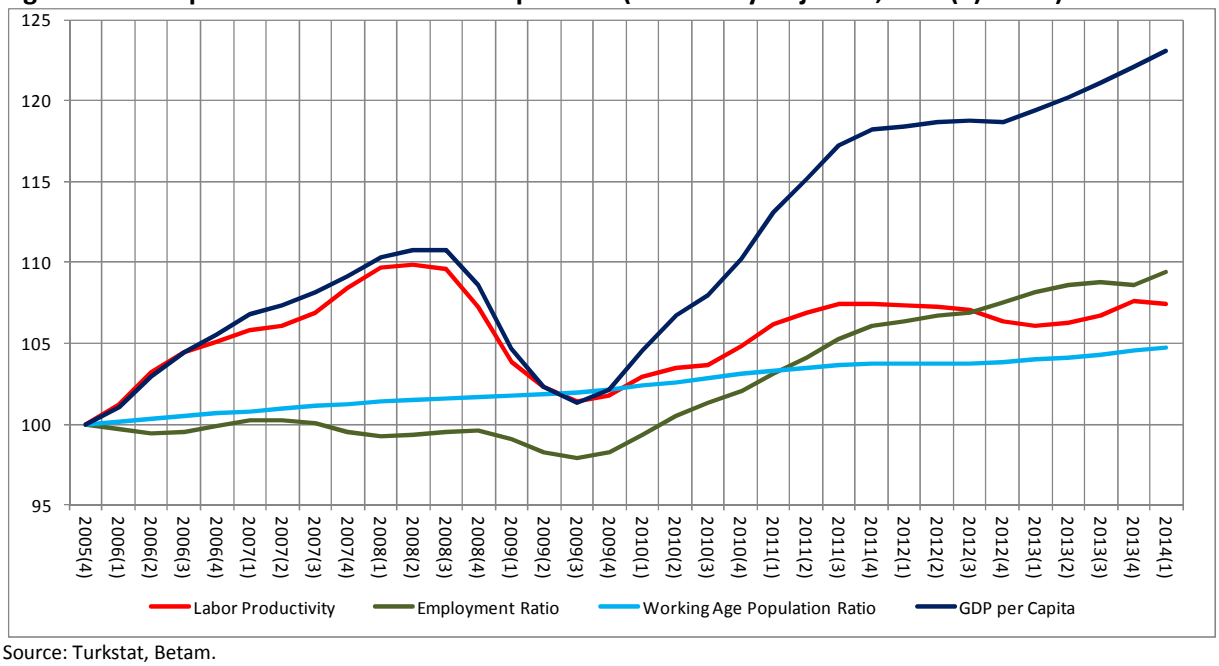
Three different periods in the growth period

Per capita income can be decomposed into three components: 1) The change in the ratio of working age population to entire population, 2) The change in the ratio of employed population to working age population, or the change in the employment rate, 3) The change in the ratio of GDP to employed population or the change in the labor productivity (For mathematical definition. See Box: "The decomposition of per capita income into its components").

The impact of changes in working age population ratio on economic growth is usually limited. The change in employment ratio i.e., the change in the number of average employed persons in households is effective, but has a natural limit. What determines whether a country is caught in the Middle Income Trap or not is labor productivity. As we mentioned above continuous economic growth requires continuous increase in labor productivity which comes from i) high technology investments ii) increases in human capital and iii) increases in efficiency through better economic governance and institutions.

The growth performance of Turkey, according to above three components is shown in Figure 1. Figures show four quarter moving averages.[4] We limit our period between 2005(4) and 2014(1), because quarterly employment data is available since 2005 onwards.

Figure 1. Per capita GDP index and its components (Seasonally Adjusted, 2005(4) = 100)[5]



Source: Turkstat, Betam.

Let's first analyze the working age population ratio which contributes least to per capita income growth. As it is seen in the Figure 1, this contribution exhibits a steady trend, and doesn't show variation from one period to other. Due to the increase in population, working age population also

[4] After real GDP, population, working age population and employment are seasonally adjusted, we annualize series by using 4-Quarter moving averages (for real GDP, we sum 4-Quarters), and then we calculate QoQ changes.

[5] Because we don't have non-institutional population for February and March 2014, we assume 0.1 percent monthly growth in line with the long term growth trend.

increases in Turkey. However, population growth is decelerating. In 2005, the ratio of working age population to entire population was 72 percent. In 2013, this ratio increased to 74 percent. As Figure 1 shows, working age population index only increased to 105 in 2013 from 100 in 2005. Figure 2 shows that the contribution of changes in this ratio to per capita income has been steady, but very limited. In the coming period, the increase in working age population will decrease more and then stop. Therefore, the demographic window of opportunity for Turkey will close.

According to changes in employment ratio and labor productivity, the period between 2005(1) - 2014(1) can be divided into three sub-periods: 1) High growth period between 2002 and 2008 led by increases in labor productivity, 2) Low quality (in terms of labor productivity contribution) but still high growth period between the second half of 2009 and the second half of 2011, 3) Low growth period between the second half of 2011 and the first quarter of 2014 in which labor productivity nearly did not contribute (Figure 1 and Figure 2).

High growth - High labor productivity gains period

As one observes in Figures 1 and 2, most of the per capita income growth is caused by labor productivity gains in the first period. In this period, the contribution of the increase in employment ratio is either very low or negative (Figure 2). This can be clearly seen in Figure 1 in which labor productivity and GDP per Capita figures go hand in hand. There are two factors behind this development: Slump in agricultural employment in this period (Figure 3) and labor productivity gains in non-agricultural sectors. One of the most hotly debated topics at that time was “jobless growth”, and that was caused by the rapid decline in agricultural employment. Outside the agriculture sector, the increase in employment was accompanied by productivity gains (roughly 0.5 percent increase in employment for 1 percent growth). The decline in agricultural employment accompanied by just enough increases in non-agricultural employment caused total employment to stagnate. As it is seen in Figure 3, increases in employment of non-agricultural sectors are below the increase in GDP. This is especially clear in industrial sector.

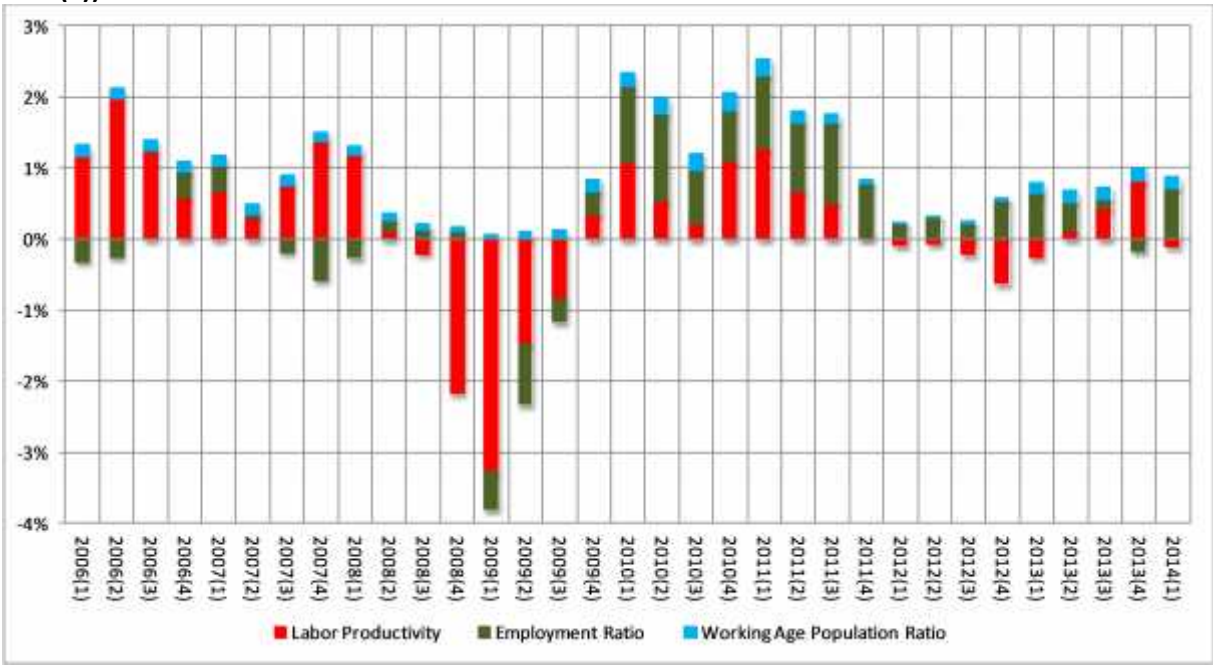
This development which was mostly interpreted as a negative outcome regarding unemployment drove per capita income higher through productivity gains. Both productivity gains in non-agricultural sectors, especially in manufacturing, and the rapid decline in agricultural employment shifted employment from low productivity sectors to high productivity sectors and increased labor productivity significantly. It is clear in Figure 2 that the increase in per capita income is mostly driven by labor productivity gains. Between 2005(1) and 2008(1), labor productivity index rose from 100 to almost 110, and per capita income index reached nearly 111 (Figure 1).

High growth period led by increases in employment

The crisis period is not very meaningful for our analysis. As predicted, GDP declined more than employment. As a result, labor productivity declined sharply and employment ratio fell, but less than labor productivity. Turkish economy recovered quickly and experienced high growth rates from the second quarter of 2009 until the second quarter of 2011. However, dynamics of this growth period is different than the pre-crisis period.

In this period labor productivity gains contributed positively to per capita income growth, but the contribution remained weak compared to the pre-crisis period. Between 2009(1) and 2011(3), labor productivity index rose from 103 to 106 (Figure 1). Employment ratio increased at a similar pace, from 100 to 103. Growth was balanced in terms of its sources. In other words, contribution of the increase in employment and productivity gains were nearly equal. However, the current account deficit increased sharply, due to increases in domestic demand. Moreover, strong capital inflows and high inflation caused Turkish Lira to appreciate significantly.

Figure 2. Year on year GDP per capita component contributions (Seasonally adjusted, 2006(1)-2014(1))



Source: Turkstat, Betam.

Low growth - Zero labor productivity gain period

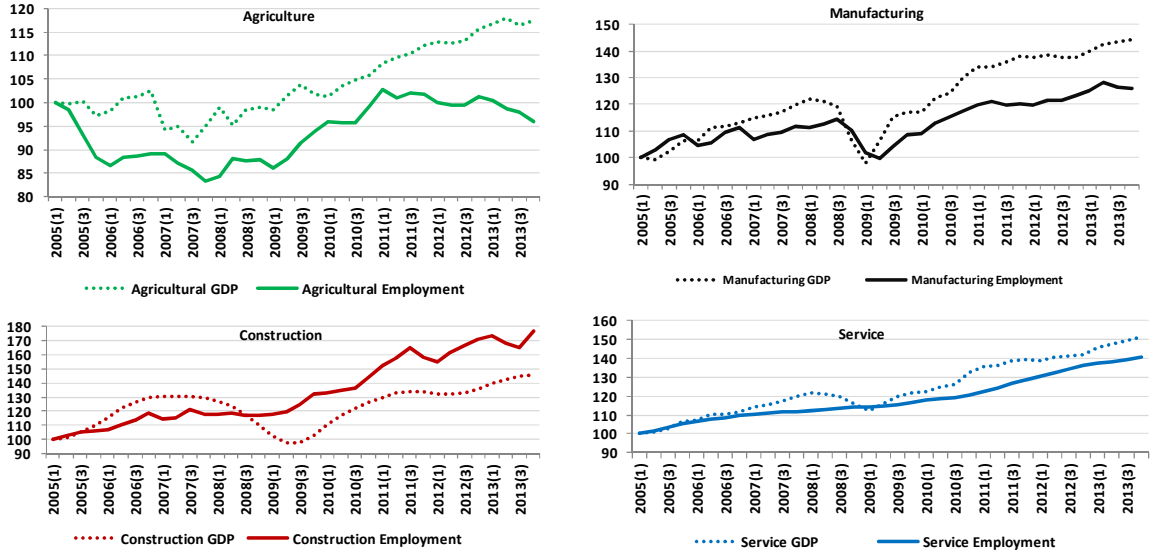
The economic policy makers who recognized that the domestic demand led growth was unsustainable aimed a more balanced growth (according to demand composition and current account deficit) by cooling domestic demand and reducing real exchange rate through a controlled depreciation of Turkish Lira. However domestic demand declined more than anticipated in 2012, imports fell and exports rose in return. Growth has been completely relied on net exports in this period. Growth rate fell well below than expected (4 percent), and realized as 2.1 percent. In 2013, domestic demand was allowed to be recovered. As a result, growth rate reached 4 percent and the contribution of net exports became negative, again. Due to the strong net exports and the mild increase in domestic demand, growth rate reached 4.3 percent in the first quarter of 2014 and GDP growth exhibited a balanced outlook in terms of the contribution of net exports and domestic demand.

The most striking development of this low growth period (the average of last two years is 3 percent) is that the contribution of labor productivity gains to per capita income growth which was 4.2 percent in the whole period (see Additional table 1) was null. Beginning from the first quarter of 2012, the contribution of labor productivity gains was negative. However, the contribution turned to

positive and accelerated in first three quarters of 2013, but labor productivity became again negative in the first quarter of 2014. The future of the labor productivity is still uncertain. When we analyze the last nine quarters (2011(4)-2014(1)) as a whole, it is easily observed that labor productivity almost stagnated during the last nine quarters (See Figure 1). In this period, per capita income growth is mostly led by the increase in employment ratio.

The main reason for this unfavorable development is that service sector's GDP is increased trough increases in employment. In this period, GDP index of service sector increased by 10.5 percent, whereas employment index of service sector increased by 11.1 percent (Figure 3 and Additional table 2). Moreover, agricultural employment which took off after 2008 stagnated in the last two years (Figure 3). This implies that labor productivity gains due to the decline in agricultural employment have ended in the aftermath of the economic crisis.

Figure 3. Indices of sectoral growth and employment: 2005(1)-2014(1) (Seasonally adjusted, 2005(1)=100)



Source: Turkstat, Betam.

Dilemma in the economic growth: Employment vs. Productivity

In the last two years, Turkish economy did not just grow slowly, but had to resort to a growth regime where employment increases were the only source while labor productivity did not improve at all.[6] As a result, per capita income growth decelerated significantly (Figure 1). The increase in the employment ratio which implies an increase in the average number of workers (the increase in women employment plays a key role) in households is certainly a positive development. Therefore, unemployment didn't increase in spite of low growth.

However, for reaching higher growth rates and achieving the target of 2023 ($25,000) through higher per capita income growth, productivity gains should start to make positive contributions to growth again as it was the case in the pre-crisis period. We want to stress once again that labor productivity

[6]Our decomposition method doesn't decompose the growth into labor and capital components like neo-classical model (Solow model). Our method focuses on labor productivity which includes the contribution of capital and total factor productivity. Therefore the stagnation or the decline in labor productivity implies a significant fall in total factor productivity, because the contribution of capital cannot be negative.

stems from structural reforms in the education system, the labor market, taxation system, the energy market and in general strong structural reforms that will allow the economy to function more efficiently. Otherwise, Turkey can get stuck in the middle income group for many years.

Box: Decomposing per capita income into its components

1) According to employment

$$\frac{GDP_t}{P_t} = \frac{GDP_t}{E_t} \cdot \frac{E_t}{WP_t} \cdot \frac{WP_t}{P_t}$$

$\frac{GDP_t}{P_t} = gdp_t$ (GDP per capita)

$\frac{GDP_t}{E_t} = alp_t$ (average labor productivity according to employed population/employment (E_t))

$\frac{E_t}{WP_t} = er_t$ (the ratio of employed population to working age population (WP_t))

$\frac{WP_t}{P_t} = wapr_t$ (the ratio of working age population to entire population)

$$\frac{gdp_t}{gdp_{t-1}} = \frac{alp_t}{alp_{t-1}} * \frac{er_t}{er_{t-1}} * \frac{wapr_t}{wapr_{t-1}}$$

2) According to average total working hour

$$\frac{GDP_t}{P_t} = \frac{GDP_t}{E_t \cdot AH_t} \cdot \frac{E_t \cdot AH_t}{WP_t} \cdot \frac{WP_t}{P_t}$$

$\frac{GDP_t}{P_t} = gdp_t$ (GDP per capita)

$\frac{GDP_t}{E_t \cdot AH_t} = alp_t$ (average working hour adjusted average labor productivity)

$\frac{E_t \cdot AH_t}{WP_t} = er_t$ (average working hour adjusted working age population ratio)

$\frac{WP_t}{P_t} = wapr_t$ (the ratio of working age population to entire population)

$$\frac{gdp_t}{gdp_{t-1}} = \frac{alp_t}{alp_{t-1}} * \frac{er_t}{er_{t-1}} * \frac{wapr_t}{wapr_{t-1}}$$

Additional Table 1. Per capita GDP index and its components (2005(4) = 100)

	Labor Productivity	Employment Ratio	Working Age Population Ratio	GDP per Capita
2005(4)	100.0	100.0	100.0	100.0
2006(1)	101.2	99.7	100.2	101.0
2006(2)	103.2	99.4	100.3	103.0
2006(3)	104.5	99.5	100.5	104.4
2006(4)	105.1	99.8	100.6	105.6
2007(1)	105.8	100.2	100.8	106.8
2007(2)	106.1	100.2	101.0	107.4
2007(3)	106.9	100.0	101.1	108.1
2007(4)	108.4	99.5	101.2	109.2
2008(1)	109.7	99.2	101.4	110.3
2008(2)	109.8	99.4	101.5	110.7
2008(3)	109.6	99.5	101.6	110.8
2008(4)	107.2	99.6	101.7	108.6
2009(1)	103.8	99.1	101.7	104.6
2009(2)	102.3	98.2	101.8	102.3
2009(3)	101.4	97.9	102.0	101.3
2009(4)	101.8	98.2	102.2	102.2
2010(1)	102.9	99.3	102.4	104.6
2010(2)	103.5	100.5	102.6	106.7
2010(3)	103.7	101.3	102.8	108.0
2010(4)	104.8	102.0	103.1	110.2
2011(1)	106.2	103.1	103.3	113.1
2011(2)	106.9	104.1	103.5	115.2
2011(3)	107.4	105.3	103.6	117.2
2011(4)	107.4	106.1	103.7	118.2
2012(1)	107.3	106.3	103.7	118.4
2012(2)	107.3	106.7	103.7	118.7
2012(3)	107.1	106.9	103.8	118.8
2012(4)	106.4	107.5	103.8	118.7
2013(1)	106.1	108.2	104.0	119.4
2013(2)	106.2	108.6	104.1	120.2
2013(3)	106.7	108.8	104.3	121.1
2013(4)	107.6	108.6	104.5	122.1
2014(1)	107.5	109.4	104.7	123.1

Kaynak: TÜİK, Betam.

Additional Table 2. Indices of sectoral growth and employment (2005(1) = 100)

	Agricultural GDP	Manufacturing GDP	Construction GDP	Service GDP		Agricultural Employment	Manufacturing Employment	Construction Employment	Service Employment
2005(1)	100	100	100	100	**2005(1)**	100	100	100	100
2005(2)	99.9	99.4	101.4	101.0	**2005(2)**	98.5	103.0	103.2	101.8
2005(3)	100.4	102.2	105.2	103.1	**2005(3)**	93.3	106.8	105.0	103.5
2005(4)	97.3	106.2	109.8	106.4	**2005(4)**	88.4	108.8	105.7	105.3
2006(1)	98.2	106.3	115.7	107.0	**2006(1)**	86.6	104.6	106.8	106.5
2006(2)	101.0	111.2	122.0	110.6	**2006(2)**	88.4	105.5	110.3	107.8
2006(3)	101.3	111.7	126.1	110.1	**2006(3)**	88.5	109.5	113.3	108.4
2006(4)	102.5	112.9	129.6	111.7	**2006(4)**	89.0	111.4	118.9	109.5
2007(1)	94.2	114.8	130.3	114.5	**2007(1)**	89.2	106.7	114.6	110.4
2007(2)	95.0	115.5	130.8	115.5	**2007(2)**	87.2	108.5	115.3	110.9
2007(3)	91.7	117.3	130.6	117.6	**2007(3)**	85.7	109.5	121.4	111.6
2007(4)	95.0	119.9	129.7	120.0	**2007(4)**	83.4	111.8	117.4	111.6
2008(1)	99.1	122.0	127.2	121.5	**2008(1)**	84.4	111.4	118.0	112.2
2008(2)	95.2	121.1	124.0	120.9	**2008(2)**	88.1	112.7	119.0	113.1
2008(3)	98.5	119.1	118.0	119.9	**2008(3)**	87.7	114.4	117.1	113.4
2008(4)	99.1	107.0	110.0	116.1	**2008(4)**	88.0	110.5	117.3	113.9
2009(1)	98.5	97.9	103.0	112.4	**2009(1)**	86.1	101.7	118.2	114.1
2009(2)	101.6	106.6	97.9	116.0	**2009(2)**	88.2	99.9	119.1	114.7
2009(3)	103.8	115.2	98.1	119.8	**2009(3)**	91.5	104.2	124.8	115.7
2009(4)	101.9	117.1	102.9	121.5	**2009(4)**	94.0	108.5	131.8	116.7
2010(1)	101.4	116.9	110.0	122.3	**2010(1)**	96.0	109.1	132.6	117.7
2010(2)	103.5	122.6	116.7	124.8	**2010(2)**	95.7	113.2	135.0	118.8
2010(3)	104.7	124.0	122.2	126.1	**2010(3)**	95.6	115.2	136.2	119.2
2010(4)	105.9	129.8	126.5	132.4	**2010(4)**	99.2	117.6	143.6	120.3
2011(1)	108.4	133.9	129.9	135.6	**2011(1)**	102.9	119.6	152.4	122.1
2011(2)	109.6	133.8	132.9	136.4	**2011(2)**	101.0	121.2	157.0	124.3
2011(3)	110.5	135.7	133.7	138.7	**2011(3)**	102.0	119.8	165.1	126.6
2011(4)	112.1	137.9	133.8	139.2	**2011(4)**	101.7	120.1	158.2	128.6
2012(1)	112.9	137.4	132.3	139.1	**2012(1)**	99.9	119.7	154.5	130.6
2012(2)	112.7	138.3	132.3	141.0	**2012(2)**	99.6	121.5	161.4	132.5
2012(3)	113.1	137.7	133.1	141.6	**2012(3)**	99.5	121.4	166.1	134.2
2012(4)	115.6	137.8	135.8	142.2	**2012(4)**	101.2	123.4	170.5	136.3
2013(1)	116.6	139.9	139.2	145.5	**2013(1)**	100.5	125.2	173.3	137.3
2013(2)	118.1	142.6	141.7	147.6	**2013(2)**	98.8	128.1	167.7	138.5
2013(3)	116.5	143.4	144.4	149.4	**2013(3)**	98.0	126.6	164.4	139.4
2013(4)	117.4	144.1	145.8	151.7	**2013(4)**	96.0	126.0	176.6	140.9
2014(1)	123.2	146.6	147.3	153.8	**2014(1)**	104.5	131.6	192.7	142.9

Kaynak: TÜİK, Betam.