GENDER-BASED REVISION IN THE HOUSEHOLD LABOR FORCE SURVEYS

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Turkish Statistical Institute (TurkStat) made some important methodological changes in the Household Labor Force Surveys (HLFS) in February 2014. The gist of these changes are in the definition of unemployment and the renewal of population projections based on the Address Based Population Registration System (ABPRS). In 2014, the population projections of HLFS were updated[1]. The definitional criterion for being unemployed set as "looking for a job within the last 3 months" was changed to "looking for a job within the last 4 weeks." Furthermore, another definitional change was introduced: Those, who found a job or established their own business to start within the next three months but who were currently trying to procure missing documents were included in the unemployed population.

These methodological changes created a break in the time series of labor market statistics. Underlining this break, TurkStat emphasized that the figures of the pre-2014 period were not comparable to the numbers of the post- 2014 period. To generate comparable data, some of the monthly labor force statistics were revised back in June 2014. This retraction process, however, was limited to a number of labor indicators such as aggregate labor force, employment and unemployment. The revised figures as well as the old ones concerning these three main indicators are summarized in Table 1.

Table 1: Main labor statistics according to the old and revised series, 2005-2017

	Labor force		Employment		Unemployed	
	Old Series	Revised Series	Old Series	Revised Series	Old Series	Revised Series
2005	22,455	21,691	20,067	19,633	2,388	2,058
2006	22,751	21,913	20,423	19,933	2,328	1,980
2007	23,114	22,253	20,738	20,209	2,376	2,044
2008	23,805	22,899	21,194	20,604	2,611	2,295
2009	24,748	23,710	21,277	20,615	3,471	3,095
2010	25,641	24,594	22,594	21,858	3,046	2,737
2011	26,725	25,594	24,110	23,266	2,615	2,328
2012	27,339	26,141	24,821	23,937	2,518	2,204
2013	28,271	27,047	25,524	24,601	2,747	2,445
2014 (*)		28,787		25,933		2,854
2015 (*)		29,678		26,621		3,057
2016 (*)		30,535		27,205		3,330
2017 (*)		31,643		28,189		3,454

(*): Post-2013 series

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[1] The biggest impact of the new projection on the results was observed in the rural-urban distinction and in the population aged 65 and over. The decline in the rural population from 32% to 13.5% has significantly affected the employment figures in the rural sectors. Also, the fact that a considerable share (80%) of the expansion in the population 15 years of age and over comes from the population 65 years of age and over created decisive differences on the number of the population not included in the labor force.

Unfortunately TurkStat did not conduct a gender-based retrospective adjustment on the series. In this information brief, the main labor market indicators are revised in accordance with TurkStat's main principles as released on its website. Our main goal is to provide labor market series for each gender that are comparable across the 2005-2013 and 2014-2017 periods.

The main principles that TurkStat adheres to in the revision are explained in the metadata of the HLFS data. In order to conduct robustness checks for our gender estimations, we estimated the numbers of labor force, employment and unemployment using our methodology and compared them to the revised figures of TurkStat for the period 2005-2013, thereby reporting the error margin of our methodology below.

EMPLOYMENT

Among the main statistics, i.e. labor force, employment and unemployment, the employment series is relatively simpler to modify. This is because TurkStat has not changed its definition of employment. On the other hand, following the transition to ABPRS, the population estimates were renewed. This revision is expected not to affect the rates but the levels. Therefore, the employment series shows a jump caused by the renewal of population projections.

Table 2: TurkStat's series and BETAM's revised series of employment, levels, 2005-2017

	Old Series	Betam's Revised Series	TurkStat's Revised Series	BETAM - TurkStat	BETAM / TurkStat - 1	Betam's Revised Female	Betam's Revised Male
2005	20.067	19.576	19.633	-57	-0,003	4.852	14.757
2006	20.423	19.924	19.933	-9	0,000	4.994	14.960
2007	20.738	20.231	20.209	22	0,001	5.087	15.175
2008	21.194	20.676	20.604	72	0,003	5.314	15.388
2009	21.277	20.757	20.615	142	0,007	5.576	15.198
2010	22.594	22.042	21.858	184	0,008	6.102	15.952
2011	24.110	23.521	23.266	255	0,011	6.623	16.906
2012	24.821	24.214	23.937	278	0,012	6.942	17.276
2013	25.524	24.900	24.601	299	0,012	7.257	17.642
2014(*)	25.933	25.933	25.933			7.689	18.244
2015(*)	26.621	26.621	26.621			8.058	18.562
2016(*)	27.205	27.205	27.205			8.312	18.893
2017(*)	28.189	28.189	28.189			8.729	19.460

(*): Post-2013 series

To reflect this leap arising from the renewal of population projection into the employment series, we first took the employment level announced for 2014 and extended it backwards by using the geometric mean of the growth rates of employment in the last three years (2011, 2012 and 2013) and calculated the employment level for 2013. We then revised the employment level of each year by using the growth rates in the old employment series (2005-2013). The results of this process are given in the Table 2, next to the revised numbers of TurkStat. As can be seen, the difference between our estimates and the revision of TurkStat is 299 thousand people in 2013 (deviation ratio is 1.2 percent) and decreases gradually towards 2005 and error margins are close to zero.

Since our results are sufficiently close to the numbers released by TurkStat, the employment series of women and men have been revised using the same method and are shown in Table 2. Upon closer inspection, it can be seen that the sum of the male and female employment levels does not perfectly match the revised total annual employment level for the period of 2005-2013. The reason is that each

of the three series is estimated independently; however, the difference (+ 5 thousand in 2013 and - 33 thousand in 2005) is negligible.

UNEMPLOYMENT

A significant part of the revision of TurkStat in the unemployment series comes from the change in the definition of unemployment and the change in the projections of ABPRS, similar to the employment series.

TurkStat consider individuals, who have recently searched for a job, who have used at least one channel for seeking a job and have reported that they can start to work within two weeks, as unemployed. Additionally, those who say that they cannot start to work within two weeks since they are waiting to procure missing documents are also included in unemployed population. As of February 2014, the job search period used in the definition of unemployed were restricted to "last four weeks" instead of "last three months" in line with the definition of the European statistical office, Eurostat. The job search period of the new definition is consistent with the definition of both the U.S. Bureau of Labor Statistics, the EU countries and International Labor Organization. As a result, we observe significant changes in both unemployed and labor force numbers.

The modification in the definition of being unemployed indicates that the revision made by using the growth rates will lead to some deviations in the unemployed series. Therefore, we used HLFS micro datasets to revise the unemployment levels.

In the sub-period of 2009-2013, two separate questions were included in the HLFS questionnaire to collect data on the time spent searching for a job. In order to ensure comparability with Eurostat, the questionnaire contained questions to detect both the ones who had been seeking a job for the last three months and the ones who had been seeking a job for the last four weeks. Therefore, in the first stage, we recoded individuals who had searched for a job in the last four weeks, used at least one of the job search channels and who declared that they could start working within two weeks as unemployed. At the end, for the sub-period of 2009-2013, we recreated the unemployed series by defining the individuals who had searched for a job in the last four weeks as unemployed in the micro data.

In the second stage, we focused on the effects of change in population projections. We corrected the newly defined unemployed series, which reflected the shorter job search time, by applying the same correction as the employment series, using the growth rates in the old unemployment series. Thus, the new series, which ~~is~~ also compatible with the post-2014 series in terms of levels, is obtained for the years 2009 - 2013 (Table 3).

In the sub-period of 2004-2008, HLFS micro data questionnaires does not include the specific questions which helped us implement the new definition of unemployed. In other words, the data on "having searched for a job in the last four weeks" is not available in the pre-2009 period. Hence, it is not possible to distinguish individuals who had been searching a job in the last three months from the individuals who had been searching a job in the last four weeks. Therefore, we cannot reflect the change in the definition of unemployed by using micro data. Under these circumstances, we estimate levels of unemployment for 2005-2008 by taking the predicted level of unemployment for 2009 and computing the level for each past year by using the growth rates of the old series.

The revised series of TurkStat and our revised series are presented in Table 3. As can be seen in the table, the numbers in the new series of TurkStat are very close to our estimations in the period of 2009-2013. As for the period of 2005-2008, the chained method that uses year on year growth rates

reveals greater level differences from 38 thousand to 100 thousand between the two series and the deviation ratio varies between 1.6 and 5 percent. Nevertheless, the error margins of the male and female series seem to be negligible in terms of the labor market dynamics during this period.

Table 3: TurkStat's series and BETAM's revised series of unemployment, levels, 2005-2017

	Old Series	Betam's Revised Series	TurkStat's Revised Series	BETAM - TurkStat	BETAM / TurkStat - 1	BETAM Revised Female	BETAM Revised Male
2005	2.388	2.133	2.058	75	0,036	566	1.569
2006	2.328	2.079	1.980	100	0,050	580	1.501
2007	2.376	2.122	2.044	79	0,039	581	1.542
2008	2.611	2.332	2.295	38	0,016	647	1.686
2009	3.471	3.100	3.095	5	0,002	862	2.238
2010	3.046	2.744	2.737	7	0,003	847	1.897
2011	2.615	2.337	2.328	9	0,004	787	1.550
2012	2.518	2.214	2.204	10	0,005	765	1.450
2013	2.747	2.452	2.445	7	0,003	909	1.543
2014[*]	2.854	2.854	2.854			1.040	1.813
2015[*]	3.057	3.057	3.057			1.167	1.891
2016[*]	3.330	3.330	3.330			1.324	2.006
2017[*]	3.454	3.454	3.454			1.431	2.024

(*): Post-2013 series

LABOR FORCE

We obtained the labor force levels by summing employment and unemployed series according to the definition of labor force. Hence, the revisions in the labor force series reflect the deviations observed in unemployment due to the unavailability of the relevant micro data before 2009 as well as the deviations observed in employment (Table 4).

Table 4: TurkStat's series and BETAM's revised series of unemployment, levels, 2005-2017

	Old Series	Betam's Revised Series	TurkStat's Revised Series	BETAM - TurkStat	BETAM / TurkStat - 1	BETAM Revised Female	BETAM Revised Male
2005	22.455	21.709	21.691	18	0,001	5.417	16.326
2006	22.751	22.003	21.913	90	0,004	5.574	16.462
2007	23.114	22.353	22.253	101	0,005	5.668	16.716
2008	23.805	23.008	22.899	109	0,005	5.961	17.074
2009	24.748	23.857	23.710	148	0,006	6.439	17.436
2010	25.641	24.785	24.594	191	0,008	6.949	17.849
2011	26.725	25.857	25.594	263	0,010	7.409	18.456
2012	27.339	26.429	26.141	288	0,011	7.707	18.725
2013	28.271	27.352	27.047	306	0,011	8.167	19.184
2014[*]	28.787	28.787	28.787			8.729	20.057
2015[*]	29.678	29.678	29.678			9.225	20.453
2016[*]	30.535	30.535	30.535			9.636	20.899
2017[*]	31.643	31.643	31.643			10.160	21.484

(*): Post-2013 series