TSKB Theme Look

There's a crack in everything That's how the light gets in!

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Ring the bells that still can ring*

Almost a decade after the Great Recession, the world economy has come to a crossroads. We are on the verge of a change in the global macro dynamics, where a divergence in policy settings between developed and developing countries will become inevitable. Thus, now is a good time to take a look in the mirror to set the right policy priorities, plan for the future and start acting.

Turkey has been one of the beneficiaries of the abundant global capital in this Great Recession Era with an average growth rate exceeding 6%. On the other side of the coin, though, we find that per capita GDP is declining in USD terms and unemployment is rising. Naturally, questions remain over both the sustainability and inclusivity of this high growth performance.

The country has come a long way in its quest for price stability thanks to the reforms implemented just after the millennium, such as the amendments to the central bank law for an independent monetary policy and switching to an inflation targeting regime. True, we have moved beyond the high double-digit inflation rates of the 1990s, but the current levels of the inflation still stand well above the official target of 5%. Although the post Great Recession Era has been marked by low inflation around the world, Turkey has diverged negatively from its peers with its high and volatile rates of inflation. The Central Bank's own expectation survey points at a steadily widening credibility gap for the medium term. The specter of inflation hangs over us with backward indexation emerging as a serious risk. While the lowest income segment of society pay most dearly for high inflation, it also hurts investment sentiment and distorts effective transfer of savings to investment, putting a cap on growth.

With an expected annual population growth of 0.9% and on the assumption that the labour force participation ratio of 58% converges with Turkey's peers group countries (71.7% average), one of the biggest challenges facing the Turkish economy will be to create jobs. High, sustainable and inclusive growth will be the sine qua non of this game plan for a better future design. Achieving this balance is akin to walking a tightrope, with the challenge of supporting the growth without hurting price dynamics, and taming inflationary pressures without hurting growth dynamics. Seeing this challenge helps us to fit the priorities of the Turkish economy into the framework of what we call the **"twin goals" - promoting "growth" and achieving "price stability".**

No growth model runs on all cylinders and no policy maker has the luxury of just sitting back and watching the economy find its balance without rolling up their sleeves and getting their hands dirty. The challenge of balancing short-term imperatives with longer-term goals rests on the shoulders of policy makers as the main responsibility. Within this perspective, our first annual **Theme Look** report shines the spotlight on some of the many areas which can be improved on the back of policy promoted environment.

The savings gap stands out as a major drawback with no quick fix. Although the Turkish population is aging, the nation's dynamics are a long way from being saving-supportive, with the share of elderly population expected to reach only 10% of society by 2023. The picture urges the mobilization of more resources into the labour market to boost savings and fight exclusion, starting with the underutilized female labour force.

Investing in people at all stages of the life cycle, but especially the **younger generation**, is imperative. Improving the quality of education and its alignment with the labour market should be a matter of priority. To this end, we deem **on-the-job training** as an important support tool, which will also lower the risk of current technological advancement polarizing the labour market into low-skilled and high-skilled, creating the opportunity for skill upgrade and lowering the threat of exclusion.

While the refugee crisis has multi humanitarian dimensions, the **regions most impacted by refugees** require a closer and more immediate look. Turkey's improved infrastructure does offer something of a silver lining in this area. It should be noted that improved **connectivity** and advanced transportation networks can create new opportunities and new jobs, if complemented with the right matching strategy.

Supporting the much-needed improvement in Turkey's human capital will help deliver higher growth, both in terms of quality and quantity. Even so, this is not enough on a standalone basis. Avoiding a "middle productivity trap" requires a return to the drawing board with a focus on higher value added activities. Recalling that Turkey's trade deficit keeps widening with an increasing dependence on imported medium-high and high-tech products, supporting value added activities will indirectly help inflation as well.

It would not be possible to conclude without noting the rising need for resources and, in particular, energy efficiency. Better utilization of resources will limit leakages and support growth while also easing inflationary pressures.

Turkey's high inflation readings present a policy dilemma, where any tightening attempt carries the risk of hurting growth. However, a careful look demonstrates that a considerable proportion of the inflationary pressure stems from factors that require non-monetary reaction. Any improvement in the supply chain of food and agricultural products, supporting cold-chain food logistics and warehouses will serve multiple purposes of creating an inclusive supply chain for small farmers, supporting growth with better utilization of resources, preventing waste, lowering food inflation and helping to tame inflation without interest rate reaction.

The tailwinds of the post Great Recession era will lose their supportive influence in the coming period, but the gains from previous years will continue to be supportive. It is now the duty of the policy makers to keep the window of opportunity open by setting the right goals, designing the right policies and acting in a timely fashion.

Burcu ÜNÜVAR
Department Head - Economic Research

* Tribute to Leonard Cohen

TWIN GOALS

GROWTH

PRICE STABILITY

FEMALE LABOR FORCE PARTICIPATION

Employ more women to accelerate production and savings

SUPPLY CHAIN OF FOOD AND AGRICULTURAL PRODUCTS

Prevent worsening income distribution

Ensure lower food inflation

YOUTH LABOR FORCE PARTICIPATION

Narrow skill gaps to increase productivity

HIGHER VALUE ADDED ACTIVITIES

Improve overall productivity level

Decrease the pass through effect

SUPPORTING EMPLOYMENT PRIORITY REGIONS

Limit distortions in labor markets

RENEWABLE ENERGY AND ENERGY EFFICIENCY

Utilize natural resources for sustainable growth

Reduce import dependency to minimize pass through effect

SUSTAINABILITY

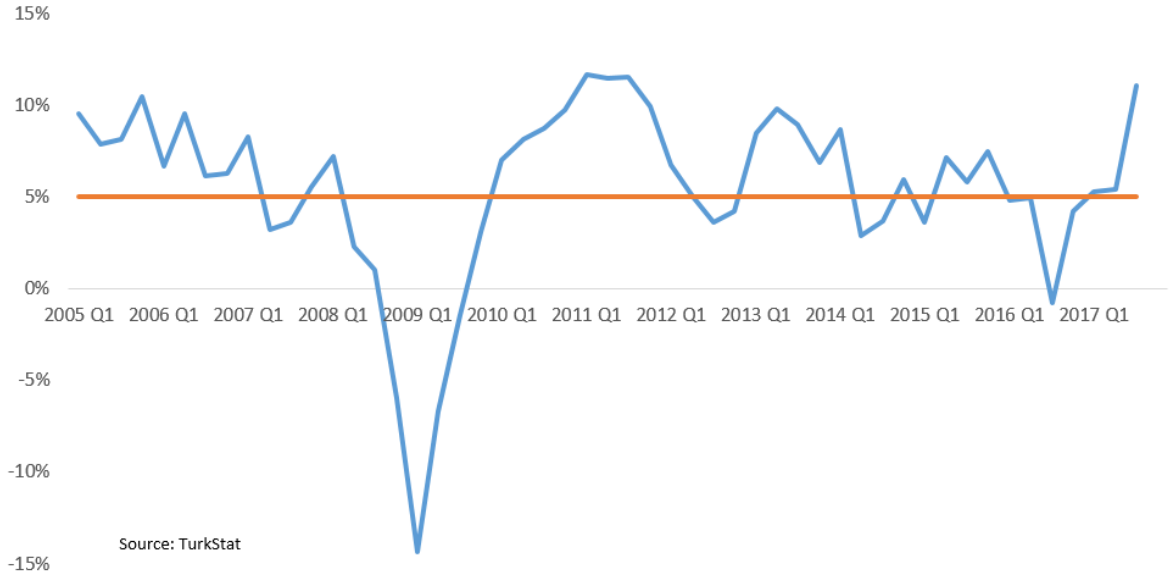
INCLUSIVITY

Macro Framework

Solid economic growth after the global crisis

Turkey's economy has demonstrated a credible performance by growing at an annual average rate of 5% between 2005 and 2016. The quarterly GDP growth data shows how Turkey has surpassed the 5% growth rate in most of the periods, illustrating a bright performance **(Figure 1).**

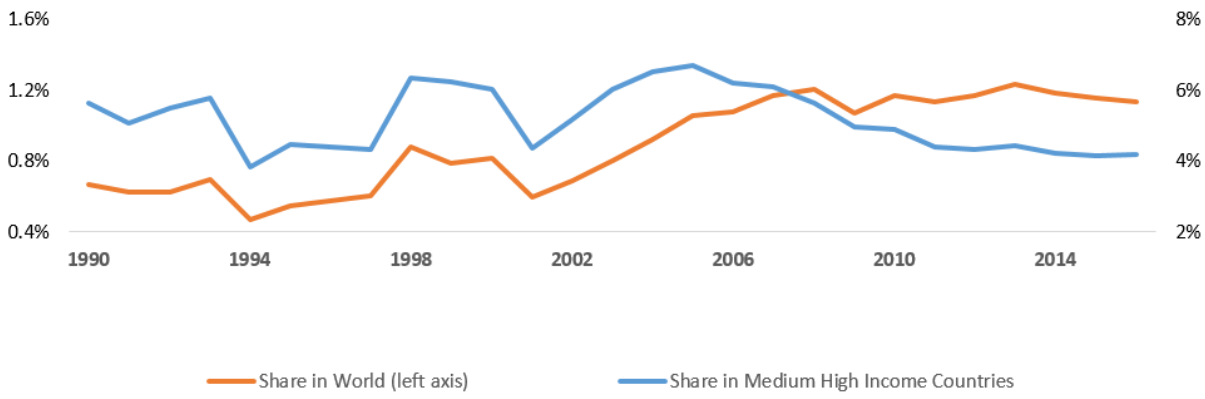
Figure 1: GDP Growth (Quarterly, YoY)



Turkey's growth performance may be pleasing, but it is not enough

Turkey aims to become a member of the high-income group of countries by 2023, through policies aimed at boosting income levels. To attain this goal, Turkey needs to achieve higher growth rates than its historical average. Although Turkey had achieved remarkable growth rates especially after the year of 2001, an increasing trend of the Turkish economy's share in the GDP of both medium-high income countries and in global GDP has begun to level off beginning from 2007 **(Figure 2).**

Figure 2: Share of Turkey's GDP in Medium High Income Countries and World's GDP (Current US$, %)

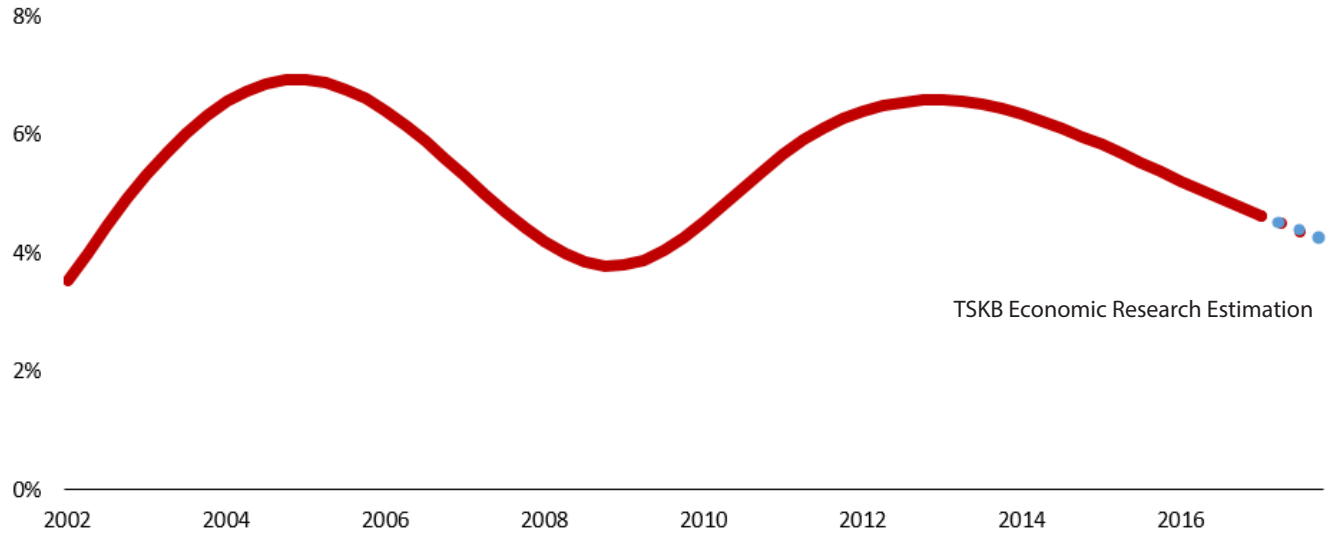


Source: World Bank Data

Mind the falling tendency in Turkey's potential growth rate

Turkey's potential economic growth being impeded by structural issues and our estimations indicate the potential growth rate will even decrease more in the near future unless appropriate actions are taken **(Figure 3).** Accordingly, the country is about to enter a period in which investments that lead to increase in productivity and improvements in human capital quality become so critical to revitalize the growth.

Figure 3: Potential GDP Growth Rate of Turkey



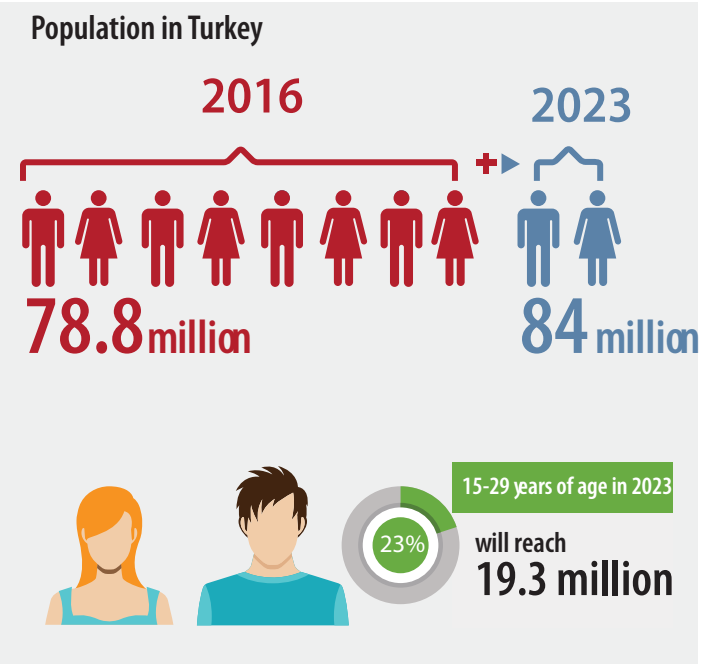
** Hodrick-Prescott filter tool is used (λ=1600) to calculate and forecast potential GDP growth rates*

Turkey is growing - but not necessarily creating jobs

A combination of low labor force participation and the high number of unemployed in the labor market prevents the Turkish economy from benefiting from human capital at the optimum level. Turkey's economy posted an annual 5% growth between 2005 and 2016, while the number of people in gainful employment increased by a mere 2.8 per cent annually on average in the same period. Meanwhile nearly 8 million people entered the labour force between 2005 and 2016; almost a million of whom appeared as unemployed as of 2016, meaning that the Turkish labour market had failed to create jobs for more than 10 per cent of the new entrants into the labour force in the respective period.

Growth does matter in Turkey since population increases steadily and continues to remain young

Turkey had a total population of 78.8 million people, as of 2016 and this number is projected to reach over 84 million increasing gradually by the year 2023. Thus, the population is young with almost one forth ranging from 15 to 29 years of age in 2016. Considering the estimations of TurkStat stating the population aged 15-29 will reach to 19.3 million, which will make up 23% of the population in 2023, Turkey needs to achieve employment friendly economic growth in order to generate enough jobs for youth human capital and make them participate in labor markets.



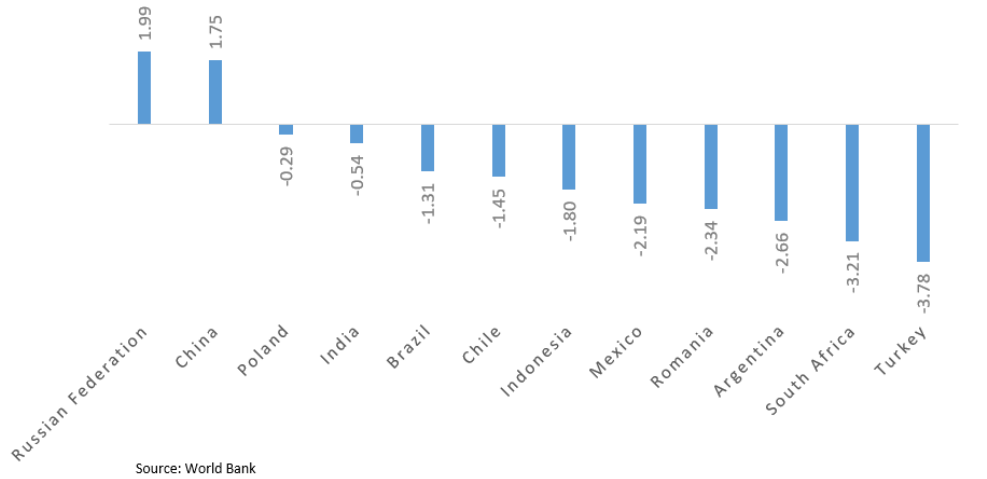
Not only quantity, but also quality of economic growth is required to attain inclusive growth

The quantity of economic growth alone does not guarantee benefit for all segments of the society. Sustainable growth cannot be achieved without inclusivity, since it promotes income equality and reducing poverty. Larger share of the population participating in economic activities play a vital role to ensure sustainable growth.

Lack of higher value added activities and energy import dependency threaten sustainability

Turkey is an energy import dependent country as three quarters of its annual energy needs is supplied from foreign resources, and this dependency is increasing due to growing energy demand. Furthermore, production structure in the country is mainly concentrated on goods requiring middle-low and low level of technology and during 2000's the trade deficit in mid-high and high tech sectors, which we call "technology deficit" has widened. These factors result in higher saving gap than in peer countries **(Figure 4).**

Figure 4: current account balance of selective countries, 2016 (% of GDP)



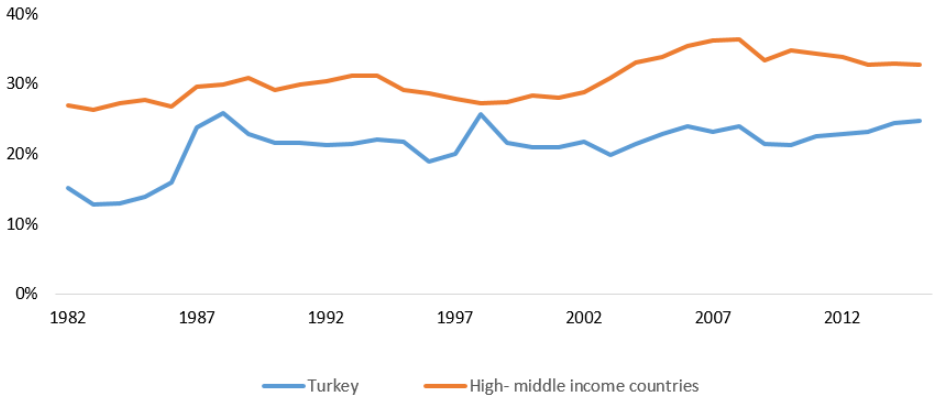
Source: World Bank

Government is taking essential steps to encourage domestic savings but still more needed

Turkey's domestic savings rate is still not in itself of a sufficient magnitude to finance the investments necessary to maintain and improve economic activity. Turkey has been focusing on developing policies to increase domestic savings so that more investments can be ensured to trigger economic growth. In this regard, in 2013 the Turkish government announced that it would provide a subsidy to the individual retirement system amounting to a direct contribution of 25%. Despite of the initiatives taken by the governments to raise savings, the more still needs to be done to reach the desired levels for savings.

Turkey's saving rate stands far below the levels seen in high-income countries. Turkey needs to develop structural reforms aimed at encouraging savings to narrow the gap **(Figure 5).**

Figure 5: Gross Savings (% of GDP)



Source: World Bank

Turkey needs to create more job opportunities for women and the young to foster domestic savings

It is crucial to design mechanisms aimed at improving the efficiency of the labour market to increase national income in order to accelerate domestic savings. Higher level of domestic savings would be very helpful in the way to attain both sustainable and inclusive growth. Therefore, participation of more women and youth in labour markets makes significant contributions to handle this issue. What is more, the low participation of women and the young in the labour market not only negatively affect Turkey's economic performance, but also raise social concerns, such as inequality and poverty.

Although the female participation rate in the labour force had increased by 9.2 percentage points as of 2016 when compared to 2005, more than two thirds of women in Turkey were still not in the job market in 2016[1].

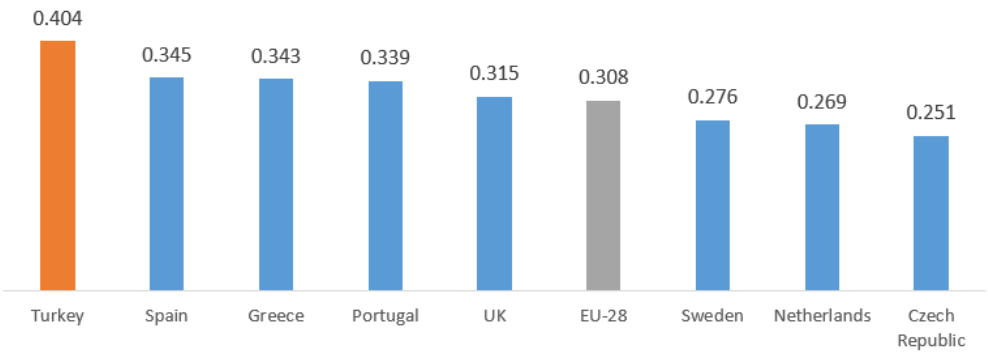
Similarly, Turkey has not succeeded in raising the labor force participation rate of its young (which stands at 42.4%) - hence one in every five young people aged 15-24 who are looking for a job was unemployed and 24% of them were NEET as of 2016. The employment status of women and youth is one of the prioritized areas that the Turkish government is seeking to improve; however, much more needs to be done to eliminate barriers to generate more employment opportunities and resolving skill mismatch problem in order to support economic growth.

[1] The household labor survey conducted by the Turkish Statistical Institute to calculate the main labor force indicators was revised in view of the EU criteria in February 2014. Only key labor force indicators in the 2005-2013 period are forecasted based on new method by Turkish Statistical Institute. Although the detailed labor indicators have not been revised, they are used in comparisons, as no difference in the main trend has been observed.

Income inequality remains a challenge

The primary objective of inclusive growth is to reduce income inequality. The disparity in the distribution of household incomes has been rising over the past three decades in major countries and there is a large and growing body of literature on the apparently negative effects of income inequality on economic growth. The first channel through which income disparity could affect growth is demand-related restraint as the ratio of consumption to disposable income declines with increasing income in the long term. Secondly, high-income disparity leads to lower labor productivity, by taking away the ability of lower income households to accumulate human capital and address basic social needs. Finally, wide income disparity dampens investment, and hence growth, as a potential result of social tension and political instability it creates. With a score of 0.40 in 2016, Turkey has the third highest Gini score among OECD countries, behvind Mexico and Chile. Compared to selected European peers, Turkey is far behind as seen in **Figure 6**. It should also be noted that there is an upward trend in Gini coefficient since 2014.

Figure 6: Gini Coefficients in Selected Countries (2016)



Source: TurkStat, Eurostat

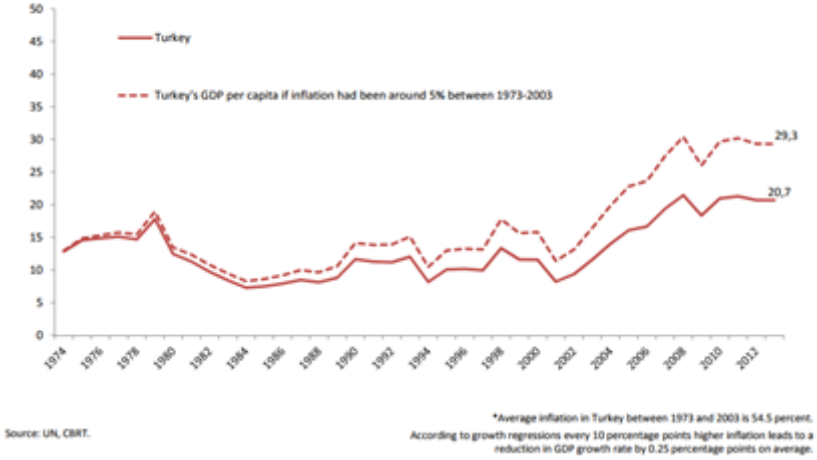
Although Turkey's economic indicators depict a broad range of readings, the figures arguably imply that growth-oriented policies do not address the root-causes of Turkey's underlying economic issues, thus unemployment remains stubbornly high and women and young labor force participation is still low in Turkey. The policies prioritizing inclusivity would greatly contribute to income inequality reduction.

On the other hand, achieving price stability remains an important target for the Turkish economy

Price stability was one of the main pillars of the economic policy programs launched in the last 15 years. Because Turkey had long suffered from an unfavorable inflation environment in the past, lowering inflation and achieving price stability became an important priority in Turkey. A study conducted by the Central Bank of Turkey (CBRT)[2] highlights the possible effects on per-capita GDP in the absence of price stability. If Turkey's inflation rate between 1973 and 2003 had averaged 5% (rather than the actual figure of 54.5%), the country's per capita income would have been significantly higher with respect to the US, as shown in the **figure 7**.

Figure 7

Per Capita Income with Respect to the US
(Percent)



Source: UN, CBRT.

*Average inflation in Turkey between 1973 and 2003 is 54.5 percent.
According to growth regressions every 10 percentage points higher inflation leads to a reduction in GDP growth rate by 0.25 percentage points on average.

Missing inflation targets hamper the aim of achieving sustainable and inclusive growth

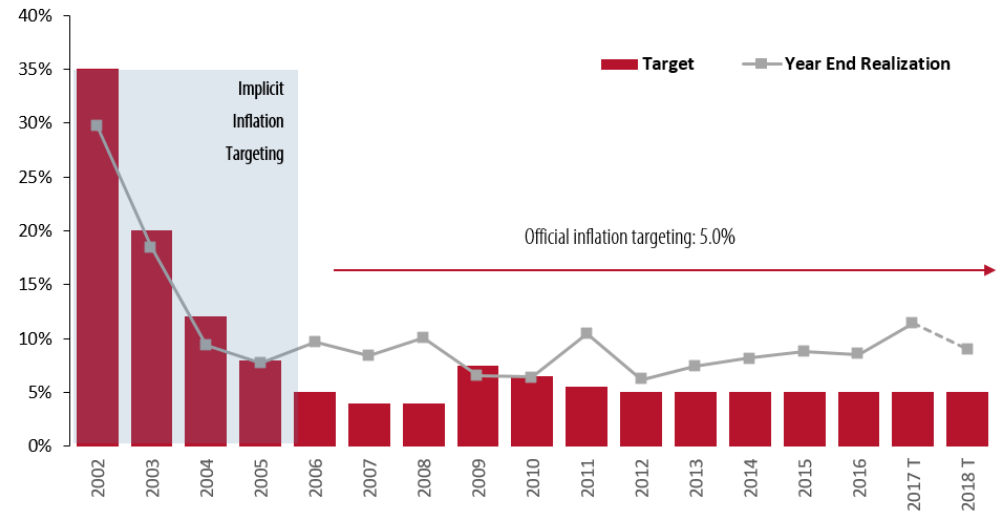
After the reforms implemented following the 2001 crisis, Turkey has shifted to an inflation targeting regime and CPI inflation slowed down to single digit levels. However, the structural problems embedded into the mechanisms of the economy have hampered the aim of meeting the inflation target of 5%. In the last 12 years, the official targets set out in the inflation targeting regime were only achieved in 2009 and 2010. It should be noted that in 2009, the year CBRT achieved its inflation target, the Turkish economy contracted by 4.7%. In addition, the credibility gap has worsened even further in recent years amid expectations of higher inflation. Turkey rounded off 2017 with double digit CPI inflation and the expectations for 2018 are around 9.5%.

The struggling with inflation necessitates monetary tightening, which would undermine the aim of economic growth and the advancement to high income classification. Indeed a closer look at the inflationary pressures reveals a number of structural problems, which are also hampering the inflation outlook. Such structural problems are beyond the reach of CBRT policy instruments; rather they are a result of inefficiently operating markets, which distort price formation mechanisms. The price increases mainly caused by these structural problems have had to be dealt with through micro reforms.

Inflation has a number of adverse effects, but two of the key consequences are that (i) it distorts investment decisions and (ii) worsens income distribution. Thus, a policy aimed at achieving sustainable and inclusive growth has to deal with the problem of inflation.

[2] Başçı, E. (2015), "Price Stability and Growth in Turkey", IIF Conference, (Feb. 9)

Figure 8: How successful is the Central Bank?



Source: CBRT, TSKB Economic Research

In the light of all the facts mentioned above, it is so critical for Turkish economy to prioritize focus areas in order to achieve inclusive and sustainable growth as well as attain price stability. In this regard, six key thematic areas are highlighted in this paper, namely:

- Labor force participation among women
- Participation of young people in the labor force
- Employment priority regions
- Higher value added activities
- Renewable energy and energy efficiency
- Supply chain of food and agricultural products

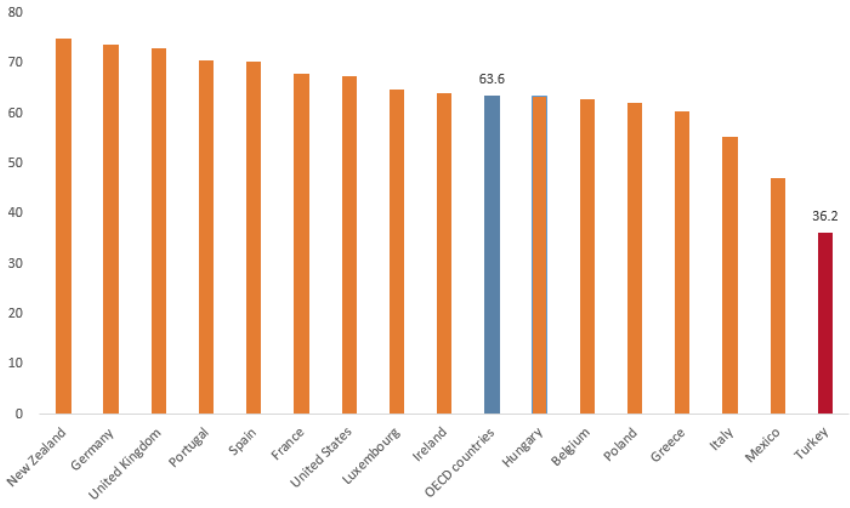
Theme-I

Labor Force Participation Among Women

The Turkish economy may face a challenging outlook for labor markets in the coming years, with low female labor force participation rates. Participation of more women in workforce plays a vital role in economic growth, since significant macroeconomic gains are obtained when women allocate substantial amount of time to economic activities. Studies estimate that in some regions up to 27% of GDP per capita losses are caused by gender gap in labor markets[3].

Turkey has the lowest female labor force participation rate[4] among the OECD, at 36.2%, while the average rate in OECD countries stood at 63.6% in 2016 (**Figure 9**). In addition, the rate of women unemployment in Turkey is the fourth highest in the OECD, at 14%, after South Africa, Greece and Spain[5].

Figure 9: Female Labor Force Participation (aged 15-64), 2016, %

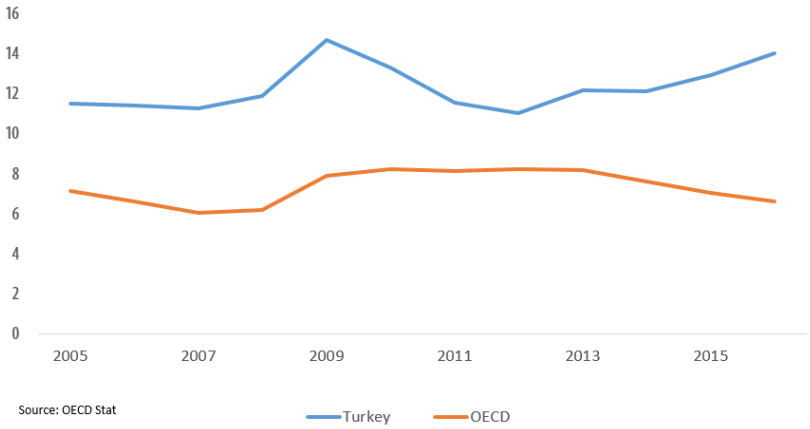


Source: OECD Stat

[3] Cuberes, D., Teignier, M. (2012); Gender Gaps in the Labor Market and Aggregate Productivity, Working Paper. Dept. Of Economics, University of Sheffield
[4] 15-64 aged population is considered in international comparisons.
[5] OECD Statistics

In addition, despite of an encouraging progression in female labor force participation in recent years, women unemployment rate in Turkey climbed to 14% from 11.5%, in meantime this rate among OECD countries dropped from 7.1% to 6.6% since 2005. Upward trend in women unemployment rate in Turkey after the year 2012 depicts the unwell progress in labor market **(Figure 10).**

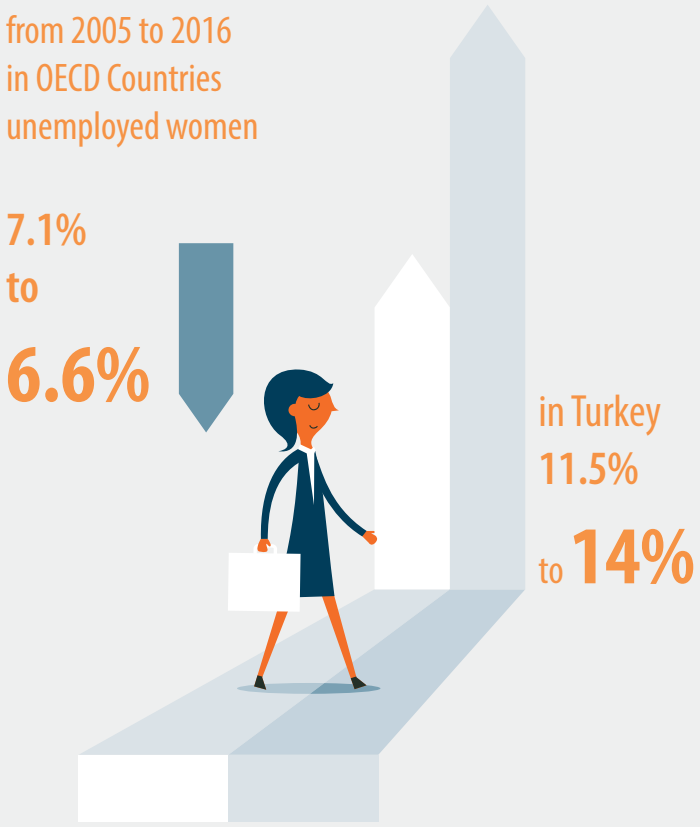
Figure 10: Women Unemployment Rates (%)

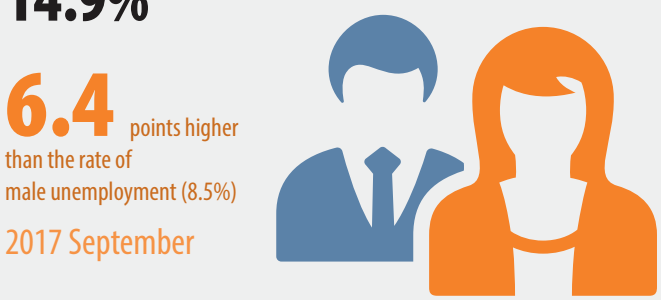


Source: OECD Stat

Increasing gender gap in unemployment figures

In other respects, Turkey has demonstrated a weaker performance than other emerging economies in closing the gap between male and female unemployment over the last decade. Female unemployment in Turkey stands at 14.9%, some 6.4 percentage points higher than the rate of male unemployment (8.5%) as of September 2017, whereas this discrepancy was just 0.7 percentage points in emerging markets in 2017. Over the last ten years, this gap in Turkey has widened from 1.9 percentage point to 6.4 percentage points; in emerging economies, the gap only widened by 0.2 percentage points[6]. Furthermore, Turkey's ranking in the UNDP's Gender Inequality Index, which measures gender vulnerability[7], stood at 71 in 2015, still placing it behind many emerging countries such as the Czechia, Poland, Chile, Bulgaria, Hungary and the Russian Federation.



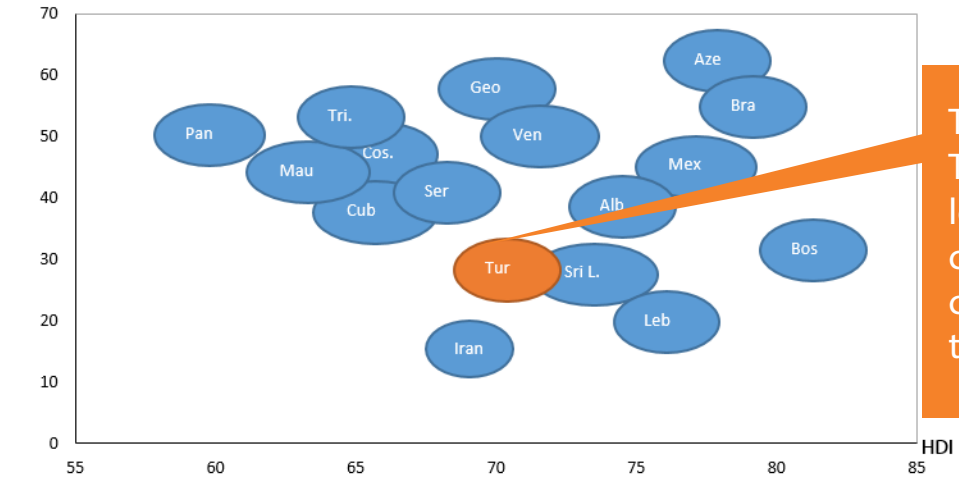


[6] ILO (2017); World Employment Social Outlook, Trends for Women
[7] UNDP; Gender Inequality Index

Women's economic empowerment is a must for inclusive growth

Gender equality is essential to improve women's access to economic resources to promote inclusive economic growth. In this sense, Turkey struggles to ensure the participation of more women in the labor market. To clarify Turkey's case, a comparison of countries in terms of their level of human development measured by the UNDP Human Development Index (HDI) and female labor force participation rates would be instructive. As shown in the below figure, most countries with HDI rankings similar to Turkey's succeed in including more women into their labor force than Turkey does (**Figure 11).** For example, the female labor force participation rate in Georgia is almost double the rate in Turkey, even though Georgia's HDI is very close to Turkey's HDI. Government policies, especially policies related to childcare and pre-elementary education, as well as cultural and religious attitudes do play a significant role in relatively low labor force participation rate of women. According to surveys conducted by TurkStat, the most prominent reason, cited by more than half of women in Turkey for non-participation in the labor force, is "being occupied with housework". Therefore, Turkey needs to develop such policies on childcare services, flexible working hours and reintegration measures to encourage women to participate in labor markets[8].

Figure 11: UNDP HDI vs Female LFPR



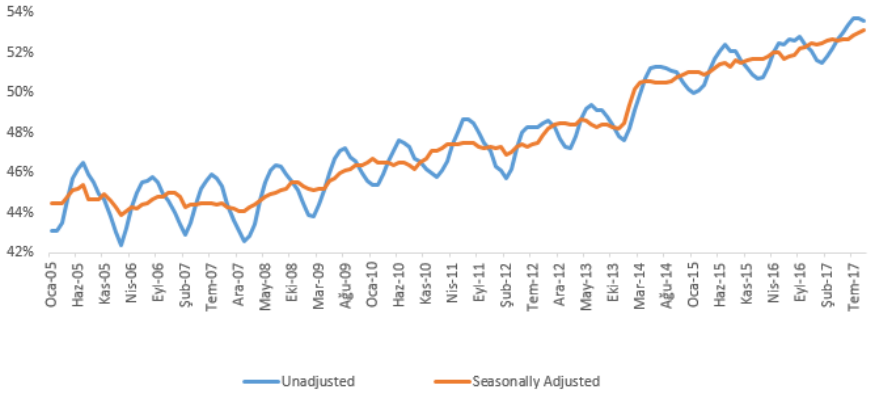
Source: UNDP, TurkStat

The Female LFPR in Turkey is the 23rd lowest among 178 countries, while the country ranks 71st in terms of HDI

Reforms on the right track, but need to be sustained and enhanced

In the last decade, Turkey has taken remarkable strides through effective policies to foster labor force participation for both men and women. The seasonally adjusted labor force has increased by over 8 percentage points over the last 10-year period to reach 53.1% as of September 2017[9] **(Figure 12).**

Figure 12: Total Labor Force Participation



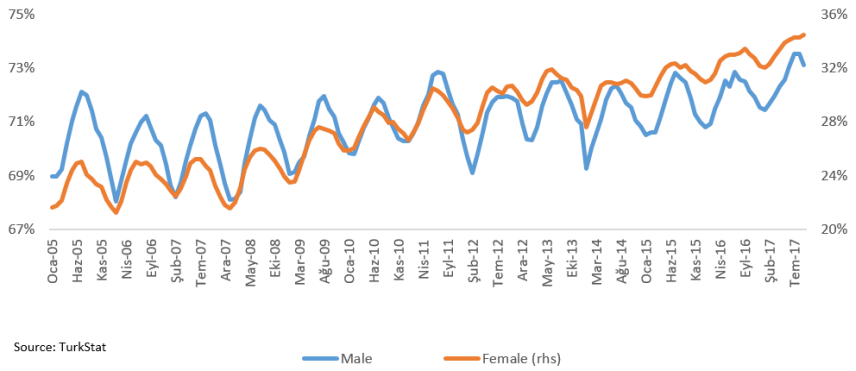
Source: TurkStat

[8] ILO (2017); World Employment Social Outlook, Trends for Women

[9] TurkStat changed the methodology of Household Labor Survey according to the Eurostat standards in February 2014. After the revision, according to the definitional changes, most of the data on labor markets has lost its comparability with the past observations. To deal with the problem, TurkStat extended the data backwards by using econometric technics and released comparable series for main labor force indicators. Because the detailed labor force statistics was not extended backwards, we checked the series for a significant trend shift. Thus, we concluded to use the series and compare with the old data, because there has not been detected a significant trend shift, which would affect our analysis.

However, the unadjusted labor force participation series demonstrates that the status of the male labor force is more sensitive to seasonal demands by Turkish employers, because the relevant occupations are mostly sought after by agricultural sectors (**Figure 13**). It is important to note that female employment has been greatly shifted from the agricultural sector to the service sector during the recent years.

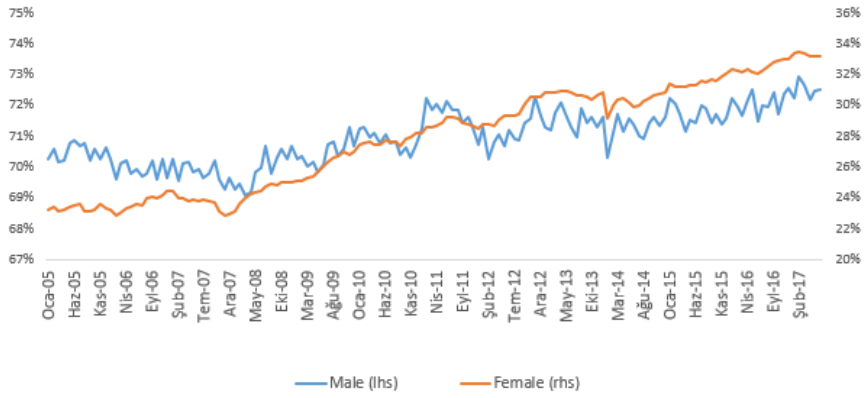
Figure 13: Unadjusted Total Labor Force Participation by Gender



Source: TurkStat

When the effects of seasonality are removed from the series, the fact that the male labor force participation rate exhibits remarkably high volatility when compared to the female labor force participation rate (**Figure 14**).

Figure 14: Seasonally Adjusted Labor Force Participation Rate by gender



Source: TurkStat

Significantly lower volatility in female labor force participation rates proves that although the female labor force participation rate has edged up slowly, Turkey has been witnessing a steady rise in female labor force participation regardless of seasonal effects in recent years. This confirms that it is possible to ensure more women participate in job markets by developing accurate structural reforms and incentives, and following them decisively.

Focus 1: Possible to attain better outcomes in female labor force participation

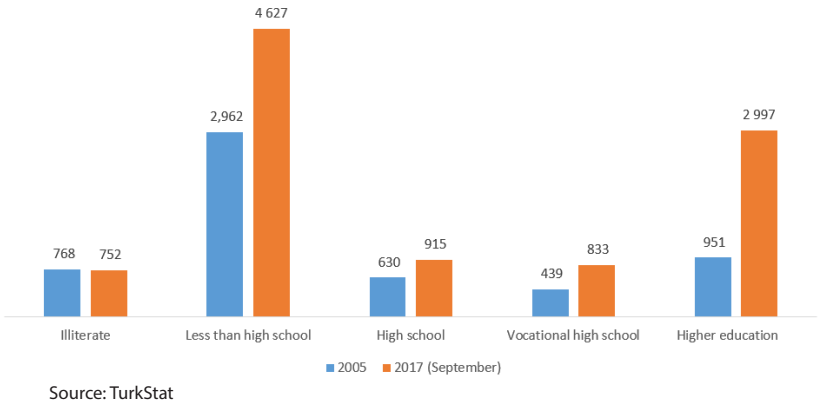
In the last ten-year period, the number of women participating in the labor force has reached 10 million with the inclusion of nearly 4 million more women in the labor market, marking a compounded annual growth rate of 5.3%. As of September 2017, female labor force participation rate reached to 34.5%, which records the new historical highest rate in the country. Based on projections of population compiled by TurkStat, more than 3.3 million women will be at working age by 2023. If female labor force participation continues to increase at the same pace of last ten years (5.3%), only around 42.8% of women will be participating in the labor force by 2023 - well below global averages. **A one-percentage point increase in the annual growth rate of female labor force would pave the way for a 2.5 percentage point increase in the female labor participation rate in the next six year period.**

Considering that women's economic opportunities are vital to sustainable economic growth and in such a scenario, female labor force participation would move to 45.3%. Therefore, policies focusing on encouraging women to be more active in economic activities and removing barriers to women's labor force participation become more important than ever to step up ongoing improvements and achieve efficient labor markets.

More educated, more participating in the workforce - and more unemployed

In recent years, the number of female participating in workforce has remarkably increased with the improvements in both access to and quality of education. Moreover, females receiving higher education represent one fifth of the total female labor force and their share in total female force is second largest after females receiving less than high school education as of September 2017 **(Figure 15).**

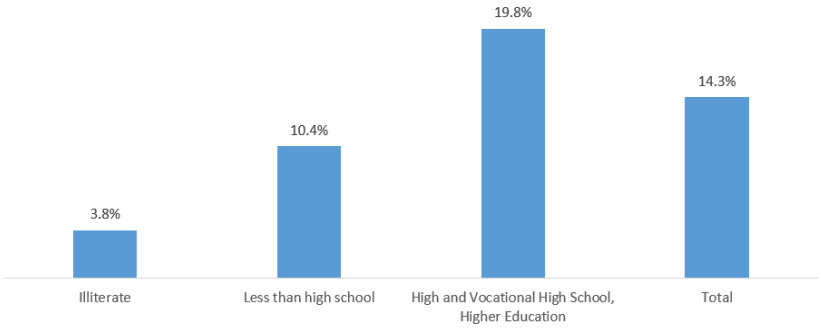
Figure 15: # of Female Labor Force by Educational Level in Turkey (Thousand)



Source: TurkStat

As labor force participation in Turkey increases mostly with the level of education, women with higher educational attainment are thwarted by higher levels of unemployment. In other words, labor market in Turkey struggles to provide enough job opportunities for educated female labor force. It can be concluded that women with low levels of education withdraw from the labor force and those who are in the labor force tend to be employed.

Figure 16: Female Unemployment Rate by Educational Level, 2017 (first 9 month average)



Source: TurkStat

Unemployment among females receiving high school, vocational high or higher education appears as higher than average **(Figure 16).**

The segment of women with at least a high school diploma deserves a closer look, since a critical point is figured out that Turkey is more successful in creating jobs for women with higher education compared to ones receiving high or vocational school education. 58.7% of female population with higher education are employed while employment rates of females with high and vocational school education are significantly lower as indicated by 2017 figures **(Figure 17).**

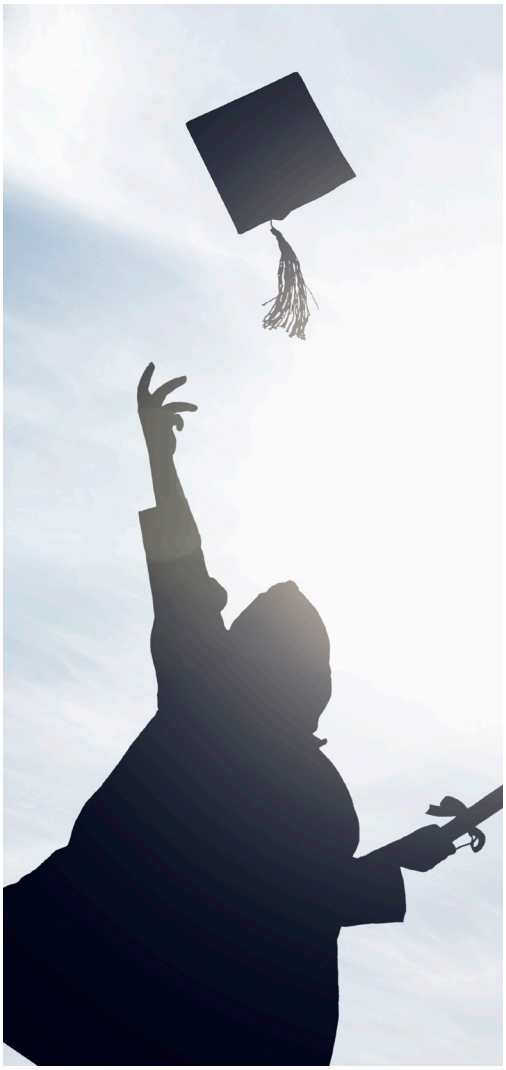
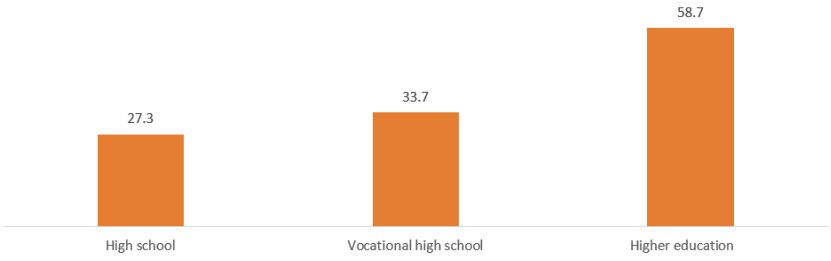


Figure 17: Female Employment Rates by Educational Levels, %, 2017(first 9 month average)

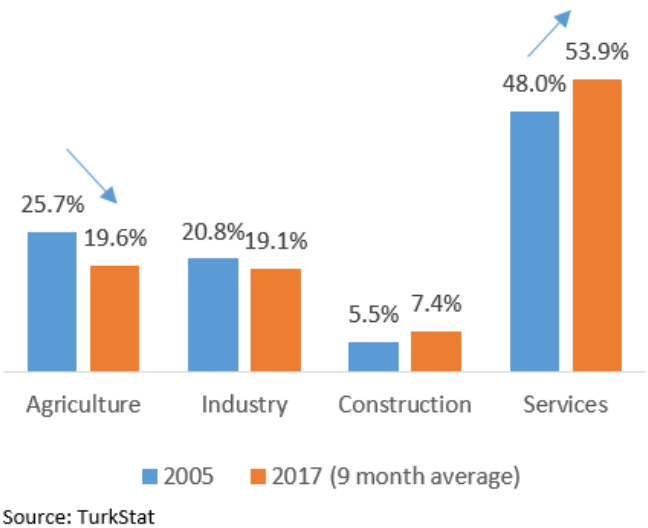


Source: TurkStat

From agriculture to services

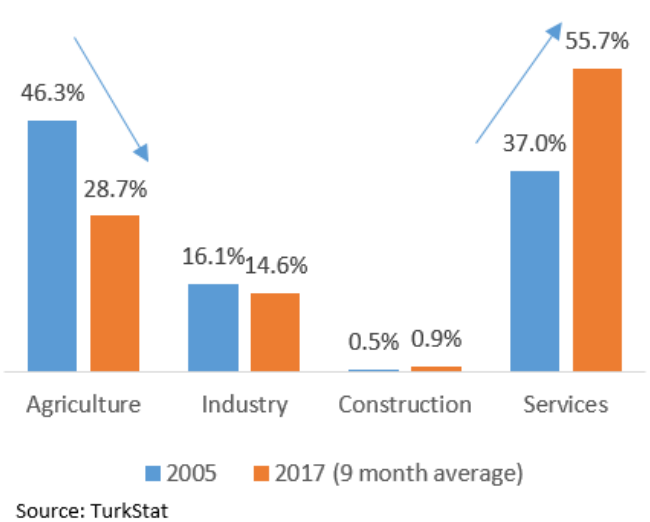
We see a concentration of women's employment in the informal sector at one end and in service professions that require higher levels of education at the other end. The increase in labor force participation has been accompanied by a major structural change in the nature of employment, with the declining share of employment, especially female employment, in the agricultural sector in favor of the service sector. In 1989, agriculture constituted 47% of total employment and 77% of female employment. By 2005, the share of agriculture in total employment had declined to 23.7% while its share in female employment was 46.3%. The share of women employed in agriculture declined to 28.7% in the first 9 months of 2017 through wide-reaching structural changes that have been introduced in past years. The share of services in women employment, at 54.6% as of September 2017, has surpassed the share of services in men employment (52.4%) in the sector for the last ten years (**Figure 18 and 19).**

Figure 18: Total Employment Shares in Sectors



Source: TurkStat

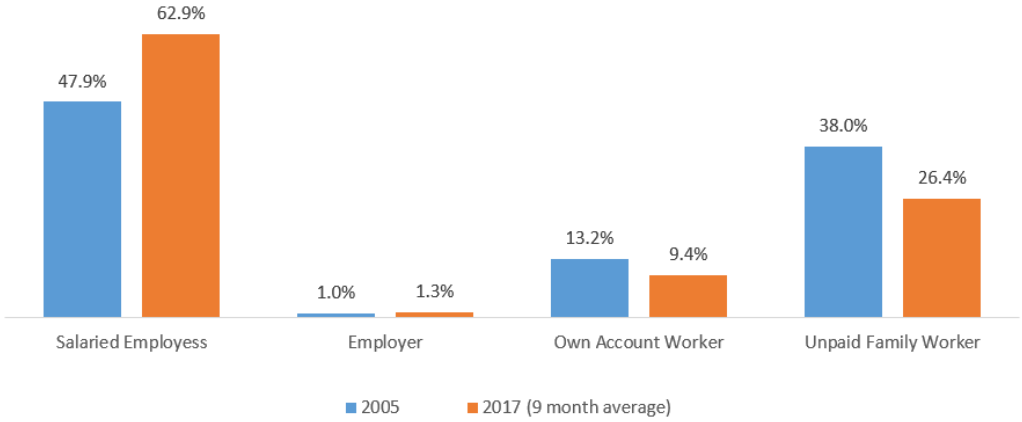
Figure 19: Female Employment Shares in Sectors



Source: TurkStat

The employment status of women has improved with the share of unpaid family workers declining from 38% to 26.4% while the proportion of those earning a salary has increased from 47.9% to 62.9% since 2005 (Figure 20). The increase in the proportion of women earning a salary has been accompanied by an increase in the level of employment in the formal sector, providing paid work and social security benefits through documented work.

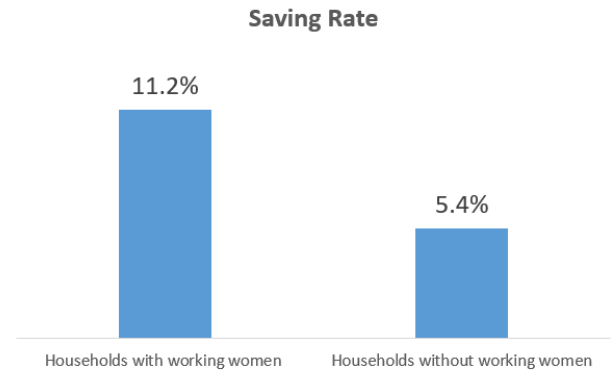
Figure 20: Employment Status of Women



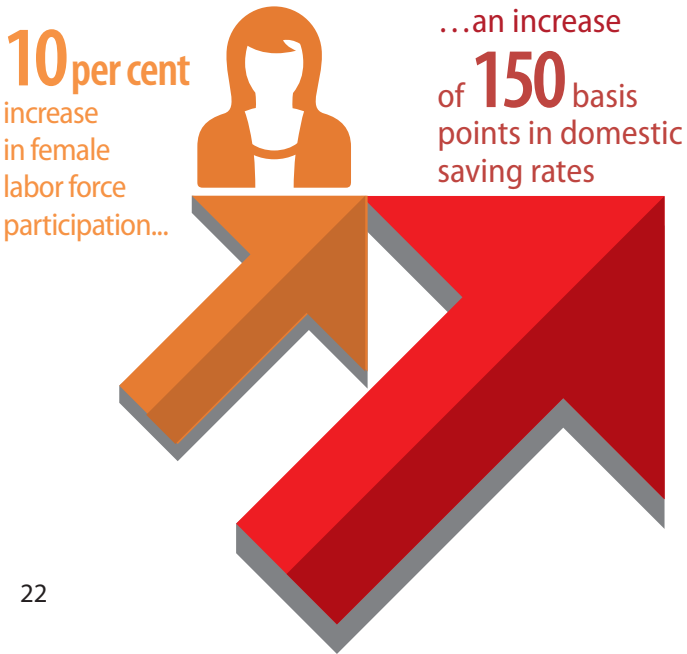
Source: TurkStat

More women needed in labor markets to foster savings and ensure inclusive growth

Turkey has been experiencing high current account deficits, mainly because the level of domestic savings has been unable to finance necessary investments, therefore leaving Turkey dependent on foreign savings. It is imperative that Turkey focuses more on reform packages to increase its insufficient saving rate, which is one of the main obstacles to significantly boosting growth, and the low level of female labor force participation is one of the significant factors behind this. In this regard, the Ministry of Labor and Social Security in Turkey has recently introduced its most comprehensive employment campaign aimed at creating additional 2 million jobs, including tax and social security subsidies to the private sector to incentivize additional employment. The Ministry of Labor and Social Security of Turkey continues to take additional steps and recently announced that it would be extending additional support for enterprises who employ women, young people or the disabled[10]. The policy makers are aware of the fact that women's participation in the labor force could have a substantial impact on closing the savings gap, since it generates additional income for households, thus advancing both consumption and saving. According to the household budget survey conducted by TurkStat, the savings rate among households with working women stands at 11.2%, while this rate decreases to 5.4% in households with where no women are working.



Source: TurkStat



[10] Turkish Employment Agency; İstihdam Seferberliği

Furthermore, empirical studies endorse the positive correlation between labor force participation among women and rates of saving. The specified studies covering 150 countries and the period of 1980-2008 demonstrate that with each 10% increase in the female labor force participation rate, there is an increase of approximately 150 basis points in domestic saving rates[11]. Besides, research studies support the hypothesis that women have a significantly higher propensity to save than men[12].

Obviously, countries should invest in ensuring more comprehensive, collective and dynamic labor markets through decent job creation for women in order to attain **inclusive growth, productive employment and gender equality** as specified in the Sustainable Development Goals (SDG). Necessary actions and initiatives need to be coherently developed and implemented by governments, international organizations, the private sector and NGOs to reach the SDG targets by 2030. In particular, empowering opportunities for women will serve to attain the specific targets including promoting the equal and effective participation and equal opportunities for women in labor markets.

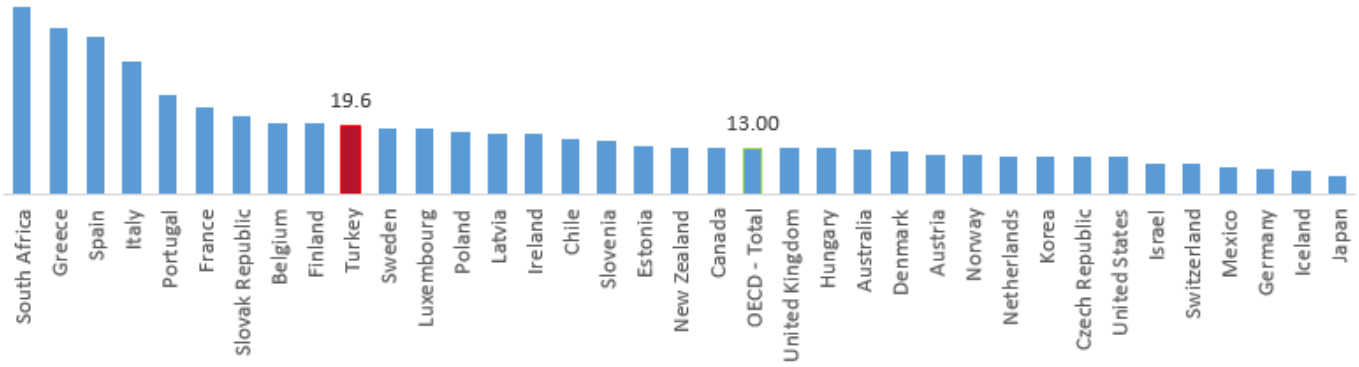
[11] World Bank and Republic of Turkey Ministry of Development (2011); Sustainability of High Growth: The Role of Domestic Savings, Economic Outlook of Turkey
[12] Goldman Sachs: Global Markets Institute (2009); The Power of the Purse: Gender Equality and the Middle-Class Spending

Theme-II

Participation of Young People In The Labor Force

In 2016, there were approximately 13 million people in the 15-24 and 25-34 age groups, representing 32% of Turkey's entire population. This young population will become a great opportunity for the Turkish economy if they can be assured of gaining the capabilities to address the country's future needs. However, this vast resource of young people has not yet been utilized sufficiently and these people face challenges to improve their qualifications. Youth unemployment, standing at 19.6% as of 2016, remains a crucial problem in Turkey, as the rate of youth unemployment in the country is higher than the average among the OECD (13%) **(Figure 21).**

Figure 21: Youth Unemployment (15-24 aged), 2016, %



Source: OECD Stat

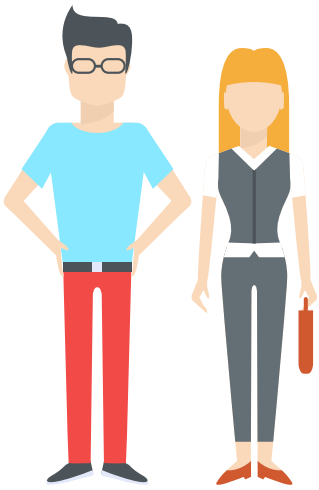
The rate of youth unemployment in Turkey, which has been steadily rising in recent years, is almost double the national rate of unemployment (10.6% in September 2017).

Despite the initiatives taken by the government to improve educational attainment, youth unemployment remains a worrying issue hampering the attainment of inclusive economic growth, since it may lead to consequences such as brain drain, social security costs and even social unrest. [13]

Percentage of NEETs in Turkey

28.2%

the highest among OECD countries



[13] OECD (2015); World Employment and Social Outlook

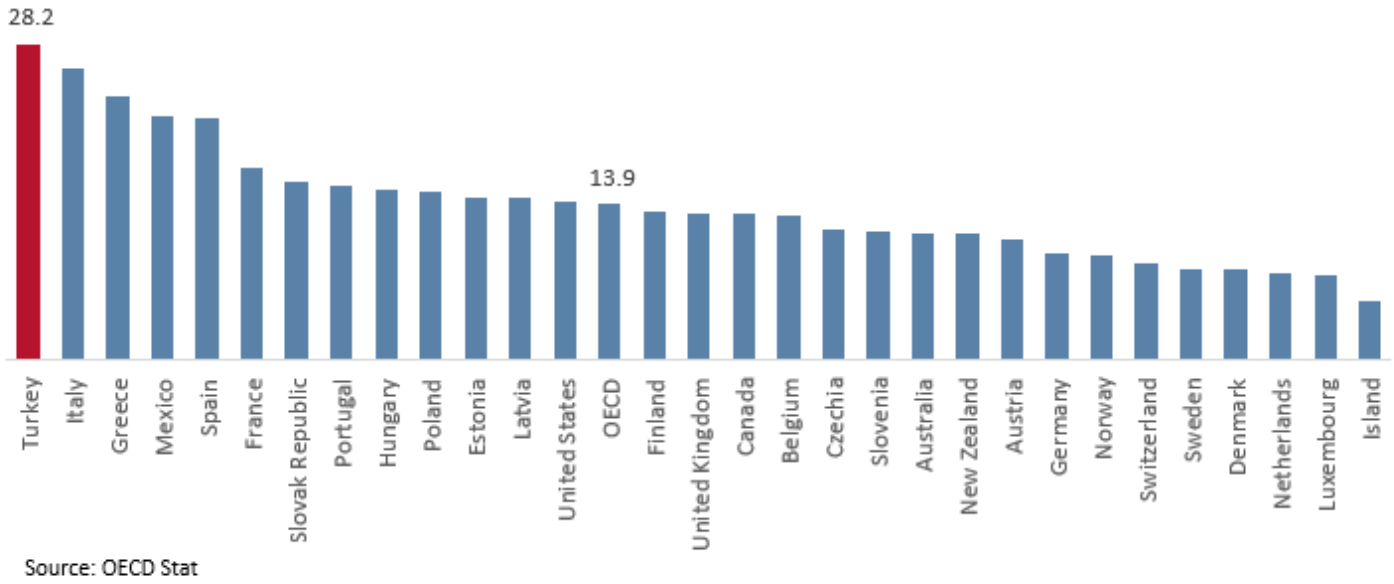
The need to advance a business friendly environment for the young

In the 2017-2018 Global Competitiveness Report published by the World Economic Forum, Turkey is ranked 127th among 137 countries in terms of labor market efficiency while Turkey stands at 53rd in the overall index[14] . This is a significant indicator showing that Turkey fails to utilize human resources efficiently. In addition to the low labor participation of women in Turkey, one fifth of the Turkish youth labor force is unemployed. In recent years, a substantial increase in enrolment into vocational education and training secondary education and apprenticeship programs[15] in Turkey have extended the opportunity to increase skills among young people and raise their presence in labor markets. Nevertheless, additional mechanisms need to be established to support job creation for the entry of young new entrants into the labor market by helping them gain new skill sets through on the job training programs.

High NEET levels among the young still a major concern

The very high ratio of youth not in education, employment or training (NEET) presents massive challenges for youngsters seeking to enter the labor market or find a decent job. Better quality in occupational education and social policies aimed at prioritizing youth employment are underlined in the county's development plans prepared by the Ministry of Labor and Ministry of Development. Nevertheless, Turkey has still the highest proportion of NEETs among the 18-29 age group in the OECD, at a rate of 28.2% - double the OECD average as of 2016 (Figure 22). Early school leave, early marriage, family duties, disability and seasonal occupations are the main causes behind the NEET problem in Turkey[16].

Figure 22: Percentage of NEETs in young population (15-29 aged), 2016, %

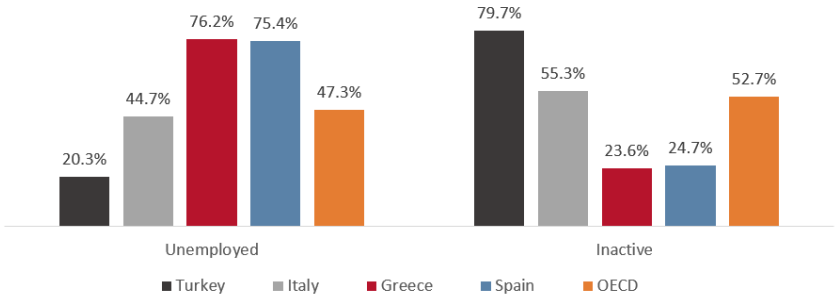


Source: OECD Stat

[14] The Global Competitiveness Report, 2017-2018
[15] World Economic Forum (2017); The Global Competitiveness Report, 2017-2018
[16] OECD (2017); Engaging Employers in Apprenticeship Opportunities, OECD, 2017

While nearly one third of young people in Turkey are not currently working or receiving any education or training, more strikingly approximately four fifths of those NEETs are not even looking for a job. The ones in this group are classified as inactive individuals by the OECD[17] **(Figure 23).** The OECD report on employment and educational attainment finds that a significant proportion of the young people in the NEET group in Turkey do not participate in the labor force - unlike in Italy, Greece and Spain, which have higher rates of youth unemployment than in Turkey and have a high ratio of young people in the NEET group.

Figure 23: NEET by status, 2013 (15-29 year-olds, as share in total NEETs)



Source: Education at a Glance Interim Report: Update of Employment and Educational Attainment Indicators, OECD, 2015

Young people experiencing difficulty in entering job markets after education

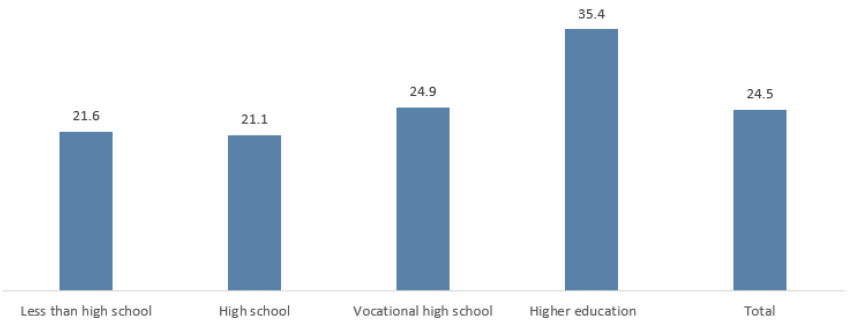
Entry of young people into the labor market survey run by TurkStat demonstrates that long-term job placement period after school of almost half of the young population aged between 15 and 34 lasts more than a year. A third of highly educated ones fail to find a decent job after education in a year, whilst this rate jumps to 58% for the youth having at most high school diploma. Long-standing unemployment period in the beginning of their career hampers to improve skills and even causes retrogression of abilities gained. That is why, initiatives need to be developed to decrease unemployment period after school and quicker employment of youth in terms of their skill sets needs to be incentivized.[18]

Skill mismatch problem affects mostly highly educated youth

In Turkey, young people who have graduated from a secondary and tertiary education have the second highest share of the NEET group, at 35.4%, after those who had received no education at all representing only 2 per cent of NEETs **(Figure 24).**

More concerning point is that the share of the ones with higher education in NEET has been remarkably rising since 2014 and increased by 7.6 percentage points only in three years.

Figure 24: Shares of NEETs in youth for each education level, 2017 (9 month average) (%)

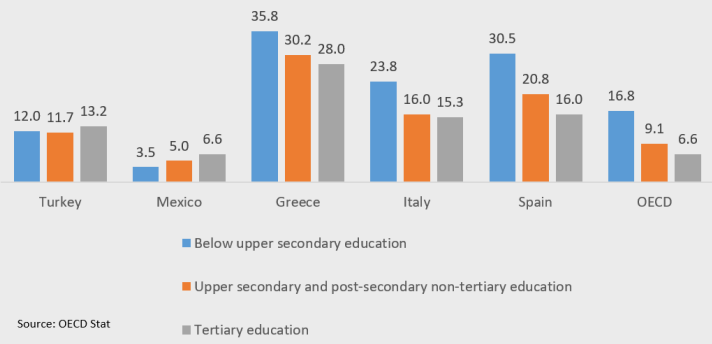


Source: TurkStat

[17] OECD (2015); Education at a Glance Interim Report: Update of Employment and Educational Attainment Indicators
[18] The Central Bank of the Republic of Turkey (2017); Türkiye'de Genç İşsizliği: Tespit ve Öneriler, Central Bank of Turkey, December 2017

In parallel with this, Turkey is the one of only two OECD countries (along with Mexico) where the rate of unemployment among 25-34 year-olds holding a tertiary school education is actually higher than that of those with less than upper-secondary, upper-secondary or post-secondary (but non-tertiary) education **(Figure 25)**. One of the main reason of this picture is that skilled young people being able to afford to look for a formal-sector job and having more alternatives to join the labor market, whereas most unskilled individuals are occupied in low-paid and precarious informal jobs. Having said that, a considerable proportion of skilled young people with upper-secondary and tertiary education are obliged to leave their education and enter the labor market, resulting in a large share of young people working in fields unrelated to the subjects of their studies.[19]

Figure 25: Unemployment Rates by education level, % (25-34 aged, 2016)



Source: OECD Stat

Studies confirm that approximately thirty per cent of graduates from secondary and tertiary education are employed in such occupations requiring lower skills compared to their skill sets[20]. This skill mismatch problem results from an unqualified education and the failure of job markets to create substantial employment opportunities, especially for the young. Together with incentives for additional employment, the government also designs support mechanisms to encourage on-the-job training programs in order to facilitate the conditions necessary to encourage the young population participate sooner in labor markets[21]. Although positive outcomes have begun to be observed in seasonally adjusted youth unemployment rates during this year with additional employment incentives announced by government in 2017, policy makers should enter more collaboration with private sector employers to develop programs aimed at upskilling the young in order to overcome persistent youth unemployment.

Education and on the job training for youth is the way to growth

The representation of young people in the labor market would not only improve the country's level of productivity, but also help raise savings by designing mechanisms to increase incomes. For this purpose, both initiatives need to be developed to employ more young people, and essential programs, especially on-the-job training programs, need to be developed to raise their skills in a bid to overcome the skill mismatch problem.

Besides, the introduction of new technologies accelerates the increase in productivity at the expense of the number of jobs, nudging an overqualified workforce to work in low-skilled jobs in the digitalized work environment. Therefore, the issue of mismatches in skills raises significant concerns, especially among young people.

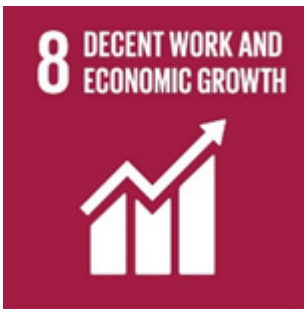
The ability of countries adapt to new technologies is key to ensuring sustainable growth; hence, workers need to prepare themselves to gain the skills that new era requires and governments should extend their support to match the skills and jobs with relevant incentives and applicable policies to avoid structural unemployment. These policies serve to increase in qualified labor force and efficiency, hence accomplish targets of decent work and economic growth, and quality education that Sustainable Development Goals suggest.

[19] Scarpetta, S., A. Sonnet (2012); Challenges facing European labour markets: Is a skill upgrade the appropriate instrument?, Intereconomics
[20] Aşık, G. (2013); İşgücü Piyasalarının Göz Ardı Edilen Sorunları: Eksik İstihdam, Atıl İstihdam ve Beceri Uyuşmazlığı, TEPAV, December
[21] Turkish Employment Agency; İşbaşı Eğitim Programları

Many businesses in Turkey, particularly manufacturing sector representatives, complain about difficulties in finding workers with suitable skill sets. According to a survey conducted by the European Bank for Reconstruction and Development (EBRD), more than a quarter of Turkish firms cite the inadequately educated workforce is a major or very severe obstacle to their firm[22]. More than a third of those in the NEETs category blame an inability to be employed in the transition process after school[23].

In this regard, they claim that even though the current education system provides substantial education for the young population in technical matters, they participate in the labor force without the targeted practical skills that companies are looking for. Therefore, governments need to draft essential mechanisms in collaboration with the business community to bring indispensable skills industry entails to young people.

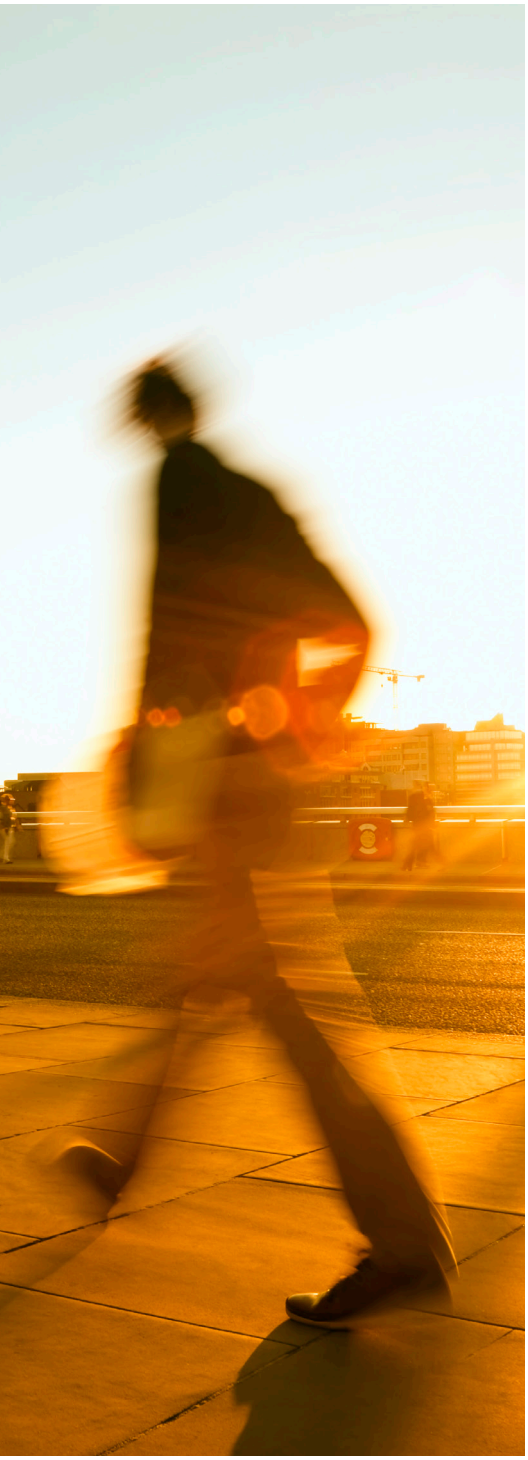
For this purpose, as well as initiatives to improve the quality of education and, in particular, invest in on-the-job training, sectoral strategies and policies need to be set up which will improve access to finance for firms. Large as well as small enterprises can have a positive impact on young people's employment prospects and play critical role in boosting job creation, reducing the mismatch in skills and bringing about better labor market outcomes for the young and stimulating inclusive growth[24].



[22] Barlett, W. (2013); Skill Mismatch, Education Systems, and Labour Markets in EU Neighbourhood Policy Countries, WP5/20 Search Working Paper, September 2013
[23] Gökşen, F. and others (2015); Türkiye'de NEET Politikaları, Koç University Social Policy Center, November 2015
[24] Promoting better labour market outcomes for youth (2014); OECD and ILO background paper for the G20 Labour and Employment Ministerial meeting, September

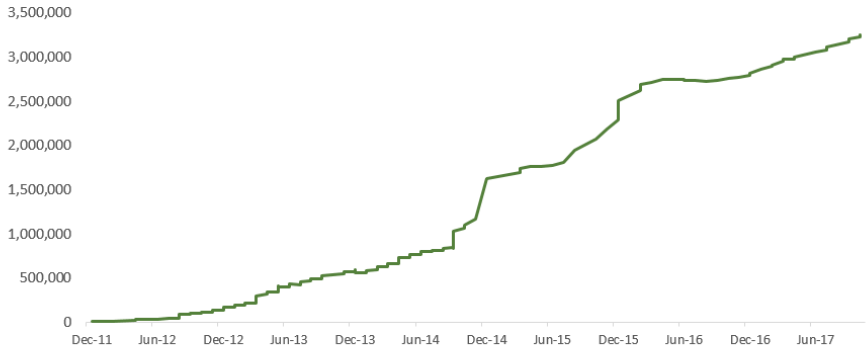
Theme-III

Employment Priority Regions



Located at the axis of various conflict zones, Turkey has experienced some refugee inflows in recent history, such as the arrival of Turks from Bulgaria in 1989 and Muslims from the former Yugoslavia in the early 1990's. However, the escalation of the Syrian Civil War in the 2012-2013 period precipitated unprecedented flows of refugees seeking protection in the country. Since the beginning of the war, the number of Syrian refugees has grown continuously, reaching 5.3 million as of November 2017. So far, Turkey has registered **over 60% (3.3 million)** of the Syrian people and today hosts world's largest refugee population, with 3.6 million of refugees[25].

Figure 26: Number of Syrian Refugees in Turkey



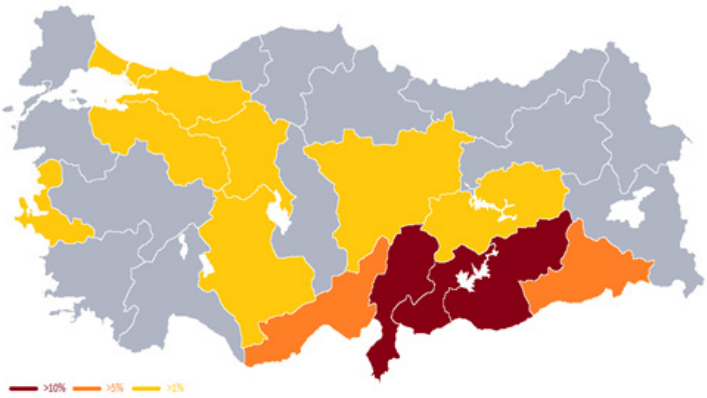
Source: UN Refugee Agency

[25] UN Refugee Agency; Syria Regional Refugee Response

Half of sub-regions significantly affected by the refugee inflow

According to official statistics published by the Ministry of the Interior on 7 September, 2017, the number of "Syrians under Temporary Protection" (SuTPs) hosted in Turkey amounted to over 1% of the local population in 13 NUTS-II sub-regions in Turkey **(chart 1).** This figure rises to as much as 18% in the TRC1 sub-region, which borders northeast Syria and consists of the Southeastern provinces of **Gaziantep, Kilis and Adıyaman.**

Chart 1: Distribution of SuTPs in NUTS-II Sub-regions as a Percentage of Local Population



Source: Directorate General of Migration Management, Ministry of Interior, September 7, 2017

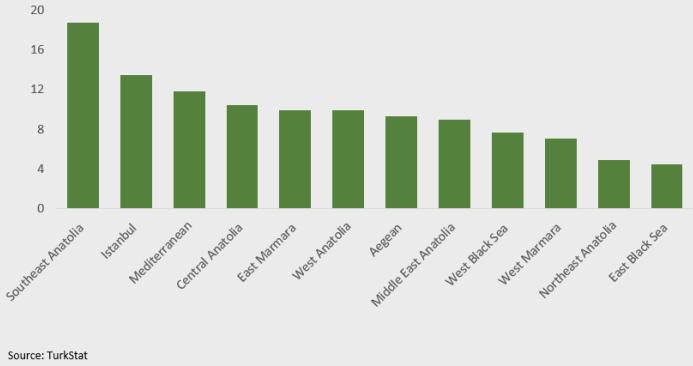
The first influx of Syrian refugees was observed in South Eastern Turkey, where refugee camps are constructed and controlled by the Turkish government. Since 2013, refugees started to spread to other provinces in Turkey and today over 93% of them live outside the camps. Nearly 1.9 million Syrian people living in Turkey are of working age (between the ages of 15 and 64), and this population places pressure on the labor markets in some regions.

Figure 27: Syrian Refugees Age Groups

Persistent differences in unemployment rates across regions

The disparity in unemployment between regions is one of the most defining characteristics of the Turkish economy. Contrary to classical economic theory which asserts that unemployment disparity between regions is a phenomenon only likely in the short term, unemployment in Turkey does appear to be persistently higher in the country's east. **Figure 28** shows the unemployment rates in Turkey's NUTS-1 regions[26]. As seen in the figure,

Figure 28: Unemployment Rates in NUTS-1 Regions (2016, %)

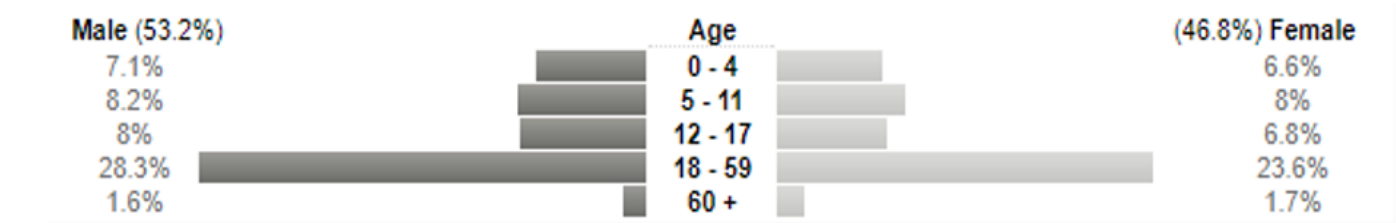


Source: TurkStat

unemployment rates vary sharply between regions, from 4.5% in the Eastern Black Sea region to 18.7% in Southeast Anatolia.

Examining the unemployment rates in 13 refugee-affected sub-regions in which the number of SuTPs exceed 1% of the local population, we observe a distinct and consistent difference compared to the rest of the country **(Figure 29).** Since 2012, these regions have undergone a worsening disparity as the gap in unemployment rates between regions has increased by a further 120bps to 5.1%.

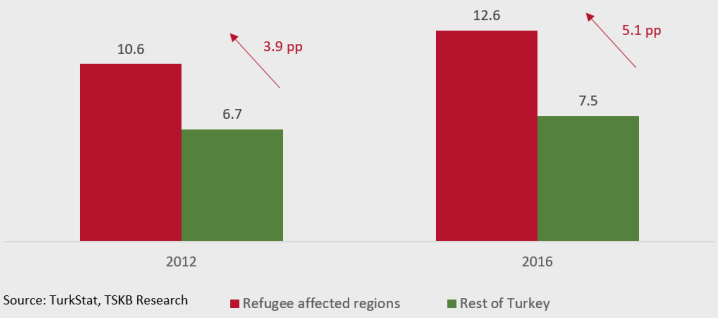
Figure 27: Syrian Refugees Age Groups



Source: Ministry of Interior

[26] Please see the appendices for information on NUTS regions

Figure 29: Differences in Unemployment Rates by Regions (%)



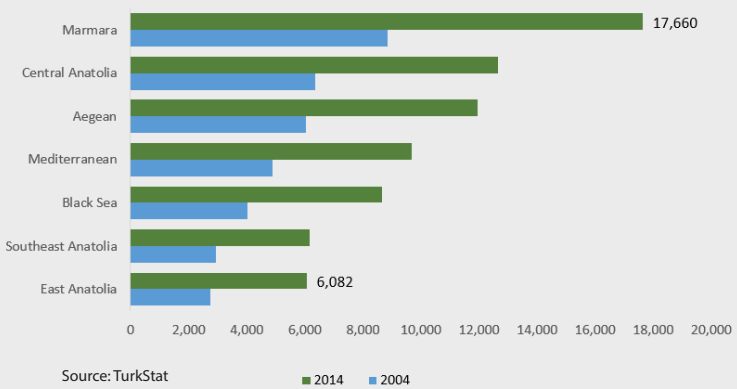
Source: TurkStat, TSKB Research ■ Refugee affected regions ■ Rest of Turkey

The rate of unregistered employment in Turkey has demonstrated a remarkable improvement in the last 15 years. The rate has dropped from 52.1% in 2002 to 33.5% in 2016[27]. However, there is still a sizeable shadow economy. With informal labor activities in Turkey more prevalent in the labor-intensive, low-paid manufacturing sectors, the refugee workforce has been employed intensively in the domestic and care services, entertainment, construction, tourism, agricultural and the leather and textile industries[28]. In that regard, the negative impact of the refugee influx is mostly felt through informal sector.

Apparent income disparities across regions

Reducing regional development disparities has always been an integral element of Turkey's development plans. Although Turkey has demonstrated a robust economic performance since early 2000's, the measures to close the gap between the regions have proven insufficient and the problem of inequality still remains. Today, the income in the most affluent region is still almost three times those of the poorest **(Figure 30).**

Figure 30: Gross Income per Capita by Geographical Regions ($)



Source: TurkStat ■ 2014 ■ 2004

Considering the fact that there is vast regional imbalances, the figures show that underdeveloped regions cannot fulfill their potential for convergence and more effort is needed to accelerate closing the regional gap.

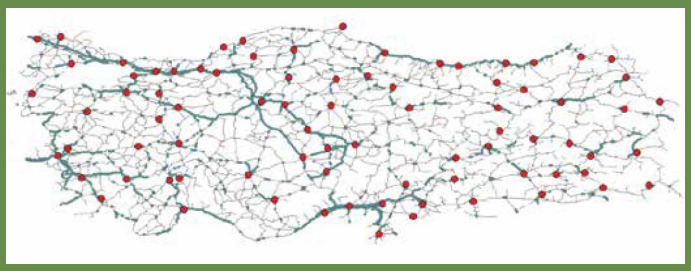
[27] Republic of Turkey Social Security Institution; Informal Employment Rates
[28] European Parliament (2016); Turkey: Labor Market Integration and Social Integration of Refugees

Focus 2: Infrastructure improvements can ease the inequality among regions

As illustrated above in Figure 30, Marmara Region substantially dominates Turkish economy with its large population accounting for 25% of the country's total population and its high share in industry. In order to change the current situation, which is marked by widening gaps between regions, Turkish government adopted a strategy of enhancing logistic infrastructure across the country. Accordingly, the share of four-lane expressways in the interprovincial road stock rose from 10% to 35% between 2002 and 2015.

Chart 2: Turkey's Road Network

2005

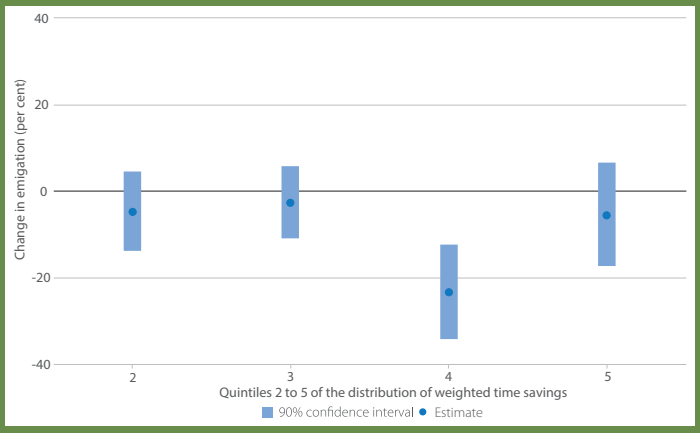


2015

The relationship between road infrastructure and growth is recently discussed in EBRD's Transition Report 2017-18. The report links reduced travel times due to road improvements to changes in regional employment and migration patterns. The study reveals that a one-hour reduction in average travel times from the provincial center increases employment by 0.6%. This is mainly attributable to the fact that firms in the previously isolated regions enjoy a greater market access both in terms of ability to sell goods and in terms of ability to buy the required production inputs, as a one-hour reduction in travel times between two provincial centers increases bilateral trade between those two provinces by around 6%.

Another crucial finding mentioned in the report is that there is a strong link between transport infrastructure and emigration. The analysis finds that improved connectivity is associated with large reductions in outward migration from previously poorly connected regions **(Chart 3).** Having experienced an intense inter-regional internal migration in the industrialization process, Turkey's efforts in infrastructure can lead to employment gains in relatively isolated regions.

Chart 3: Time Savings and Change in Emigration



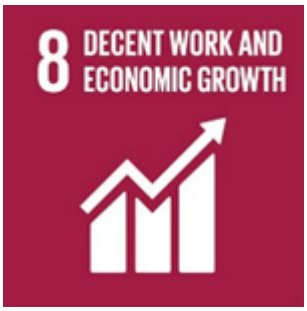
Source: EBRD Transition Report 2017-18

The Third Bosporus Bridge and Osman Gazi Bridge increased the integration between the industrial zones of İstanbul-Kocaeli-Adapazarı and Bursa, Bilecik, Eskişehir, Bolu, Düzce, which stimulates the dispersion of industrial production. Besides, to increase the diffusion towards north Aegean, the government decided to make a new bridge in Çanakkale, which would affect Balıkesir, Çanakkale, Manisa region. In accordance with the 2023 targets, Turkish government plans to increase the length of dual carriageways a further 40% to 36,500 km from 26,000 km in 2017. These steps taken by the government should be seen as part of a broader plan to increase the access and diffusion of industries among markets, which would lower the inequality among regions and thus ensure inclusive and sustainable growth.

Investments needed in regions for sustainable and inclusive growth

The problem of stubbornly persistent inequalities between Turkey's regions can be improved by external financing along with policies aimed at favoring employment priority regions and with the support of infrastructure projects (mentioned above in "Infrastructure Improvements Can Ease the Inequality among Regions" segment).

In conclusion, job-creating investments in areas with relatively higher populations of refugees could help drive Turkey's economic growth and social inclusion in the regions by reducing the dependency of native and refugee populations on welfare benefits and limiting the risks caused by unhealthy working conditions in the informal sector. The positive effects we envisage are also compatible with three Sustainable Development Goals set by United Nations.



Theme-IV

Higher Value Added Activities

Development is a process of structural change towards higher productivity[29]. Since activities are differentiated among their productive capacity, the move towards more efficient sectors increases the overall productivity of the economy [30]. During the process of structural change, developing countries first tend to shift resources from agriculture to industry[31], then towards more productive sub-sectors within those industries.

Thus a developing country has to continuously renew its production composition towards more productive sectors, in line with its level of development. Traditionally, developing countries will initially move from agriculture to labour intensive industries in order to capitalize on their advantage of relatively cheap labour. Capital and technology intensive sectors will subsequently emerge and evolve with the help of physical and financial capital inflows. This shift, supported by importing foreign technology and capital, increases the overall level of productivity. However, as a country develops, the scope for increasing productivity by importing capital and technology tends to reach a limit. The next phase of the development process is broadly a function of changing the economic structure towards higher value added activities.

Countries unable to transform their economy in this sense are destined to be stuck in the Middle Income Trap. To overcome this threat, countries should transform their economies towards higher value added activities.

[29] Rodrik, D. (2011), The Future of Economic Convergence, NBER Working Paper Series, 17400, September
[30] Prebisch, R. (1950), The Economic Development of Latin America and Its Principal Problems, United Nations, New York
[31] Lewis, A. (1954), Economic Development with Unlimited Supplies of Labor, The Manchester School, Volume 22, Issue 2, pp.139-191, May

The example of Turkey

Turkey initially specialized in labour intensive activities such as food, paper and textiles as part of its industrialization strategy. Turkey's industrial structure then accelerated towards capital intensive industries such as cement, iron and steel and motor vehicles, especially with the help of the Customs Union agreement with the European Union in 1995. Despite the successful transformation that Turkey has experienced, there have been some bottlenecks in transforming production and exports towards higher value added activities.

Manufacturing industrial output is dominated by low technology production (Figure 31). As of 2015 (latest data available), low-tech industries employed 51.8% of all those employed in the total manufacturing sector. The currently insignificant share of high-tech industries in Turkish manufacturing output, employment and enterprise number is illustrated in **Figure 31**.

Figure 32 illustrates the value added generated per employee in Turkey in 2015 on the basis of technology classification and reveals the divergence of technological categories in terms of productivity.

Low-tech industries employed

51.8%

in total manufacturing sector

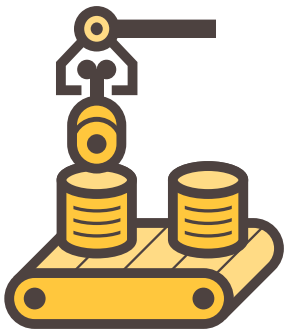
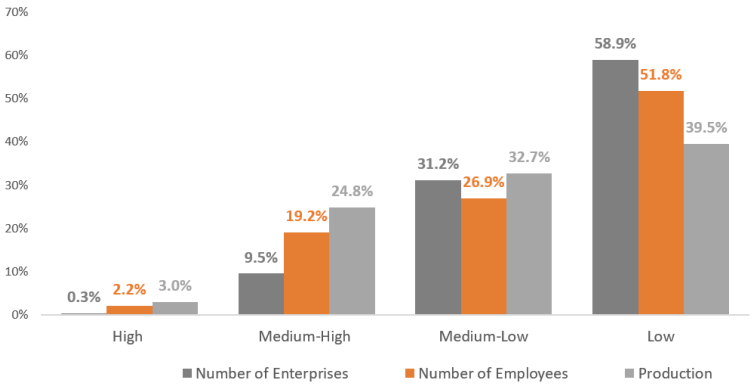
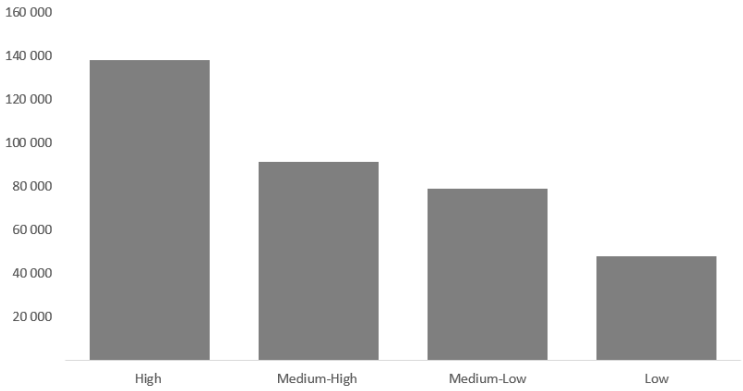


Figure 31: Basic Figures in Manufacturing According to Technology Levels (2015)



Source: TurkStat, TSKB Economic Research

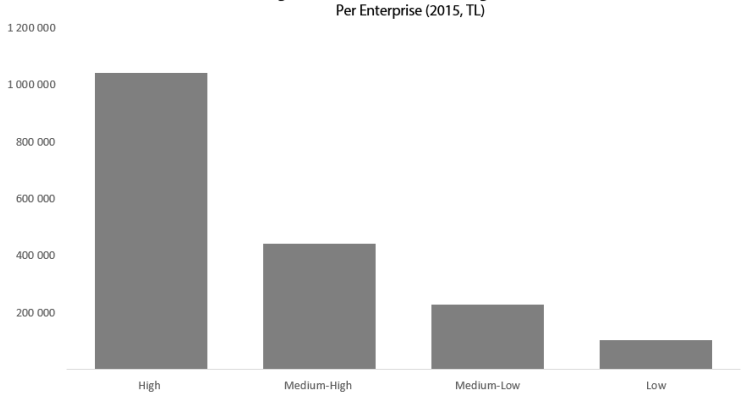
Figure 32: Value Added Per Employee (2015, TL)



Source: TurkStat, TSKB Economic Research

The significant differentiation in value added per employee is an illustration of the importance of orientation towards high-tech sectors. Higher levels of value added per employee can be attributed to the relatively higher investment tendency of high-tech industries **(Figure 33).**

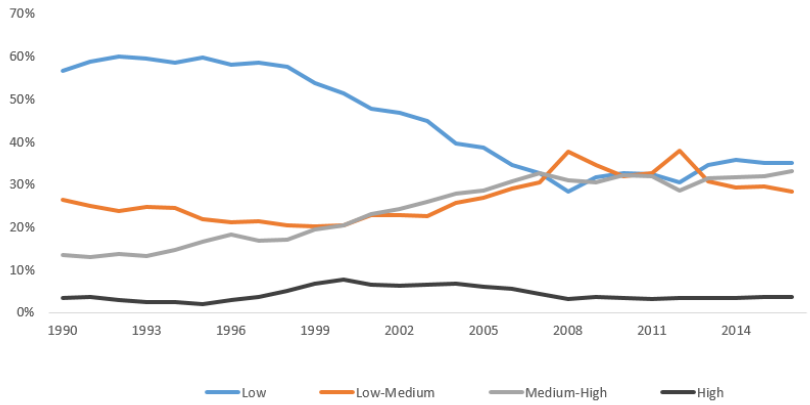
Figure 33: Gross Investment in Tangible Goods Per Enterprise (2015, TL)



Source: TurkStat, TSKB Economic Research

Turkey's progress in development and structural transformation, both in terms of achievements and bottlenecks can be seen in Figure 34, in which the composition of manufacturing exports technology level between 1990 and 2016 is shown. The Turkish economy underwent a rapid structural transformation after the Customs Union agreement signed in 1995. The share of low-medium and medium-high tech exports increased steadily at the expense of low-tech exports until 2008 with high tech exports increasing their share in total exports from 2% in 1995 to 7.8% in 2000 – but this could not be sustained, and the share slipped back thereafter.

Figure 34: Composition of Manufacturing Exports by Technology Level



Source: TurkStat, TSKB Economic Research

A transformation process halted by extraordinary circumstances faced after 2009

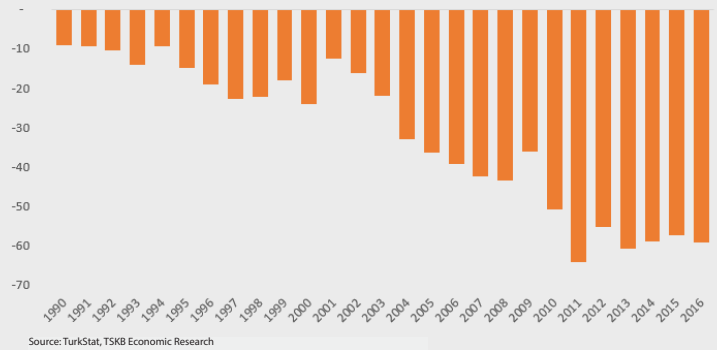
The period between 2009 and 2016 has been surprisingly stable in terms of the shares of each technology classification in manufacturing exports. This, of course, was the period of the Great Recession, the unconventional monetary policies implemented by developed countries, the Euro Area Debt Crisis and the normalization period of central banks in developed countries, which has had a sharp impact on developing countries with savings deficits. In other words, the extraordinary circumstances faced after 2009 halted the transformation process in the economy.

Strong competition in the global economy forces countries to sink or swim; they are faced with a choice of either progressing and continuing to transform, or losing ground in a global landscape due to the increasing competition. The halt in the economy's transformation towards higher value added activities has two key implications on the Turkish economy: (i) frontiers continue to progress and extend the gap, (ii) follower countries erode the competitive advantage of Turkish manufacturers, and narrow the gap. Turkey has experienced both consequences.

Focus 3: A structural deterioration has occurred in current account balance

Turkey has experienced a significant surge in what we call the "technology deficit", which corresponds to the foreign trade balance in medium-high tech and high-tech manufacturing industries (Figure 35). A widening technology deficit coupled with fiercer competition in the low and medium-low tech activities has ultimately increased Turkey's structural current account deficit[32].

Figure 35: Technology Deficit* of Turkish Foreign Trade (billion $)

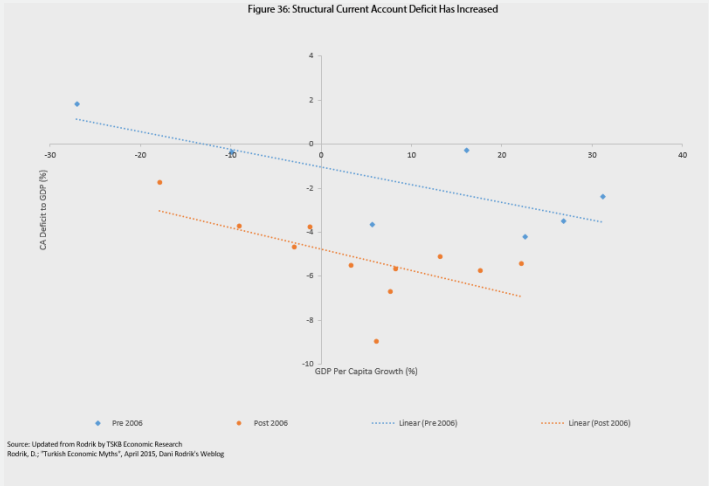


Source: TurkStat, TSKB Economic Research

* Medium-High and High technology industries foreign trade balance

Turkey's current account deficit has been a major problem in terms of financial and macroeconomic stability for a long time. But in 2000's there has been a structural shift, which can be seen if we put the break point in 2006. We updated Rodrik's work on structural **Turkey has had to suffer a wider current account deficit for each unit of per capita GDP growth since 2006 (Figure 36).**

Figure 36: Structural Current Account Deficit Has Increased



Source: Updated from Rodrik by TSKB Economic Research
Rodrik, D., "Turkish Economic Myths", April 2015, Dani Rodrik's Weblog

So, as Turkey's transformation towards higher value added activities falters, the first impact on macro balances to mention is the increasing structural current account deficit. This became an important fragility source for Turkish economy, because of the increasing dependence on foreign capital flows. The sensitivity of the Turkish growth performance to capital inflows has increased which creates an instability potential.

The widening current account deficit also makes it more difficult to achieve the goal of price stability.

As a result of the increasing usage of imported inputs in production, production costs are linked to movements in exchange rates. As capital inflows decelerate, for example because of the normalization of the unconventional monetary policies that have been undertaken in developed countries, the TL comes under pressure, in turn piling cost pressure on producers, especially those reliant on imported inputs. Thus, as the current account deficit widens, the pass through effect is more noticeable, hindering the goal of price stability.

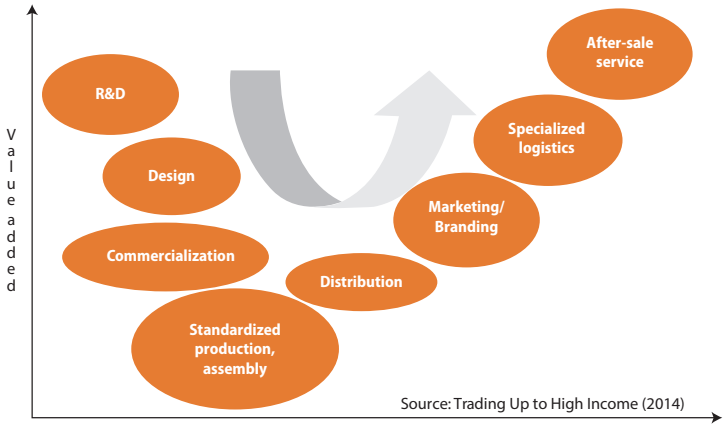
[32] Kara, H.A., Ç.Sarıkaya (2013); Türkiye'de Konjonktürel Etkilerden Arındırılmış Cari İşlemler Dengesi, November, Working Paper CBRT no 13/40

Moving towards higher value-added activities in the supply chain

When we discuss higher value added activities, we are implying both;

a. moving from lower technology sectors to higher technology sectors and also
b. moving towards higher value added activities within the sector.

Chart 4: U-Shaped Value Chain



Source: Trading Up to High Income (2014)

Since the 1970s, production activities have been divided into sub-processes and been spread across countries, due to the decreasing costs of transformation and communication. The formation of global value chains, in which each country contributes to production with whatever it is endowed with, has shaped the world economy and international trade patterns. However, not all links of the supply chain create the same level of value-added. As shown in Chart 4, the early stages of production, including R&D and design, and the later stages of production including branding, specialized logistics and after-sale services creates higher value added in the same sector, free from the technology content of the sector.
As pointed out by the World Bank (2014)[33] , Turkey has successfully integrated into global value chains and commands strong potential to move up the global value chains. "Although Turkey appears to specialize in assembly and the low value added segments of the value chains, the country's presence is strongest in sectors with longer than average value chains", which implies strong potential to climb to higher value added segments of the chain.

Priority Transformation Programs of the 10th Development Plan

The institutions charged with managing the economy are aware of the need to transform, and they have the will to transform production towards higher value added activities. The government launched 25 Priority Transformation Programs in 2015 aimed at supporting the implementation and efficiency of the 10th Development Plan. Priority areas target the acceleration of the structural transformation of the Turkish economy. Five of the priority areas are directly related with our proposed theme, which include:

a. Increasing productivity,
b. Decreasing import dependency,
c. Commercialization in priority technology fields,
d. Technology development via government procurement,
e. Enhancing energy efficiency.

The government has set out "Action Plans" and determined the responsible institution to track the achievements in the targeted actions and monitor the evolution of the progress. Thus, as well as awareness, the government has the willpower to transform the economy towards higher value added activities. The guidance of the public authorities and regulations should be supported through private sector banking activities in accordance with the development objectives set out by both Turkey and the United Nations.

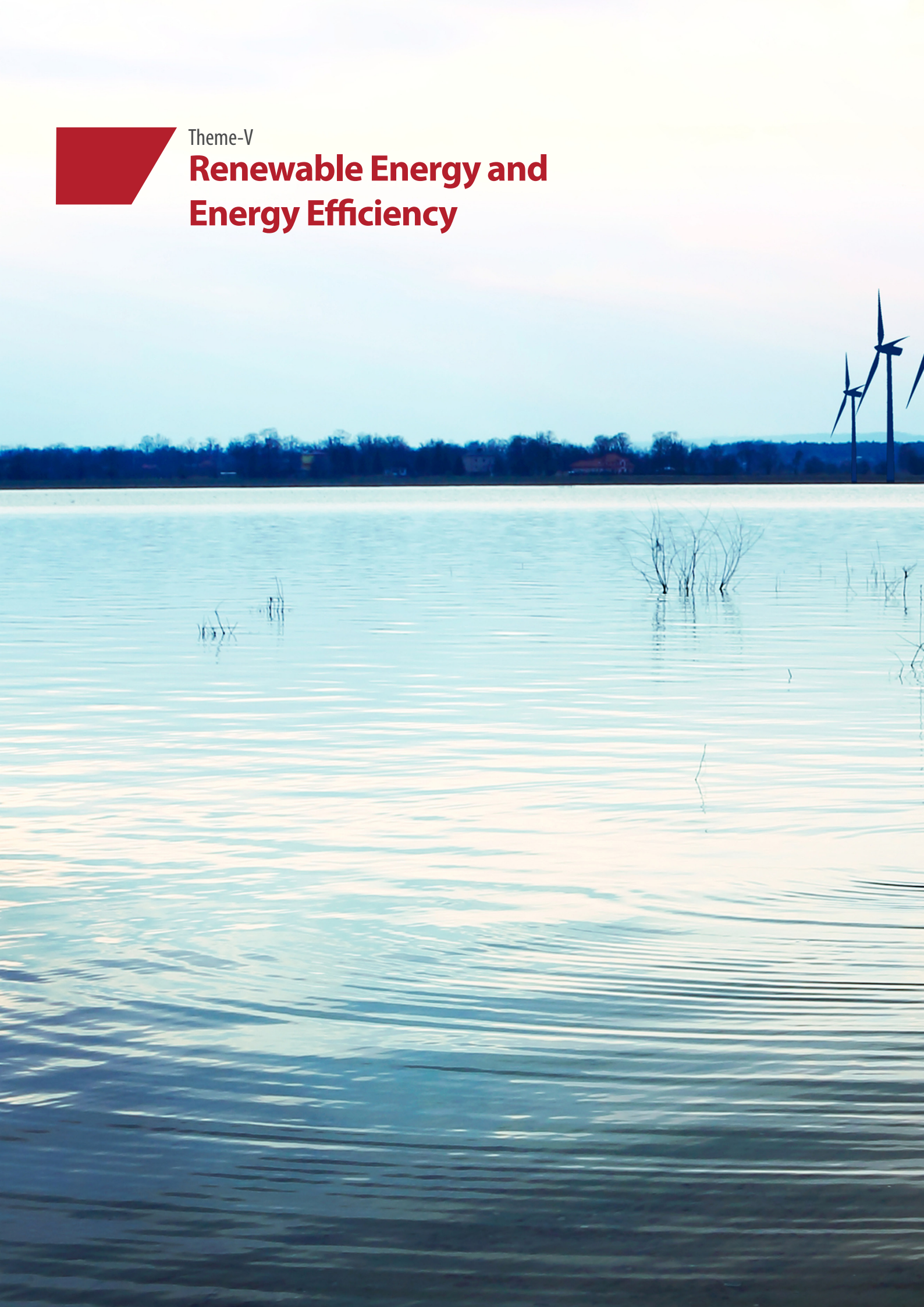
The allocation of funds towards higher value-added activities. . .

Turkey's gapping current account deficit leaves the Turkish economy highly sensitive to capital inflows. Thus, bringing the current account under control by boosting higher value added activities would help reduce the fragility of the country's growth performance. Another benefit of lessening the import dependence would be to reduce the pass through effect, which would eventually work towards achieving the target of price stability. The allocation of funds towards higher value added activities would help resolve the bottlenecks of the Turkish economy and contribute to the goal of sustainable growth as well as achieve the objectives of decent work and economic growth, and industry, innovation and infrastructure promoted in Sustainable Development Goals.

[33] World Bank (2014), Trading Up to High Income, Report No.82307-TR, May

Theme-V

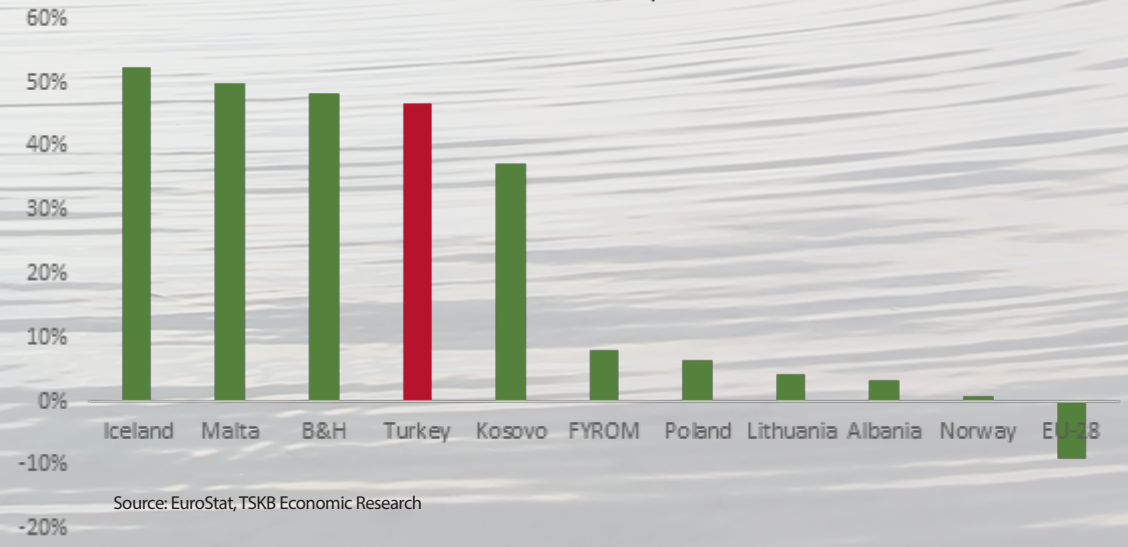
Renewable Energy and Energy Efficiency



a. Renewable Energy

With a rapidly growing population of 80 million and vigorous pace of industrialization and urbanization, Turkey is a distinguished developing country. Turkey's growing fleet of motor vehicles and greater use of heating and cooling systems underpins the growth in demand for energy, which has exhibited the fourth most rapid rate of growth in energy consumption after Malta, Bosnia-Herzegovina and Iceland among all European countries between 2005 and 2015 as seen in **Figure 37**. With average per capita energy consumption much lower than in the OECD countries, at 1.6 tons of oil equivalent (toe) in Turkey vs. a 4.2 toe OECD average in 2015, Turkey's energy demand is expected to sustain its increasing trend. According to the 10th Development Plan, Turkey is expected increase its primary energy consumption per capita to 1.92 toe by 2018. Consequently, Turkey's energy strategy is based on meeting the growing demand in the most environmentally and economically sustainable way.

Figure 37: Increase in Energy Consumption 2005-2015
(in million tons of oil equivalent)



Source: EuroStat, TSKB Economic Research

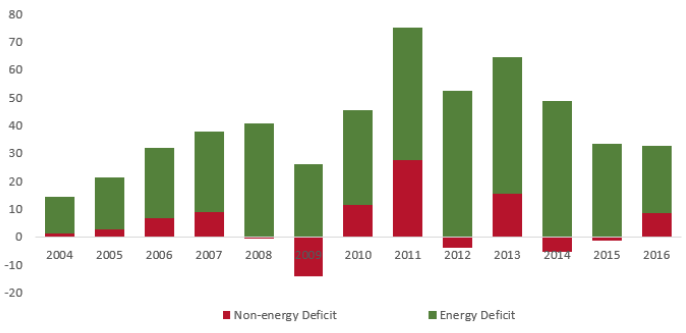
Turkey is an energy importer

Turkey is an import dependent country in terms of energy supply, depending on foreign resources for around 75% of its energy needs. Domestic crude oil production covers only 8% of total oil consumption, while domestic natural gas production only covers 2% of natural gas consumption in Turkey. This dependence on foreign energy manifests itself in the form of the current account deficit and inflation at the macro economical level, and raises the country's exposure to external shocks. Having recognized the negative implications of import dependence, the Turkish government has taken measures, which include exploiting domestic coal resources and increasing the share of both nuclear and renewable generation in the energy mix.

The significant contribution of energy imports to the current account deficit

Along with its low saving rate, external energy dependence is one of the key culprits behind the high current account deficit in the Turkish economy. In the last decade, energy deficit formed 89% of the total current account deficit. As seen in **Figure 38,** Turkey enjoyed relative improvements in its current account deficit during the 2008 global crisis and the 2014-2016 period of depressed oil prices. Recently, though, the deficit has reared its ugly head again with oil prices touching 2-year highs in the third quarter of 2017. According to our estimates, each 10-dollar increase in oil prices adds US$1.7 billion to the current account deficit, adding an additional 2.4% burden on the trailing 12-month figure as of October 2017.

Figure 38: Energy Effect on the Current Account Balance



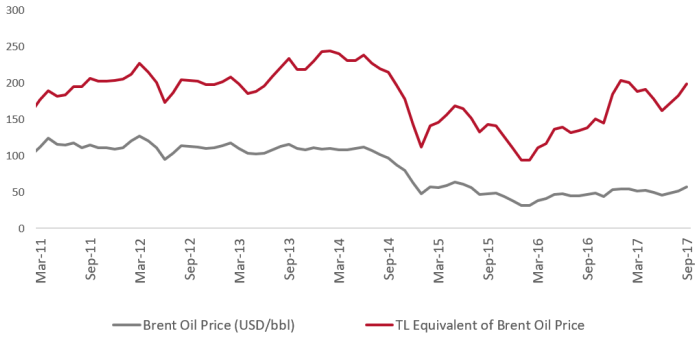
Source: TurkStat

Sustainability in the financing of development will only be possible if structural measures are taken with regard to the energy supply. Without this, curbing the current account deficit without sacrificing economic growth may prove to be a challenging task.

Energy import dependence increases the pass-through effect

Turkey is vulnerable to changes in energy prices through production costs, which are later reflected to domestic prices. Volatility in the energy market takes its toll on the agricultural, construction and transportation sectors along with several manufacturing sub-sectors, which all provide a substantial contribution to the Turkish economy. Energy prices are sensitive to changes in the exchange rate as well as global oil prices, and therefore exchange rate shocks have the potential to generate a significant impact on energy costs even when global oil prices are stable **(Figure 39).**

Figure 39: Brent Oil Price per bbl



Source: CBRT, Undersecretariat of Treasury

Inflation impacted by energy dependence hampers Turkey's economic growth through various channels. Primarily, inflation can adversely affect investments as distortion of inflation expectations prevents enterprises to make a healthy assessment of future return on their investment. Inflation also impedes effective resource allocation by obscuring the signaling role of relative price changes[34]. Furthermore, any increase in energy prices puts pressure on lower income households as they allocate a larger percentage of their disposable income to energy-related expenditures compared to high-income households. In that regard, energy prices can deteriorate income distribution in a way food and

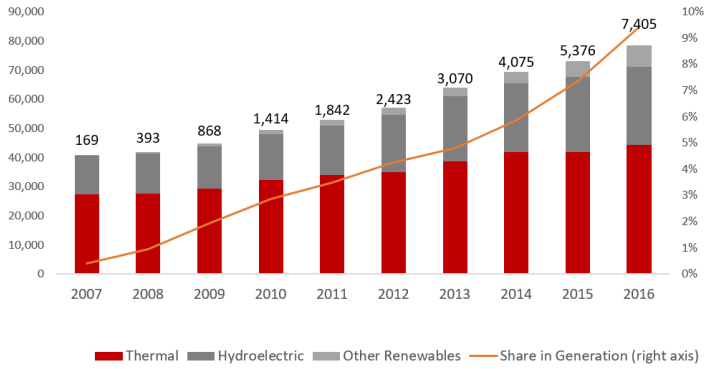
[34] Fischer, S. (1993). The Role of Macroeconomic Factors in Growth. Journal of Monetary Economics, 32: 485-512

rent inflation does. For small enterprises, energy price volatility creates an additional challenge due to the fact that they usually lack the resources or strategy to mitigate their exposure to risk.

Upward trend in renewable energy should continue in order to reach 2023 targets

In order to avoid the risks associated with energy dependence and to develop a sustainable energy model, Turkey is committed to promoting the use of local and renewable resources. Turkey has abundant potential for power generation through renewable resources. Accordingly, the Turkish government has set an ambitious goal to reach a total capacity of 61GW by 2023 from 34GW in 2016, which includes a number of indicative targets for different renewable energy resources[35] . When it comes to the contribution of renewables in total energy supply, Turkey became the third fastest growing country among OECD members between 2007-16, following the UK and Poland, attaining 79% growth in that period[36]. The share of non-hydro renewables in electrical energy generation increased from 0.3% in 2007 to 7.8% in 2016[37]. In the same period, the share of these renewables in total installed capacity has jumped from a mere 169MW to 7,405MW **(Figure 40).**

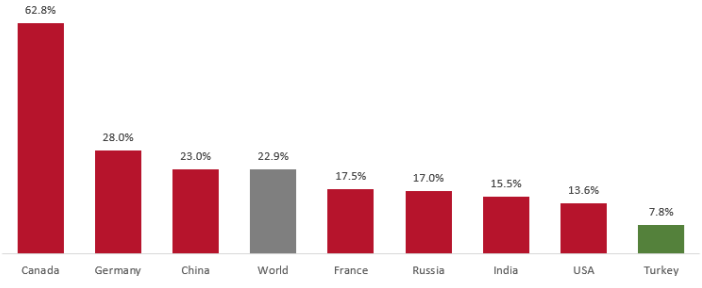
Figure 40: Installed Capacity (MW) and Share of Renewables (%)



Source: Ministry of Energy and Natural Resources

In terms of renewables share in electricity production, Turkey still stands below the world average (Figure 41). Considering the present figures, Turkey's goal of raising the share of renewables in electricity generation to at least 30% can be considered both ambitious and necessary.

Figure 41: Renewable Share in Electricity Production by Countries (2016)



Source: MENR

[35] National Renewable Energy Action Plan 2013-2023
[36] OECD database
[37] Ministry of Energy and Natural Resources (2017). Dünya ve Türkiye Tabii Kaynaklar Görünümü, Sayı 15

Strong support policies for renewable energy

The Turkish Government established the 2023 objectives based on abundant availability of renewable energy resources - hydro, wind, solar, geothermal and biomass. With a land area of 800,000 km^2 and an ideal climate, Turkey benefits from massive potential for wind energy and, in particular, solar energy. Turkey boasts Europe's highest share in technical wind energy potential thanks to the strong winds blowing from the Aegean, Black Sea and Mediterranean. Considering the level of solar radiation at Turkey's latitude and the duration of sunshine, Turkey is also regarded as having the highest solar energy potential in Europe, along with Spain[38] .

Table 1: Installed Capacities and 2023 Targets of Renewable Energy Sources

Resource	Installed capacity by 2016 (MW)	2023 Target (MW)	Completion Rate
Hydroelectric	26,681	34,000	78%
Wind	5,751	20,000	29%
Solar	833	5,000	17%
Geothermal	821	1,000	82%
Biomass	399	1,000	40%

Source: Ministry of Energy and Natural Resources

In conjunction with forward looking energy policies, the Turkish Government has adopted incentives for investments in renewable energy production. The first of these, the Renewable Energy Resources Support Mechanism ("YEKDEM"), is a support mechanism for electricity manufacturers from renewable energy resources. YEKDEM has been regulated in the Regulation on Documentation and Support of Electricity Manufacturing from Renewable Energy Resources, which entered force in 2013. According to the mechanism, renewable energy investors are offered a feed-in tariff as a power purchase guarantee. Renewable energy generation facilities that entered operation between 18th May 2005 and 31st December 2020 may benefit from the purchase guarantee for a period of 10 years.

The other support scheme introduced was the Renewable Energy Resource Area ("YEKA"). Public and government owned land categorized as highly suitable for renewable energy generation is defined as YEKA. YEKA projects benefit from tax exemptions, lower license fees, simplified land acquisition procedures and usage right discounts.

b. Energy Efficiency

Turkey's increasing energy consumption raises the importance of energy efficiency due to costly imports in energy supply. Furthermore, Turkey submitted its Intended National Determined Contribution (INDC) on 30 September 2015, with a greenhouse gas reduction target of up to 21% below business as usual (BAU) in 2030. In that regard, the energy efficiency policies are one of the most important components of national strategy because of its direct relation with the economic growth and social development objectives' sustainability and its key role in reducing the total greenhouse gas emission[39] .

Turkey introduced energy efficiency with the enactment of the Energy Efficiency Law in 2007 and later, the topic was most comprehensively addressed in Energy Efficiency Strategy Paper 2012-2023. The paper specified Turkey's ultimate goal in energy efficiency: to decrease energy intensity by at least 20% from its 2011 level by 2023. This target seems to exist only on paper now, as the country failed to show the sufficient performance since then. However, as discussed in the National Energy Efficiency Action Plan 2017-2023, which is recently announced in January 2018, the government continues to take steps regarding the issue and create opportunities for investors that are willing to participate in energy efficiency investments.

The Turkish energy efficiency agency, EIE, can subsidize up to 20% of the project costs of industrial establishments investing in energy efficiency. In addition, if they are committed to reducing their energy intensity by an average of 10% over a three-year period under a voluntary agreement, the EIE can subsidize 20% of their energy costs during the first year. The Turkish Energy Efficiency Strategy 2012-2023 sets an intensity reduction target of at least 10% for all industry sub-sectors within 10 years.

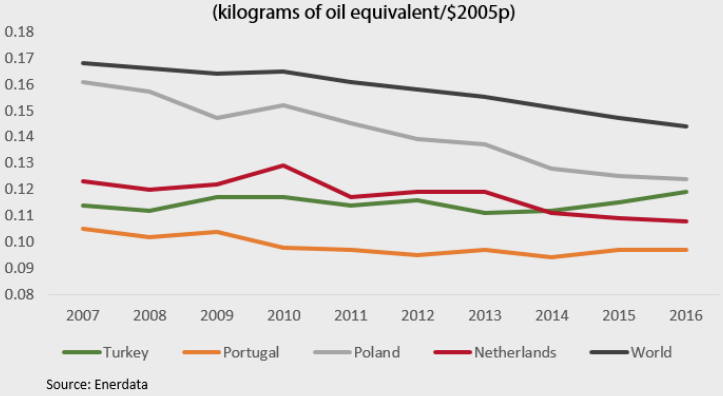
[38] http://turkoted.org/en/yeka-tenders-in-turkey-159
[39] http://www.enerji.gov.tr/en-US/Pages/Energy-Efficiency

Focus 4: Progress in energy intensity is yet insufficient

Energy efficiency is the reduction in the energy consumption per unit of product amount without leading to the decrease of life standard and service quality in building and the production quality and amount in industrial enterprises. Energy efficiency is one of the most important components of 2023 national targets on the back of its key role in supporting economic growth and social development's sustainability.

In the last decade, Turkey has failed to record an improvement in energy intensity contrary to the general downtrend in the world. Despite better positioned than most of the lower income European OECD countries, Turkey still has room for improvement. As seen in Figure 42, energy intensity level fluctuated in a narrow band in Turkey between 2007 and 2016 and recorded slight increases in the last three years, which is contrary to the general trend in the world. In the last decade, the world witnessed a 14% fall.

Figure 42: Energy Intensity in Selected Countries (kilograms of oil equivalent/$2005p)



Source: Enerdata

Energy efficiency is indispensable for sustainable growth

The efficient use of resources in the economic production processes plays a crucial role in achieving sustainable development as well as competitive growth on a national and regional level. Population growth, rising incomes and growing demand for energy has the potential to place Turkey's ecosystem under stress, while the dependence on imports of energy and intermediary goods can cause structural bottlenecks and hamper growth. On the other hand, it is also imperative that Turkey continues its path towards sustainable growth at a time of global concerns regarding climate change.
Investments in renewable energy and resource efficiency in Turkey will contribute to four of the UN Sustainable Development Goals shown below.

Theme-VI

Supply Chain of Food and Agricultural Products

Price stability contributes to sustainable growth and welfare by sweeping away the uncertainty caused by high inflation. Price stability helps economic agents by facilitating their consumption, investment and saving decisions.

Although Turkey's monetary policy regime is one of inflation targeting, and the inflation target stands at 5%, Turkey consistently overshoots its target rate. While average inflation in developed countries is 1.5% and in emerging countries it is 4.3% [40] , Turkey experienced double digit consumer price inflation in 2017.

Between 2010 and 2017, Turkey's annual CPI inflation has averaged 8.3%. Food prices formed a 2.4pp contribution to the CPI, accounting for 28% of the overall increase in the CPI. Thus, one of the underlying causes of high inflation in Turkey is food price inflation. This result is related to the high share of food related products in the CPI basket.

[40] IMF (2016), World Economic Outlook

The importance of food price inflation for Turkey

According to surveys conducted by TurkStat, 21.8% of household expenditures are directed to food and non-alcoholic beverages, a percentage which is inversely related to the level of per capita income. As income per capita increases, the proportion used to purchase food decreases. Thus, as per capita income in Turkey increased during the 2000's, the ratio dropped from 29.4% in 2002 to 21.8% in 2016. However, this ratio is still one of the highest in the OECD **(Figure 43).**

Thus, lowering food price inflation is of greater importance in Turkey. In other words, Turkish consumer price inflation is much more sensitive to rises in food prices than in other countries. Thus, **any policy aimed at price stability needs to focus on food price inflation.**

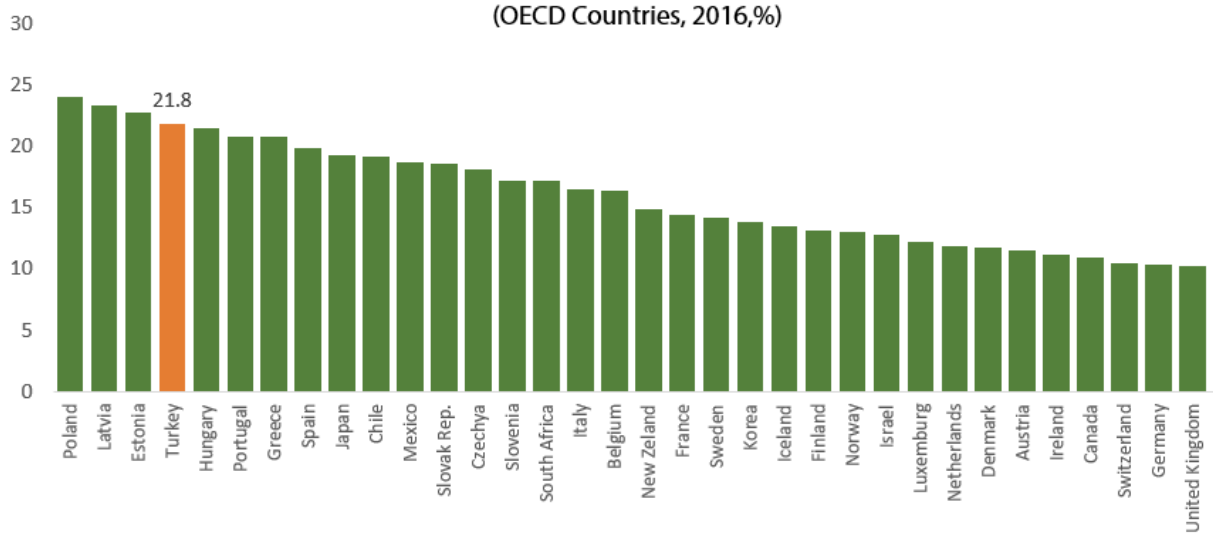
The divergence in food prices between Turkey and World

Global food prices increased by 150% between 2003 and 2011. Turkish food prices have also followed a rising trend in the same period, as shown in **Figure 44.** Since 2013, however, the co-movement of the indices has set the stage for Turkish food prices to increase independently. Even while global food prices decreased in 2014-2015, Turkish food prices continued to increase. The divergence between the price indices then attracted a great deal of attention, because the increase in domestic food prices was not a result of world price surges, but from country specific reasons which means there are structural issues need to be resolved to moderate food price inflation.

The poor are the most affected by high inflation in food

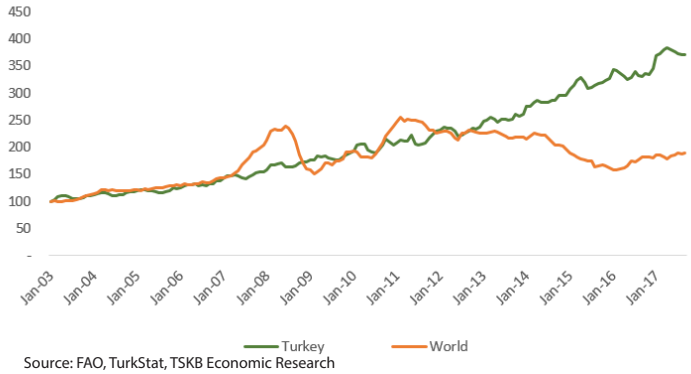
There is an inverse relationship between the share of food expenditure in disposable income and the level of income. This means the lower the income group, the higher the proportion of food expenditure in total expenditures. Thus, higher food price inflation hurts the lowest income group the most, lowering their purchasing power[41].

Figure 43: Food and Non-Alcoholic Beverages Weights in CPI (OECD Countries, 2016,%)



Source: OECD, TSKB Economic Research

Figure 44: Food Price Index (Jan. 2003=100)



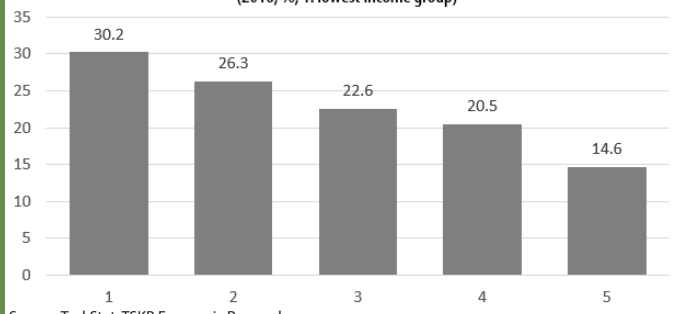
Source: FAO, TurkStat, TSKB Economic Research

[41] FAO, Right to Food, Issue Brief 1, http://www.fao.org/fileadmin/templates/righttofood/documents/RTF_publications/EN/issuesbrief_PRICEvolatility_EN.pdf

Focus 5: Food Price Inflation Leads to Exclusion of Lower Income Group Households

This vulnerable position of the lowest income group should be considered in terms of a widening gap between rich and poor at times of increased food price inflation. A relative increase in food prices results in an increasing portion of food expenditures in total income. As a zero sum game, this will end up lowering the share of money left to spend on education, health and social needs. Empirical data supports this reasoning. The share of food and non-alcoholic beverages in consumption expenditures for the lowest income group stood at 27.5% in 2003; after years of steep food price inflation, it increased by 2.7 percentage points to reach 30.2% in 2016. Furthermore, the share of spending on education and cultural activities decreased from 4.7% to 2.2% in the same period. It could be concluded, therefore, that high food inflation compromised access of the lowest income group to education and cultural activities. This would then have the unfortunate result of lower income group households excluding from some of their basic needs, which would contradict the aim of inclusive growth at a micro level.

Figure 45: Food and Non-Alcoholic Beverages Share in Total Consumption Expenditures (2016, %, 1: lowest income group)



Source: TurkStat, TSKB Economic Research

Increasing income inequality hinders future growth performance

Besides, at a macro level, steep inflation in food prices compromises the purchasing power of the poor, hence exacerbating the gap between the richest and the poorest. The problem of uneven income distribution was one that widely acknowledged after the global financial crisis. The IMF spelt this issue out directly: "While some inequality is inevitable in a market-based economic system, excessive inequality can erode social cohesion, lead to political polarization, and ultimately to lower economic growth"[42] . In addition, the "gini coefficient" and "growth in the next ten years" is inversely related[43] , suggesting that increasing income inequality hinders future growth performance. **Thus, high and volatile food inflation also hinders growth performance by leading to a more unequal income distribution.**

High volatility also widens the uncertainty interval in inflation expectations

The issue with the surge in food prices is not only related to the level of the prices, but also the volatility. As seen in the table, there is a significant degree of differentiation in the volatility indicator of food prices, especially non-processed food prices, among CPI sub-groups. This greater volatility is also confirmed by the annual rate of inflation for processed and unprocessed food throughout 2004 **(Figure 46).**

Table 2: Volatility Indicator of CPI Sub-Groups

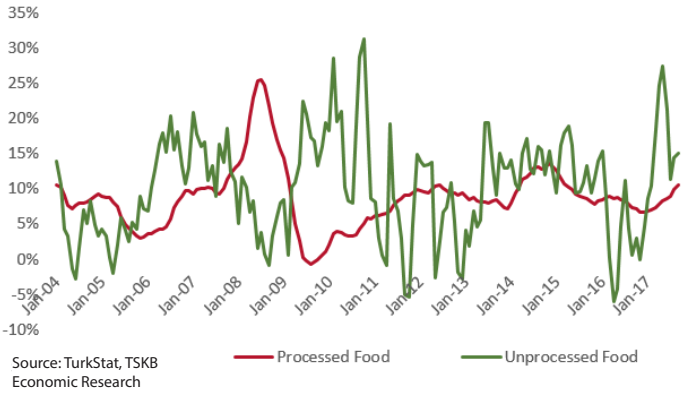
Services	0.12
Goods	0.31
Basic Goods	0.33
Food	**0.52**
Non-Processed	1.08
Processed	**0.2**
Energy	0.36

Source: Öğünç, F., "Türkiye'de İşlenmemiş Gıda Enflasyonunda Oynaklık: Durum Tespiti", CBRT, Economy Notes, 2010-05

[42] IMF Fiscal Monitor: Tackling Inequality, October 2017"
[43] IDuttapa, R. And others, "Growth That Reaches Everyone: Facts, Factors, Tools, IMF Blog, September 2017."

The structural bottlenecks of the Turkish economy lead to high and volatile food inflation, especially in the unprocessed segment. Although there was no annual price increase in October 2016 in unprocessed food segment, the inflation rate went on to spike at 27.3% in May 2017. **Food price volatility in Turkey raises the uncertainty interval of inflation expectations, hampering the process of disinflation.**

Figure 46: Processed/Unprocessed Food Inflation (annual)



Source: TurkStat, TSKB Economic Research

Policy makers' attitude critical in solving the problem

As a matter of fact, efforts to clear the bottlenecks the Turkish economy faces in food prices is critical in achieving the twin goals of price stability and growth. **One important advantage is that policy makers and regulatory authorities are fully aware of the problem and have the willpower to solve the issue.** Within this respect, an inter-ministerial committee - the Food and Agricultural Product Markets Monitoring and Evaluation Committee - has been established, with a mission to solve the issue of food price inflation. The Committee meets under the presidency of the Deputy Prime Minister and includes the related ministries, TurkStat and the Central Bank of Turkey (CBRT). The Committee acknowledges the existence of structural problems in the supply chain of food and agricultural products and underlines the weakening connection between producer and consumer prices. In addition to increasing productivity in agricultural production, the efficiency of supply chain procurement, starting from the farmer and ending with the consumer should also be improved to ensure healthy price formation in the market[44].

The supply chain consists of reaping, transportation and storage. Although agricultural products are defined as non-durable, the classification has its own specification in the range from products that are relatively durable to those that degrade easily. The durability of a product and its tendency to degrade will directly affect its transportation and storage requirements.

Licensed warehouses in non-decaying products

Products that can be preserved, such as grain and legumes, can be stored and measured with standardized units and producers may store their products in licensed warehouses. They will hold a certificate/bill of the delivered product and this certificate can be used as collateral, thus providing the producer with access to loan markets. In addition, thanks to the licensed warehouses, the supply of the product can be spread throughout the whole year, helping to decrease price volatility. Such a legal regulation was enacted in Parliament in 2005, but some issues concerning the practices remain. The Committee is conducting studies in a number of technical and regulative areas and is examining the possibility of subsidies to increase the capacity of licensed warehouses. **Increasing stock capacity in terms of preservable products would help alleviate one of the structural bottlenecks of the Turkish economy**[45].

[44] Songül, H. (2017); "Yaş Meyve-Sebze Tedarik Zincirinde Fiyat Oluşumu", CBRT Blog, July
[45] Tümen, S., H. Songül (2017); "Lisanslı Depoculuk Sistemi Fiyat İstikrarına Nasıl Katkı Sağlıyor?", CBRT Blog, July

Regulation of the packaging, transporting and storing processes

Decaying products require special preparations such as time sensitive harvesting and temperature supervision in the transportation process. The loss rate during the supply chain, starting from the producer and ending with the consumer, is estimated to be 25%. A total of 47.3 million tons of fruit and vegetables were produced in Turkey in 2016. A 25% loss rate implies a wastage of 12 million tons, representing a monetary loss of approximately TL 15.9 billion resulting from wasteful practices in the supply chain.

To mitigate the loss rate, the Committee drafted regulations on the packaging, transportation and storage processes in October 2017, which will enter force in 2019. One of the main ideas behind the regulations is to ensure the required temperature conditions for the products, including all stages from the harvest of the goods to their delivery to the final consumer, referred to as the **"cold chain".** An important factor in cold chain transport is the transformation of the transport units. There are 52,000 refrigerated transport vehicles in Turkey, although only 4,500 of these meet related international regulations[46] .

Reform of the fresh fruits and vegetables wholesale markets

The Committee aims to improve efficiency throughout the supply chain in the food and agricultural markets. An important phase of the supply chain is the wholesale markets in the destination cities, where products are stored before their distribution to retailers. The next regulation on the Committee's agenda will cover the wholesale markets of fresh fruits and vegetables. Important steps are expected towards the modernization of wholesale markets in the coming period, which will increase efficiency and lower the loss ratio of products. This will be achieved by improving the number and quality of the activities handled in the wholesale markets. Activities such as washing, sorting, cutting, packaging and cold storage will be performed in the wholesale markets. As such, the improvement will transform the wholesale markets for fresh fruit and vegetables into a "food complex", or even "food logistics platform"[47] .

Generalizing the licensed warehouses, the regulation concerning the packaging, transportation and storage processes that was drafted in October and the upcoming issues involving the wholesale markets all represent important decisions and regulations toward resolving one of the bottlenecks of the Turkish economy and necessitate a major transformation. This major transformation would both contribute to increasing growth by paving the way for soundly functioning food and agricultural markets, while also contributing to price stability by lowering inflation and price volatility in food products. However, a structural transformation and a micro reform process would generally pay-off in the long run. Thus, support through the finance channel will be crucial to encourage firms to undertake the required transformation.

Funding is the indispensable complement of the structural transformation

The regulations are aimed at setting the standards in the supply chain to effect improvements in the functioning of the market. Like all structural reforms, it is assumed that these important steps will pay off in the longer term, but with a rise in costs for market participants in the short run. Thus, financing the process at this stage would help overcome an important bottleneck in the Turkish agricultural markets and ensure sustainable production patterns via contributing to price stability and increase affordability of secure food for all as underlined in Sustainable Development Goals.

Studies suggest that productivity increases significantly if agricultural producers have the opportunity to access loan markets. Besides, increased agricultural productivity helps lower food prices and volatility[48]. Thus, opportunities to gain credit lead to increased productivity, helping to tackle the problem of food price inflation both in terms of its level and in terms of volatility.

[46] Trailer Industrialists Union (2015); June
[47] http://www.wuwm.org/8dc/news/the-evolution-of-wholesale-markets-into-food.html
[48] Seven, U. (2016); Tarım Bankacılığının Tarımsal Verimlilik Üzerindeki Etkileri, CBRT Blog, December

SDG MAPPING OF THE 6 THEMES IN THEME LOOK 2018 REPORT

SUSTAINABILITY

INCLUSIVITY

APPENDIX A
Turkey Nuts-1 Regions

Region Code	Region Name	Provinces Included
TR1	Istanbul	Istanbul
TR2	West Marmara	Tekirdağ, Edirne, Kırklareli, Balıkesir, Çanakkale
TR3	Aegean	İzmir, Aydın, Denizli, Muğla, Manisa, Afyonkarahisar, Kütahya, Uşak
TR4	East Marmara	Bursa, Eskişehir, Bilecik, Kocaeli, Sakarya, Düzce, Bolu, Yalova
TR5	West Anatolia	Ankara, Konya, Karaman
TR6	Mediterranean	Antalya, Isparta, Burdur, Adana, Mersin, Hatay, Kahramanmaraş, Osmaniye
TR7	Central Anatolia	Kırıkkale, Aksaray, Niğde, Nevşehir, Kırşehir, Kayseri, Sivas, Yozgat
TR8	West Black Sea	Zonguldak, Karabük, Bartın, Kastamonu, Çankırı, Sinop, Samsun, Tokat, Çorum, Amasya
TR9	East Black Sea	Zonguldak, Karabük, Bartın, Kastamonu, Çankırı, Sinop, Samsun, Tokat, Çorum, Amasya
TRA	Northeast Anatolia	Erzurum, Erzinca, Bayburt, Ağrı, Kars, Iğdır, Ardahan
TRB	Central East Anatolia	Malatya, Elazığ, Bingöl, Tunceli, Van, Muş, Bitlis, Hakkari
TRC	Southeast Anatolia	Gaziantep, Adıyaman, Kilis, Şanlıurfa, Diyarbakır, Mardin, Batman, Şırnak, Siirt

APPENDIX B
Turkey Nuts-2 Regions

Sub-region Code	Sub-region Name	Provinces Included
TR10	Istanbul	Istanbul
TR21	Tekirdağ	Tekirdağ, Edirne, Kırklareli
TR22	Balıkesir	Balıkesir, Çanakkale
TR31	İzmir	İzmir
TR32	Aydın	Aydın, Denizli, Muğla
TR33	Manisa	Manisa, Afyonkarahisar, Kütahya, Uşak
TR41	Bursa	Bursa, Eskişehir, Bilecik
TR42	Kocaeli	Kocaeli, Sakarya, Düzce, Bolu, Yalova
TR51	Ankara	Ankara
TR52	Konya	Konya, Karaman
TR61	Antalya	Antalya, Isparta, Burdur
TR62	Adana	Adana, Mersin
TR63	Hatay	Hatay, Kahramanmaraş, Osmaniye
TR71	Kırıkkale	Kırıkkale, Aksaray, Niğde, Nevşehir, Kırşehir
TR72	Kayseri	Kayseri, Sivas, Yozgat
TR81	Zonguldak	Zonguldak, Karabük, Bartın
TR82	Kastamonu	Kastamonu, Çankırı, Sinop
TR83	Samsun	Samsun, Tokat, Çorum, Amasya
TR90	Trabzon	Trabzon, Ordu, Giresun, Rize, Artvin, Gümüşhane
TRA1	Erzurum	Erzurum, Erzincan, Bayburt
TRA2	Ağrı	Ağrı, Kars, Iğdır, Ardahan
TRB1	Malatya	Malatya, Elazığ, Bingöl, Tunceli
TRB2	Van	Van, Muş, Bitlis, Hakkari
TRC1	Gaziantep	Gaziantep, Adıyaman, Kilis
TRC2	Şanlıurfa	Şanlıurfa, Diyarbakır
TRC3	Mardin	Mardin, Batman, Şırnak, Siirt

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