WHAT DO THE NEW TURKISH GDP SERIES IMPLY FOR ECONOMISTS?

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Abstract

In December 2016 TURKSTAT revised the national accounts system and announced the 2009-based GDP series in accordance with ESA-2010. Accordingly, all OECD countries, along with many others, adapted their national accounts system to the new method. While the magnitude of the changes in GDP series were limited in all other countries, the revision on Turkish GDP series happened to be massive. Consequently the new series raised more questions than they answered. As the new series were announced economists were puzzled by the changing composition and growth rates of sectoral output, the broken link between formerly related indicators such as industrial output index and GDP. This study analyzes the effects of the revision through growth rates, saving rates, investment levels, sectoral composition of economic activity and productivity. Few suggestions are listed for economists who would conduct studies on Turkish economy in overcoming the problems caused by the transition to new series.

Keywords: GDP, New Series, Turkish Economy

JEL Codes: E01, E20, E22

TÜRKİYE'NİN YENİ GSYH SERİSİ İKTİSATÇILAR İÇİN NE ANLAMA GELİYOR?

Öz

Türkiye İstatistik Kurumu, Aralık 2016'da ulusal hesaplar sisteminde revizyon yapmış ve SNA-2008 ve ESA-2010 hesap sistemlerine uyumlu, 2009 referans yıllı yeni ulusal gelir serilerini kamuoyuna açıklamıştır. Diğer pek çok ülke ile birlikte OECD ülkeleri de ulusal hesaplar sistemlerini yeni yönteme uyarlamıştır. Diğer ülkelerde GSYH serilerindeki değişikliğin boyutu sınırlı iken Türkiye'de değişikliğin boyutu yüksek ölçüde gerçekleşmiştir. Türkiye İstatistik Kurumu'nun GSYH serilerinde yaptığı revizyon bu yönüyle diğer örneklerden ayrışmaktadır. Dolayısıyla, yeni milli gelir serileri cevapladığından daha çok sorunun ortaya çıkmasına neden olmuştur. Yeni milli gelir serilerinin açıklanmasıyla birlikte iktisatçılar, sanayi üretim endeksi ve GSYH gibi göstergeler arasındaki ilişkinin kopması, değişen sektörel çıktı büyüme oranları ve bileşimi karşısında şaşkınlık yaşamışlardır. Bu çalışmada, revizyonun etkileri, büyüme oranları, tasarruf oranı, yatırım düzeyi, ekonomik faaliyetin sektörel bileşimi ve verimlilik üzerinden incelenmektedir. Ayrıca Türkiye ekonomisi üzerine çalışmalar yapacak iktisatçılar için yeni GSYH serisine geçişten kaynaklanan sorunların üstesinden gelmeye yönelik bazı öneriler sıralanmıştır.

Anahtar Kelimeler: GSYH, Yeni Milli Gelir Serileri, Türkiye Ekonomisi

JEL Kodları: E01, E20, E22

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1. Introduction

On 12th of December 2016 TURKSTAT made two important announcements and allowed public access to the new input-output (and supply-use) tables for the year 2012 and the new GDP series based on those input-output tables. All that changed was not the input-output table that underlies the calculation of the GDP series but the entire method for estimating the magnitude of economic activity was changed. Using a different method for calculating the most important economic data was not merely a decision taken by TURKSTAT but also a requirement for compatibility in terms of data series with European Union (ESA-2010) and United Nations (SNA-2008).

In recent years many countries revised their national accounts systems and announced new GDP series. In most of these countries level of economic activity reported in revised GDP series happened to be higher than those in old series. This was expected since the changes in definitions of components of GDP were leading to such an increase. As *Figure 1* below depicts, none of the countries which have adapted their system to SNA 2008 have announced a decline in their GDP's. The lower portion of the data bars show the changes caused by the new definitions and standards. The upper (red) segment of the bars depict the portion of overall change in declared GDP levels caused by further revisions conducted by particular countries.

Figure 1: Overall effect of SNA 2008 revision in 2010 GDP levels of adapting countries.
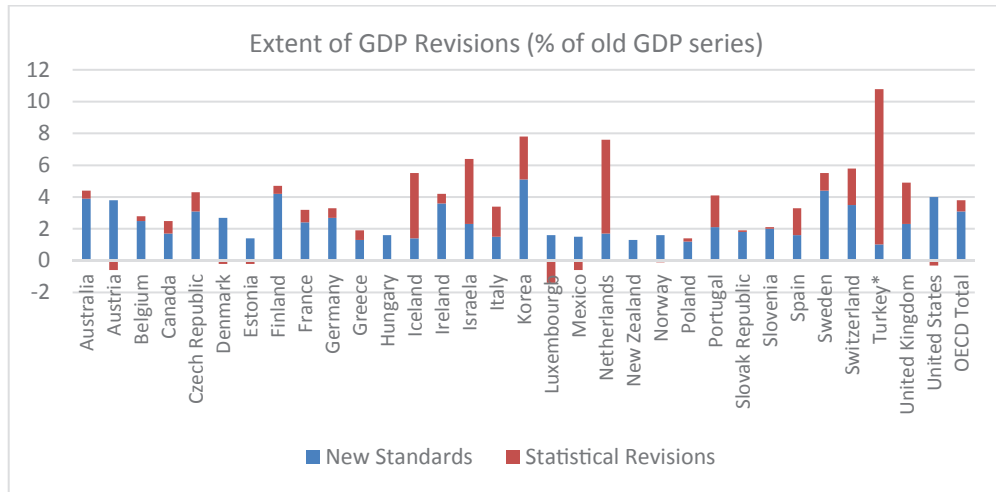
Sources: OECD, van de Ven (2015), Yükseler (2017), own calculations.

* Obtained from Yükseler (2017).

The chart clearly illustrates that no increase in GDP beyond a reasonable 4-5% should be expected solely due to the new standards. Even though the new standards bring sizeable changes in sectoral composition and definition of GDP components, not much of a change in magnitude is anticipated (OECD, 2015). But statistical authorities of some countries use such transition periods as opportunities to amend their national accounts systems and make additional changes in their methodology, data sources and calculation methods; hence the red segments. Turkey is among these countries but the revision in Turkish GDP series happens to be much more substantial than OECD average, which is a mere 3.8%.

Among the sources of differences in old and new GDP series is errors and omissions. It should be noted that in no OECD countries other than Turkey the magnitude of revision due to errors and omissions is higher than the revision due to new standards or changes in estimation methods. Turkey, on the other hand, has a different record. According to the announcement by TURKSTAT (2017) 8% of the 10.8% revision in overall Turkish GDP in the year 2012 is due to former errors and omissions. However in last few years TURKSTAT had announced many revisions for improving the data gathering process in many statistics, some of which contribute to estimation of GDP. Most striking example for this issue is the improvements realized and declared in collection process of data pertaining to construction sector. All the same, construction happens to be the sector which was subject to the highest rate of revision.

Table 1: Annual real growth rates in selected sectors by old and new series (%)

Years	Manufacturing		Construction		Wholesale and Retail Trade		Transportation and Warehousing	
	Old	New	Old	New	Old	New	Old	New
1999	-5,2	-5,5	-3,1	-3,7	-9,2	-10,9	2,2	2,6
2000	6,9	7,1	4,9	6,4	7,5	8,8	12,2	11,9
2001	-7,5	-8,9	-17,4	-20,4	-16,1	-18	-4,1	-5,2
2002	3,1	4	13,9	17,7	6,9	8,6	13,3	13,2
2003	8,3	9,8	7,8	13,8	11,4	12,3	9,2	7,9
2004	11,7	13,2	14,1	21,3	13,8	14,8	10,5	9,7
2005	8,2	9,6	9,3	15	9,5	10,6	10,4	9,7
2006	8,5	9,8	18,5	25,6	6,3	6,6	7,5	6,5
2007	5,6	6,8	5,7	10,6	5,7	5,9	7	6,2
2008	-0,1	0,5	-8,1	-4,7	-1,5	-1,4	1	-0,2
2009	-7,3	-8,9	-16,1	-15,9	-10,4	-12	-7,8	-9,6
2010	13,8	9,6	18,3	17,1	13,6	13,7	11	0,9
2011	10	20	11,5	24,7	11,2	14,6	10,4	6,6
2012	1,7	2,3	0,6	8,3	0	3,1	2	14,6
2013	3,7	9,3	7,4	14	5,1	7,8	3,9	3,7
2014	3,7	6,1	2,2	5	1,9	8,1	3,1	4,5
2015	3,8	5,9	1,7	4,9	2,2	7,7	3	6
1999-2015	3,9	5,1	3,6	7,4	3,1	4,3	5,4	5,1
1999-2009	2,7	3,1	2	4,9	1,7	1,7	5,4	4,6
2010-2015	6	8,7	6,8	12,1	5,6	9,1	5,5	6

Source: Yükseler (2017)

Moreover change in GDP growth rates are expected to be very minor as is the case for all OECD members but Turkey. Turkey seems to have revised her GDP series in such a way that growth rates are affected massively, compared to the 0.5% in OECD average. But even more surprisingly the magnitude of change caused by the revision in GDP series increases as we get closer in time to 2017. This entails that the factors causing the difference between the old and new GDP series are becoming more prominent in time, which is unexpected.

In this study we try to bring together the issues about the new Turkish GDP series which have been discussed by economists (from Turkey and abroad as well) in separate studies and in relatively specific contexts. Although we are far from claiming to have given an exhaustive account of novelties, advantages and problems related to the new series, we present a multi-faceted view of what awaits economists along with these new data series. Moreover we make comparisons with other economies which have been through the same revision process and suggest solutions for the problems that arise whenever possible.

2. What Does the New System Bring?

The most important elements of modification proposed by ESA2010 and SNA 2008 are (TURKSTAT, 2016a; Yükseler, 2017):

i. Expenditure on weapon systems and R&D activities being considered as investment rather than current expenditure

ii. Goods imported or exported for processing being considered as a part of services rather than merchandise

iii. In-house software development being considered as a part of capital

iv. Insurance other than life insurance defined as capital transfer rather than current transfer

v. Classification of government and public institutions being altered

In addition to these amendments TURKSTAT pursued further changes and calculated more recent input-output tables for the Turkish economy, which had been a very dire requirement especially for economists interested in multisectoral models of Turkish economy. Along with this, sources of data have been modified and administrative records have been considered as a major source of data along with surveys and estimations (such as Household Labor Survey, Industrial Production Indices and etc.) which had been conducted by TURKSTAT. This exposes the quality and consistence of GDP series to the potential risk of changing rules and definitions of administrative records, which need not have any economic rationale. Moreover, some of these records are based on balance sheets and declarations of tax payers and other entities such as employers. In countries with poor taxation practices and abundance of informal employment this possibly puts an additional veil on the relation between the actual economy and the GDP series.

Another change brought about by the new standards is the method for calculating real GDP and real growth figures. As is well known, formerly the base year approach was used by most statistical authorities, to which TURKSTAT is no exception. Along with its

disadvantages such as the substitution bias, base year method facilitates sectoral comparisons within an economy. Following the new standards chain-linked volume series are being used, which leads to the additivity problem. Since magnitudes regarding overall GDP will not be the sum of its components, identifying relative weights of sectors in an economy will be more cumbersome. Additionally, sum of GDP levels pertaining to quarters in a year will also be not equal to the annual GDP. That is why annual GDP is calculated separately and quarterly GDP figures are adjusted in the aftermath. It should be noted that the difference between sum of GDP of quarters and the annual GDP is caused mostly by the use of administrative data rather than surveys.

3. What Changed for Turkey?

As mentioned and depicted above, all OECD members had upward revisions in their GDP series, which is not a problem as long as it is based on sound calculations, well documented and consistent. Therefore a country may announce a GDP series which is twice as high as the previous series and no problem might arise. Under this scenario decision makers and researchers could continue to use their research methods, ways of reasoning and habits in forming their expectations. In the case for EU countries, one may observe that even though overall volumes have moderately increased after transition to ESA 2010 standards, series in graphs depicting overall GDP, investment, saving or any sectoral output level seem to have shifted in a parallel way to the old series.
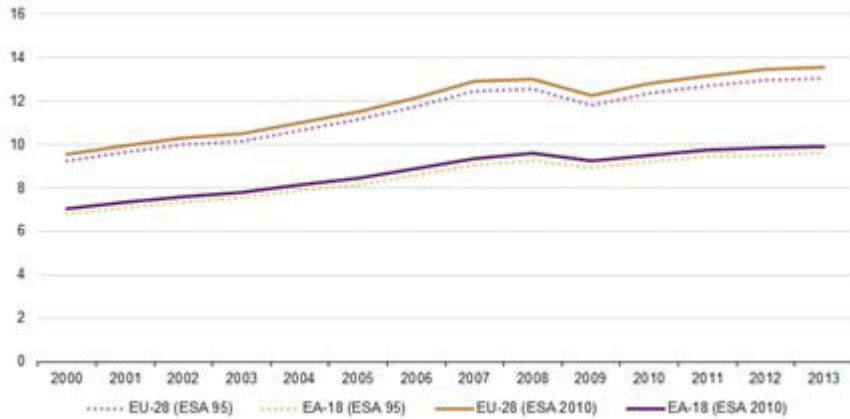
Figure 2: GDP growth rates in Turkey by old and new series (%)
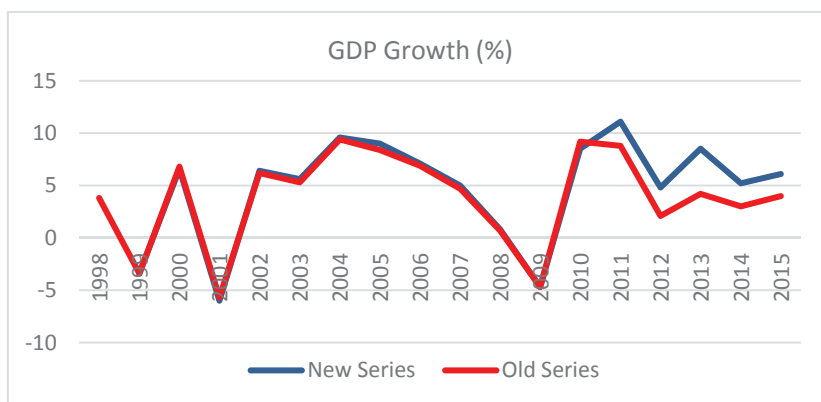
Source: TURKSTAT online database.

It is clearly because no EU or OECD member but Turkey declared significant rises in the GDP growth rates for the corresponding years or quarters.
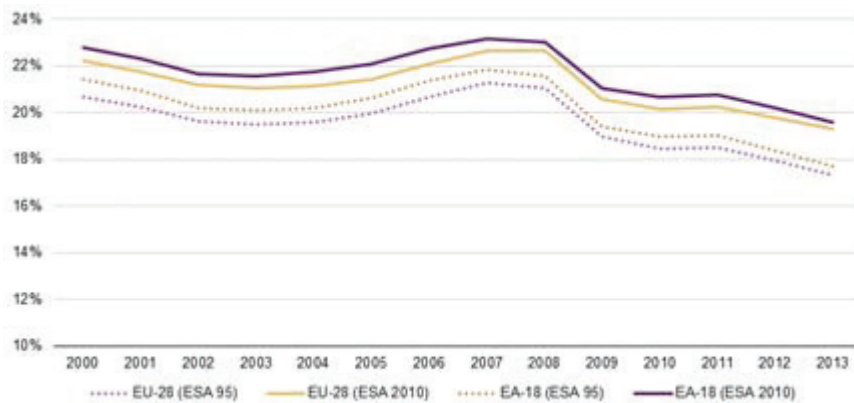
Figure 3: Nominal GDP levels of EU countries before and after ESA 2010 (Trillion Euros)

Source: Dunn (2016).

The parallel shift observed in GDP series of EU countries seems to be a reflection of a similar movement in investment and other components of GDP.

Figure 4: Investment ratios of EU countries before and after ESA 2010 (% of GDP)


Source: Dunn (2016).

Why Turkey had such an exceptional change in her GDP series needs further and more convincing explanations. For instance TURKSTAT explains the relatively high growth rate in the year 2015, during which no indicator had shown any signal for such a performance above the potential growth rate, with the massive fall in commodity prices (iron ore and crude oil) in global markets. However economists (Özatay (2017a) or Eğilmez (2016) for instance) find this far from convincing given that no profound relation is observed between these variables in other years.

Table 2: Turkish nominal GDP by old and new series (2009=100) and the rate of revision (100 for two equal years)

	New Series	Old Series	Rate of Revision
1998	7.2	7.4	102.4
1999	10.7	11.0	102.5
2000	17.1	17.5	102.4
2001	24.6	25.2	102.2
2002	36.0	36.8	102.5
2003	46.8	47.7	102.9
2004	57.7	58.7	103.2
2005	67.4	68.1	103.8
2006	79.0	79.6	104.1
2007	88.1	88.5	104.4
2008	99.6	99.8	104.7
2009	100.0	100.0	104.9
2010	116.1	115.4	105.6
2011	139.6	136.2	107.5
2012	157.1	148.7	110.8
2013	181.1	164.5	115.5
2014	204.6	183.5	116.9
2015	233.9	205.0	119.7

Source: TURKSTAT online database and own calculations.

Making comparisons in terms of nominal GDP may be unusual but since comparison is between nominal GDP levels of corresponding years, same ratios of revision would be calculated as with real GDP figures.

Figure 5: Rate of revision and real GDP by old and new series.

Indexed Real GDP by Old and New Series (2009=100), Rate of Revision
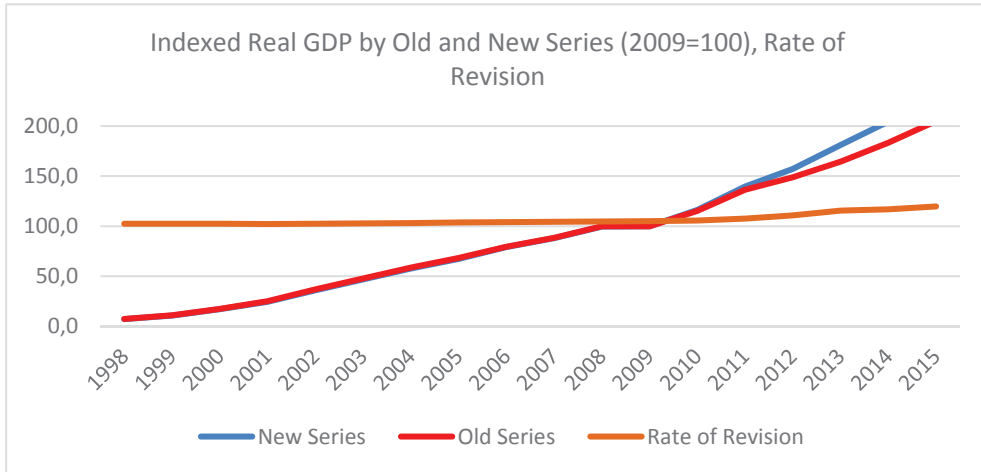
Source: TURKSTAT online database and own calculations.

Since the extent of revision is not uniform across all production sectors or all expenditure groups, varying growth rates also change the relative weights of components of GDP. Therefore what economists had thought they knew about Turkish economy in terms of sectoral composition of output and saving-investment-consumption dynamics happened to be "all wrong". Following the announcement of new series, economists interested in Turkish economy must have felt baffled having realized that their models had no explanatory power, parameters in their estimates were statistically insignificant and policy suggestions they had formulated so far were most optimistically irrelevant. As mentioned many times already, economic analyses conducted so far happened to be "wrong" and are becoming even "more wrong" every quarter. As the magnitude of revisions on GDP series and its components increases, the economic picture becomes even more different than those economists had in their minds so far.

For instance, prior to December 2016 no one would object to the assertion that Turkish economy is a consumption-driven economy with structural saving deficits and high dependence on inflow of foreign savings. However the series depict a much different investment-driven economy with saving rates reaching one fourth of GDP. The chart in Figure 6 depicts the change in saving rates of selected OECD countries by van de Ven (2015). Switzerland seems to have experienced the most significant jump (close to 5%) in saving rate by far.

Figure 6: Overall impact of extra revisions in saving rates.
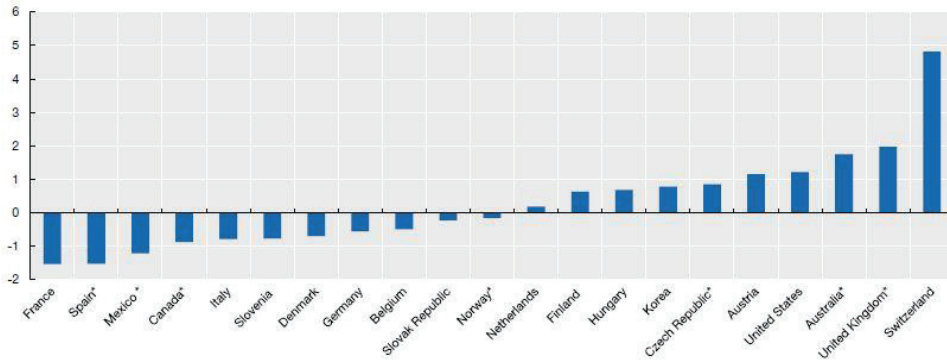
Source: van de Ven, 2015.

However the revision rate in domestic savings of Turkey is 50.8% for the period 1998-2015 which leads to a 10.5% jump in saving rate. Accordingly in the old series, total domestic saving rate was 13.83% in 2009 and 15.23% in 2015. It has risen to 22.23% and 25.72% in new series, respectively (Yükseler, 2017). Recently, it has been accepted that one of the main problems of Turkish economy was the insufficient domestic savings. Therefore the economic policies such as Compulsory Private Pension System which increases the savings have been implemented by the government. However, the domestic savings data in new series indicate that the saving rate is not low; on the contrary it is higher than the world average.

Figure 7: Rate of Revision in Gross Capital Formation (% of Value in Old Series)
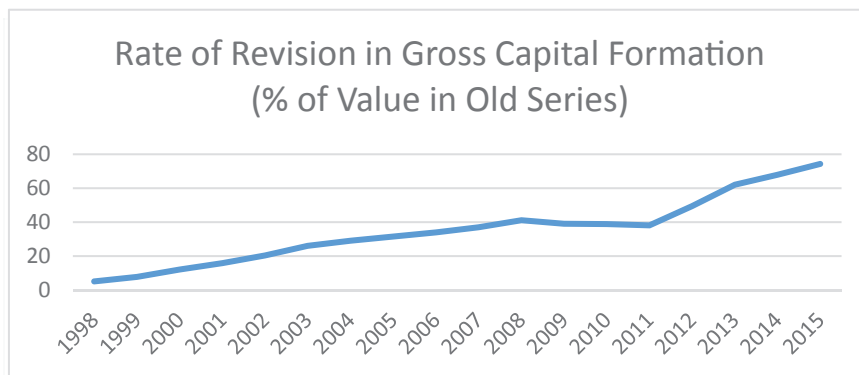
Source: TURKSTAT online database and own calculations

As a consequence of the jump in saving rate, a similar issue is observed in investments (see Figure 7 above). As it is seen in the table below, in 2015 the difference between new and old investment series is 74.28%, which is considerably high. The difference in gross fixed capital formation has mostly resulted from the construction sector.

Table 3: Investments (Breakdown By Sector, Million TL)

Years	New Series				Old (1998 Based) Series				Difference (%)				
	Construction	Mach. & Equip.	Other Assets	Total	Construction	Mach. & Equip.	Total	Value	Total	Construction	Mach. & Equip.	Other Assets	
2009	115.570	87.496	20.500	223.566	74.073	86.646	160.718	62.848	39,10%	25,82%	0,53%	12,8%	
2010	145.071	114.796	28.606	288.474	92.482	115.334	207.816	80.658	38,81%	25,31%	-0,26%	13,8%	
2011	198.490	158.271	34.623	391.383	117.967	165.196	283.163	108.220	38,22%	28,44%	-2,45%	12,2%	
2012	225.986	162.006	40.840	428.832	127.108	160.013	287.121	141.711	49,36%	34,44%	0,69%	14,2%	
2013	291.411	182.310	42.489	516.210	141.891	176.690	318.580	197.630	62,03%	46,93%	1,76%	13,3%	
2014	338.442	206.444	45.856	590.742	162.331	189.516	351.847	238.895	67,90%	50,05%	4,81%	13,0%	
2015	379.875	262.980	51.835	694.690	175.028	223.582	398.610	296.080	74,28%	51,39%	9,88%	13,0%	

Source: TURKSTAT, Ulusal Hesaplar Sistemi ESA-2010'a Uyum, Soru Ve Cevaplarla Ana Revizyon Çalışmaları, Ocak 2017, p.9

While the average rate of revision in value added in construction was 47,63% during the period of 1998-2015, it has increased to 87,1% during the period of 2009-2015. With the revision the growth rate of construction sector has changed and while it was 3,6% between 1995 and 2015 and 6,8% between 2010 and 2015 in old series, the ratio has increased to 57,4% and 12,1% in new series, respectively (Yükseler, 2017).

The increase in the growth rate of construction sector has also caused a change in the share of construction in GDP. Accordingly, in 2015 while the share of construction in GDP was 4,4% in old series, it has increased to 8,2% in new series.

Table 4: The Share of Construction In GDP

Years	Construction Sector				Gross Fixed Capital Formation			
	Value Added (Million TL)		Share In GDP (%)		Value (Million TL)		Share In GDP (%)	
	New Series	Old Series	New Series	Old Series	New Series	Old Series	New Series	Old Series
2009	56.156.968.933	36.577.636.585	5,6	3,8	223.566.234.182	160.718.032.536	22	16,9
2010	70.701.311.318	45.669.500.016	6,1	4,2	288.473.700.331	207.815.585.006	25	18,9
2011	100.016.363.157	57.751.313.559	7,2	4,5	391.383.399.679	283.163.195.741	28	21,8
2012	117.433.141.951	62.156.828.152	7,5	4,4	428.831.788.404	287.121.164.445	27	20,3
2013	145.908.412.529	69.557.490.072	8,1	4,4	516.209.714.848	318.580.097.443	29	20,3
2014	165.654.620.291	79.764.928.672	8,1	4,6	590.742.456.710	351.847.290.714	29	20,1
2015	190.614.219.195	85.889.197.731	8,2	4,4	694.689.859.133	398.610.184.468	30	20,4

Source: TURKSTAT, Ulusal Hesaplar Sistemi ESA-2010'a Uyum, Soru Ve Cevaplarla Ana Revizyon Çalışmaları, Ocak 2017, p.9

Such dramatic change in sectoral composition of output and growth has its consequences also in the productivity data. Since the value added of the sectors are revised with an increasing rate while employment is not revised, productivity in real and nominal terms (value added divided by employment) calculated by old and new series diverge significantly.

Figure 8: Productivity in Construction Sector by Old and New Series
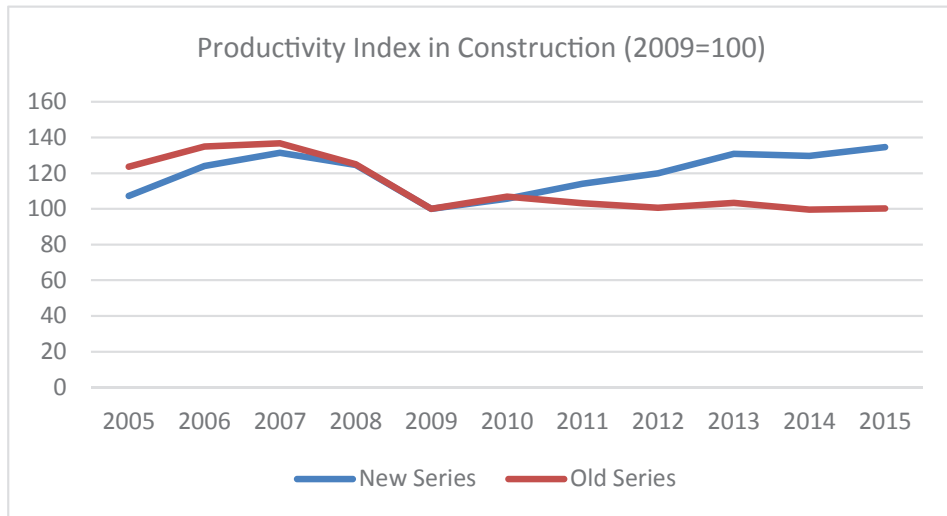
Source: TURKSTAT online database and own calculations

Same issue, though not as significant, is observed also in services and manufacturing sectors. As of 2015 productivity index for services reaches 109.6 in new series and only to 103.6 in old series.

Figure 9: Productivity in Services by Old and New Series
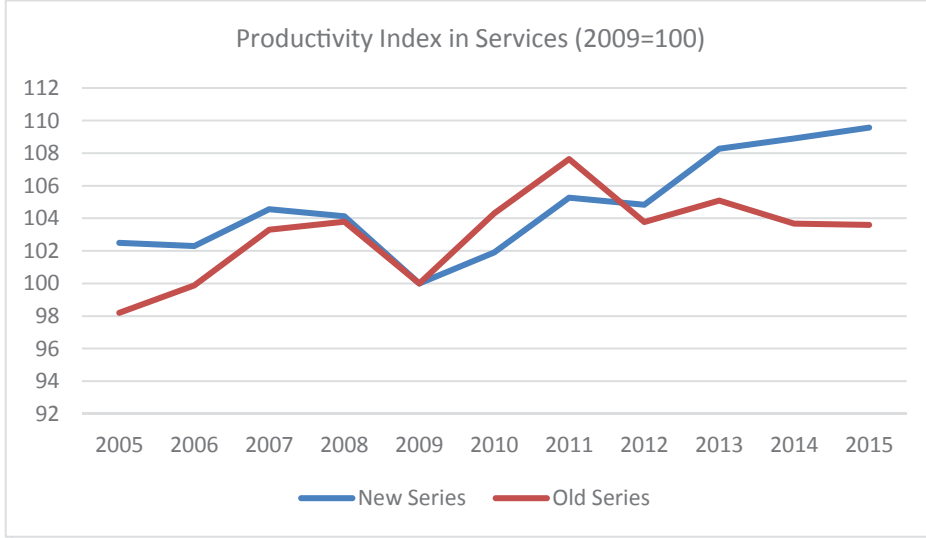
Source: TURKSTAT online database and own calculations

The 2009-based productivity index in manufacturing calculated by new series reaches 129.6 by 2015 while the same index calculated by old series reaches only to 111.5.

Figure 10: Productivity in Manufacturing Sector by Old and New Series

Productivity Index in Manufacturing (2009=100)
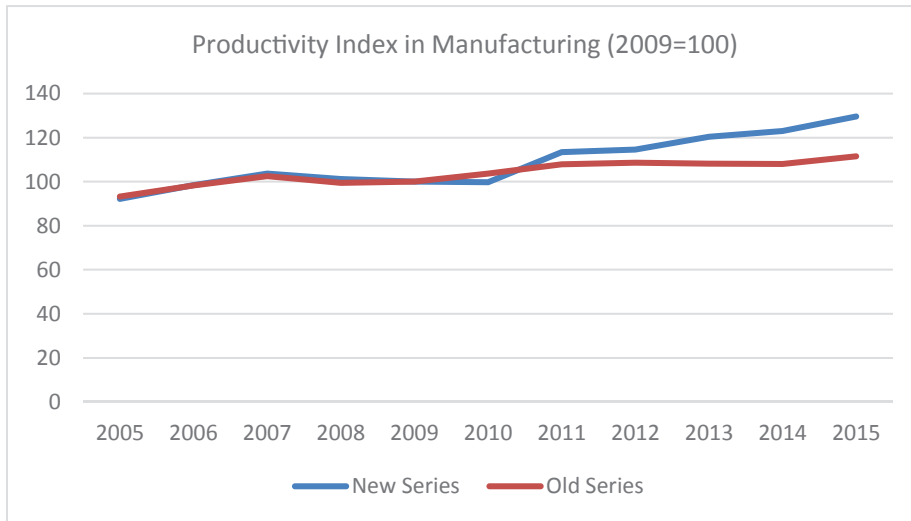
Source: TURKSTAT online database and own calculations

Another impact of the revision in GDP series is that economists seem to have lost the close link between industrial production index and economic growth. Given that industrial production index is calculated and announced on a monthly basis while GDP figures are announced quarterly, industrial production indices were used as an effective leading indicator. The coefficient of correlation between the annual percentage change in industrial production index and that in overall GDP was a sound 0,965. Which implied that industrial production index could effectively be used as a leading indicator for GDP growth as well as manufacturing output.
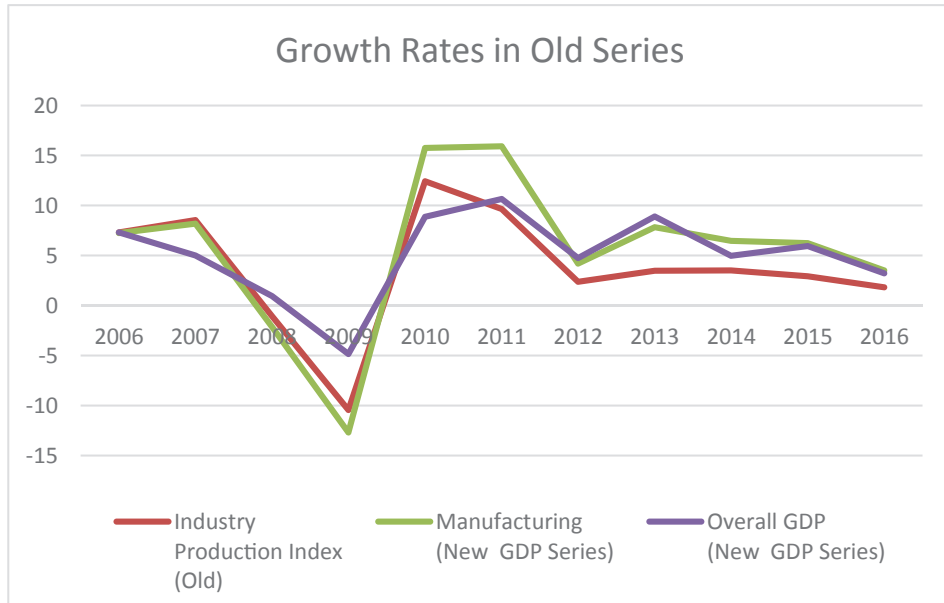
Figure 11: Relation between Industrial Production Index and Economic Growth in Old Series
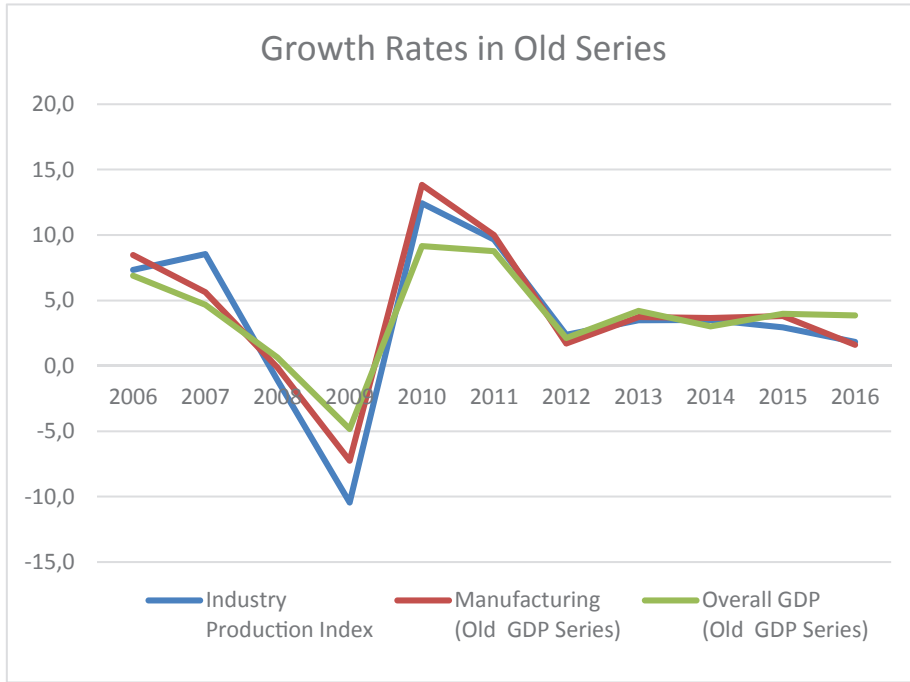
Source: TURKSTAT online database and own calculations

Following the announcement of the new GDP series this coefficient of correlation dropped to 0,895 and growth of industrial production index series diverged from manufacturing output and GDP growth:

Figure 12: Relation between Industrial Production Index and Economic Growth in New Series

Source: TURKSTAT online database and own calculations

Along with the transition to new method in GDP calculation many economists and journalists (Özatay, 2017b and Sönmez, 2017 for instance), criticized the broken link between the industrial production index and GDP. Consequently TURKSTAT prepared and announced a new series of industrial production index whose calculation method has also been revised in a parallel way to the calculation method of GDP series. Currently the coefficient of correlation between the growth rates of the index and the overall GDP is a slightly lower 0,95.

Figure 13: Relation between the New Industrial Production Index and Economic Growth in New Series
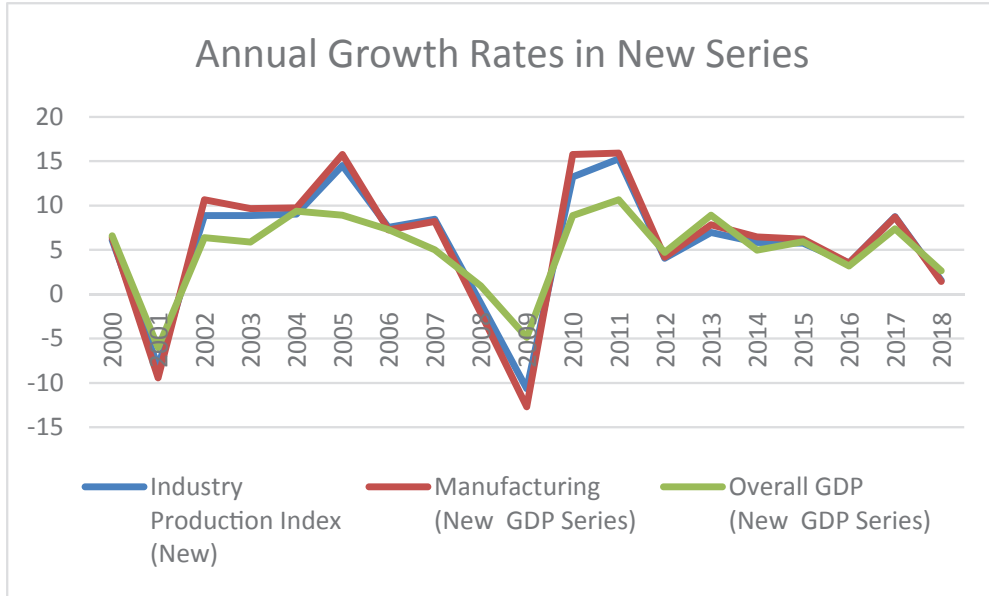
Source: TURKSTAT online database and own calculations

4. Conclusion and Suggestions

It is a requirement that statistical authorities update their methodologies used in calculation of GDP since structure of an economy is always subject to change. While the context and relative weights of certain economic activities change, new assumptions and methods are developed. It is considered as a requirement that method and contents of national income be revised every five or ten years as a consequence of changes in magnitudes of economic activities, changes in relative prices, emerging conditions in economic and social phenomena, and increasing role of information and communication technologies.

Within this context all OECD members changed their system of national accounting and adapted ESA-2010 methodology. Consequently almost all OECD members had upward revisions in their GDP series. However economists, policy makers and decision makers in those economies could continue to use their research methods, ways of reasoning and habits in forming their expectations. In the case for EU countries, one may observe that even though overall volumes have moderately increased after transition to ESA 2010 standards,

series in graphs depicting overall GDP, investment, saving or any sectoral output level seem to have shifted in a parallel way to the old series while Turkey's revision led to different outcomes. The most striking issue about the new Turkish GDP series is that revision does not only affect the level of measured economic activity but also its growth series.

Another novelty for Turkish economy is the adoption of chained volume indices being used for calculating real GDP series. This brings about the advantage of eliminating the base year selection and problems related to it. Moreover, transition to this method spares the economists the problem of changing former growth rates every time a new base year is started to be used. Along with the use of the new method, economists will be able to use a stable series of real growth rates. However base year selected for indexing real output series is 2009 which is a year in the midst of a global crisis. While some have argued that choosing a year of crisis has the potential to exaggerate the growth figures, which is not a realistic assertion. This new method eliminates the distortionary effect of the base year selection. Along with its adoption, all that matters depending on the reference year selection is the magnitude of the indices while growth rates stay constant.

The price to be paid by economists for these advantages is the additivity problem in contribution to output and growth. Since relative prices change every period (quarter or month where applicable) aggregates such as overall GDP is not simply the sum of its components. Likewise prices pertaining to particular sectors or expenditure groups such as investment, household consumption etc. are different and they vary in different ways. Consequently their sum is not equal to the overall GDP and the sum of their relatively weighted growth rates need not give the overall GDP growth. In order to overcome this problem one may use the method proposed by IMF in its Quarterly National Accounts Manual – 2017 Edition (IMF, 2017). In order to get an additive account of contribution of expenditure groups or sectors to growth, one is suggested to apply the following two formulae:

$$g_{q,t}^x = 100 \times \left[\frac{x_{q,t} - x_{q-1,t}}{GDP_{q-1,t}} \right] \times \frac{P_{t-1}^x}{P_{t-1}^{GDP}}$$

and

$$g_{1,t}^x = 100 \times \left[\frac{x_{1,t} - x_{4,t-1}}{GDP_{4,t-1}} \right] \times \frac{P_{t-1}^x}{P_{t-1}^{GDP}} + \left[\frac{x_{4,t-1}}{GDP_{4,t-1}} - \frac{x_{t-1}}{GDP_{t-1}} \right] \times \left[\frac{P_{t-1}^x}{P_{t-1}^{GDP}} - \frac{P_{t-2}^x}{P_{t-2}^{GDP}} \right]$$

where $g_{q,t}^x$ is the contribution of component x to growth at quarter q in year t, $x_{q,t}$ is the chained magnitude of component x at quarter q in year t, P_t^x is the implicit deflator for component x and P_t^{GDP} is the implicit GDP deflator. Why one should use the second

formula for contribution to growth by a component of GDP in the first quarter is that the figures pertaining to that quarter of a year is chained to the last quarter of the previous year and prices of that previous year is also supposed to be taken into account to obtain an additive series. For a detailed account and alternative remedies of the additivity issue along with illustrative examples, the reader is suggested to visit eighth chapter of IMF (2017), Jones (2002), Whelan (2000) and Bakış (2018). While IMF (2017) gives the most detailed information useful also for the statistical authorities issuing the GDP figures, Whelan (2000) suggests alternative and less formal remedies for avoiding the additivity problem. Bakış (2018) gives the essence of the solution strategies in IMF's guide for the additivity problem also in calculating contribution to annual growth and growth relative to corresponding period of previous year along with an applied example.

As mentioned above, the revised GDP series caused an increase in investment, saving and productivity data which do not seem to be in accordance with other series of data such as employment, use of electricity and etc. Moreover the close link between the growth rates of industrial production index and the overall GDP is broken. Inevitably this renders some economic policies (such as compulsory private pension system aimed at increasing the saving rate) futile. Prior to December 2016 it had been a widely accepted fact that Turkish economy suffered insufficient domestic savings and is a consumption-driven economy with dependence on inflow of foreign savings. However the new GDP series imply that saving rate in the economy was no lower than 25% which is well above the world average.

Moreover, the new series abandon the private-public distinction in gross capital formation. This is another factor which limits the possibility of economists to conduct analysis on the particular impact of public and private investments on the economy as well as the responsiveness of private sector to economic policies such as investment incentives.

Another issue which troubles economists who follow the GDP series closely is that the quarterly series are revised very frequently and in surprising directions. Since annual and quarterly GDP series are calculated by using different data sources one cannot simply add the quarterly GDP figures and end up with the annual one. This difference in data sources require more than one revision possibly in opposite directions, which might give misleading signals for decision makers. This renders the relatively new approach in economics, nowcasting, a more important one for Turkish economy. GDP data are announced with a significant delay in all economies, which makes the case for developing techniques aimed at forecasting the level of economic activity. In an environment sensitive to GDP level, discrepancies between quarterly and annual GDP may mislead the decision makers and cause significant economic loss. Frequent and massive revisions to quarterly

data in opposite directions may only exacerbate the problem. Therefore forecasting the level of economic activity becomes a more pressing requirement for Turkish economy. Under these circumstances economists who are competent in gathering and using data series which enables forecasting the level of economic activity in the making would have an edge. Consequently elaborating on alternative data sources (many more in addition to PMI, Industrial Production Index, tendency surveys, survey of expectations statistics etc.) and using them in nowcasting must be expected to become even more important.

As a consequence of GDP series being replaced with the new and profoundly different ones, economists lose the possibility of working with long series of national income data and using models which require such series. This may possibly lead the economists to use less data-hungry methods such as computable general equilibrium (CGE) models which require production and expenditure data pertaining to a single year. Considering that the most recent input-output table for Turkish economy had been depicting the situation in 2002, announcement of the new data series based on the input-output table pertaining to 2012 is expected to facilitate and proliferate new studies in this field.

References

AYDOĞUŞ, Osman; (2017), "Sorunlu Milli Gelir Revizyonu Ve Kuşkulu Büyüme", İktisat Ve Toplum, 1(1), pp. 10-20.

BAKIŞ, Ozan; (2018), "Yeni GSYH Serilerinin Getirdiği Farklılıklar ve Sorunlar", Marmara İktisat Dergisi, 2(1), pp. 15-42.

BORATAV, Korkut, BULUTAY, Tuncer, EGE, A. Yavuz, TÜREL, Oktar, TÜRELI, Rahmi A., UYGUR, Ercan; (2017), "'Yeni' Ulusal Gelir Serileri: Gözlem Ve Değerlendirmeler", Cumhuriyet Akademi, 29 Mart 2017.

DUNN, Marianthi; (2016), Annual National Accounts - How ESA 2010 Has Changed the Main GDP Aggregates.[http://ec.europa.eu/eurostat/statistics-explained/index.php/Annual_national _accounts_-_how_ESA_2010_has_changed_the_main_GDP_aggregates], 10.09.2018.

EĞILMEZ, Mahfi; (2016), "Kedi Buysa Ciğer Nerede?", http://www.mahfiegilmez.com/2016/12/ kedi-buysa-ciger-nerede.html, 10.09.2018.

IMF; (2017), "Quarterly National Accounts Manual", https://www.imf.org/external/pubs/ft/qna/ pdf/2017/ chapterv8.pdf, 12.08. 2019.

JONES, Charles I.; (2002), "Using Chain-Weighted NIPA Data", FRBSF Economic Letter, 2002-22.

MEYERSSON, Erik; (2017), "Constructing Growth in New Turkey.", https://erikmeyersson.com/ 2016/12/29/ constructing-growth-in-new-turkey/, 15.09.2018.

ÖZATAY, Fatih; (2016a), "Aslında Yerimizde Saymamışız: Eski-Yeni GSYH Karşılaştırması", Dünya Gazetesi, 14.12.2016.

ÖZATAY, Fatih; (2017a),, "Emtia Fiyatları 'Farkı' Açıklamıyor: Eski-yeni GSYH Karşılaştırması (5)", Dünya Gazetesi, 01.02.2017.

ÖZATAY, Fatih; (2016b), "Unutulanın Dışında Yeni Bir Şey Var Mı? Eski-Yeni GSYH Karşılaştırması (2)", Dünya Gazetesi, 21.12.2016.

ÖZATAY, Fatih; (2017b), "Sanayi üretim endeksinin anlamı kaldı mı? Eski-yeni GSYH karşılaştırması (4)", Dünya Gazetesi, 11.01.2017

SÖNMEZ, Mustafa; (2017), "Sanayinin Sorunları ve Analizleri (XXVII)", TMMOB Makine Mühendisleri Odası Bülteni, Nisan 2017.

TURKSTAT; (2008), "Gayri Safi Yurtiçi Hasıla Güncelleme Çalışmaları, 1987 ve 1998 Bazlı GSYİH Serileri Arasındaki Farklılıklar", Basın Açıklaması, 8 Mart 2008.

TURKSTAT; (2016a), "Türkiye Ulusal Hesaplar Sistemin'de SNA-2008 ve ESA-2010'un Uygulanması ve Ana Revizyon", December, http://www.tuik.gov.tr., 12.09.2018.

TURKSTAT; (2016b), "Yıllık Gayrisafi Yurtiçi Hasıla, 2015", Haber Bülteni, Sayı:24921, 12. Aralık , http://www.tuik.gov.tr. 12.09.2018.

TURKSTAT; (2016c), "Ulusal Hesaplar Sistemi", Ulusal Hesaplar Dairesi Başkanlığı Sunumu, 28 Aralık 2016.

TURKSTAT; (2016d), "Türkiye Ulusal Hesaplar Sisteminde Revizyon, SNA-2008 ve ESA-2010'un Uygulanması; No:25", 09/12/2016.

TURKSTAT; (2017), "Ulusal Hesaplar Sistemi ESA-2010'a Uyum, Soru ve Cevaplarla Ana Revizyon Çalışmaları", Ocak 2017.

VAN DE VEN, Peter; (2015), "New Standards for Compiling National Accounts: What's the Impact on GDP and Other Macro-economic Indicators?", OECD Statistics Review, n. 20., http://www.oecd.org/std/na/new-standards-for-compiling-national-accounts-SNA2008-OECDSB20.pdf, 15.09.2018.

WHELAN, Karl; (2000), "A Guide to the Use of Chain Aggregated NIPA Data." Mimeo. Federal Reserve Board of Governors (June).

YELDAN, Erinç; (2016), 'Yeni' Milli Gelir Serisi Üzerine Gözlemler, Cumhuriyet, 21 Aralık 2016.

YÜKSELER, Zafer; (2017), "2009 Referans Yıllı Yeni, Milli Gelir Serisi ve Analizi", TCMB, 7 Şubat 2018.

http://www.oecd.org/std/na/sna-2008-main-changes.htm, 10.09.2018.