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TRENDS AND CHALLENGES IN SERBIAN LABOUR MARKET: CHANGE IN THE NATURE OF JOBS AND LABOUR UNDERUTILISATION

Trendovi i izazovi na tržištu rada Srbije – promena prirode poslova i nedovoljna iskorišćenost radne snage

Abstract

In this paper, we will continue the academic discussion started long ago [1], [2], [13], [14], [15] about the validity of employment statistics. We will present new arguments to support our previous assertions that employment has undoubtedly grown in the 2012-2016 period and that there is no room for doubt in the quality of the Labour Force Survey. In search for clues to better understand seemingly counterintuitive dynamics in Serbian labour market, we will analyse the precarious nature of recent employment growth in detail and present our findings on that subject, as well as its impact on the (in)consistency of employment trend and trends of social security contribution revenue and personal consumption.

Keywords: *Labour Force Survey, employment, quality of employment, national accounts*

Sažetak

U ovom članku nadovezaćemo se na davno započetu polemiku o validnosti statističkih podataka o zaposlenosti [1], [2], [13], [14], [15]. Iznećemo nove argumente kojima ćemo potkrepiti naše prethodno iznete tvrdnje da je zaposlenost nesumnjivo porasla u periodu 2012-2016. i da nema prostora za sumnju u kvalitet Ankete o radnoj snazi čiji kvalitet Petrović et al. uporno pokušavaju da ospore. Još jednom ćemo pokazati da Petrović et al, u pokušaju da diskredituju Anketu o radnoj snazi, a samim tim i zvaničnu statistiku, koriste neuporedive serije podataka iz Ankete, ignorišući pritom ostale statističke izvore koji potkrepljuju ocene zaposlenosti dobijene iz Ankete. Bavićemo se detaljnije prirodom povećane zaposlenosti, čime ćemo objasniti delimičnu nekonzistentnost između rasta zaposlenosti i BDP-a. Pokazaćemo da je netačna tvrdnja koju Petrović et al. iznose o neskladu između rasta zaposlenosti i privatne potrošnje, odnosno doprinosa od socijalnog osiguranja. Ukazaćemo i na problem nedovoljno iskorišćene radne snage.

Ključne reči: *Anketa o radnoj snazi, zaposlenost, kvalitet zaposlenosti, nacionalni računi*

Introduction

Public discussion on recent labour market trends in Serbia, initiated by the Fiscal Council, i.e. its Chairman Prof. Pavle Petrović and his coworkers a few years ago, has not ceased yet. While Petrović et al. [14], [15] firmly dispute the reliability of the Labour Force Survey (LFS), refusing to acknowledge significant employment drop in 2008-2012 period and remarkable employment growth in 2012-2016 period, recorded by LFS, Prof. Mihail Arandarenko[1] et al. [1], [2] advocate the significance of LFS as the most comprehensive, internationally standardised, household survey aimed at providing information, not only on employment and unemployment, but also on the quality of employment, informal employment, economic and social characteristics of labour force, inactive population, etc. The suspicion of Petrović et al. about the reliability of LFS [14], [15] arises from two different sources. First of all, they do not accept the concept of statistical revision that was applied to LFS in 2014 when a methodological change caused a break of series, and results for 2014 were revised in order to ensure forward comparability with the 2015 and later data obtained after a methodological adjustment had been applied. Backward comparability could not be provided. Petrović et al. hold on to their 'theory' that it is not possible that both employment figures for 2014, originally published and revised, are correct, so they use revised figures for 2014, as they find them "more accurate", and compare them with LFS data for previous years that are not revised and, therefore, not comparable. That way they come up with an enormous growth of employment in 2012-2014. Secondly, they do not understand the difference between LFS-based employment and national-accounts-based employment. Thus, lacking national-accounts-based employment figures in our statistical system (due to the lack of registers and access to existing registers for statistical use), they use LFS-based employment figures (unweighted for actual hours of work and wages) to prove the alleged discrepancy of employment trend and other relevant macroeconomic trends, such as private consumption, social security contribution revenue, etc.

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Although we have already replied to their remarks in [1], [2], [13], which they seem to have ignored since they repeated the same comments in their papers [14], [15], in this paper, we will present some additional findings in support of the arguments provided in our previous papers. Moreover, in search for clues to better understand seemingly counterintuitive dynamics in Serbian labour market, we analyse in more detail the characteristics of our labour market that have been less discussed in public, such as 'non-standard employment' and 'labour underutilisation'. Here, we will introduce our findings about the impact of these trends on the (in)consistency of employment trend and trends in social security contribution revenue and personal consumption.

After the introduction, the remainder of the paper is structured as follows: in Section 2, we will compare LFS employment figures with the corresponding figures from the Central Registry of Compulsory Social Insurance (CRCSI). In Section 3, we will discuss the quality of employment and the manner in which the new, emerging forms of non-standard employment affect it. Section 4 addresses employment elasticity. We provide the arguments against the remarks of Petrović et al. that Serbia is the champion with the highest employment elasticity coefficient. In Section 5, we provide arguments for non-linear relationship of LFS employment with social security contribution revenue and private consumption. In Section 6, we introduce the concept of labour underutilisation.

Section 2: Comparative evidence of administrative and survey employment

In their recent paper, Petrović et al. [15] have stated that "one way or another – strong employment growth in a stagnating economy is an illusion". They came to that conclusion by comparing "the originally released annual employment data until 2013 with the upwardly revised data for 2014" and finding that employment grew by 315,000 in 2012-2014 period. By persistently comparing the incomparable, they demonstrate a lack of understanding of the concept of statistical revision, claiming that it is not possible that both figures for employment in 2014,

originally published and revised, are correct and that "one must be more correct". When the LFS methodology has changed, Statistical Office of the Republic of Serbia (SORS) provided the link between the new and the old methodology by presenting revised figures for one year back (for 2014). The break of series still exists as such and is clearly indicated in official SORS' publications, information notes and in many other papers published recently (e.g. [13]). Since it seems that Petrović et al. [15] still argue about that, in Table 1, we provided a comparative analysis of administrative employment from the Central Registry of Compulsory Social Insurance (CRCSI) and formal employment from LFS, intentionally excluding agricultural activities[2], aiming to demonstrate a strong consistency of data coming from these two completely independent sources.

In order to suggest how the issue of break of series can be resolved, in Table 1, we provide figures for employment growth in 2012-2016 period by summing up the growth in 2012-2014 (using originally released data) and the growth in 2014-2016 (using revised data for 2014 which are comparable with the data for 2016).

The results unanimously suggest formal employment growth of approximately 100,000 in 2012-2016 period (96,000 by CRCSI and 103,000 by LFS) when agricultural activities are excluded. The "rest" of the growth, about 250,000 constituting the majority of growth in the mentioned period, is associated with temporary and seasonal, usually low-paid, informal or partly formalised employment in agricultural activities. Therefore, in 2012-2016, total employment has increased by 13%, while formal employment excluding agriculture and registered employment excluding agriculture went up by 5.5% and 5%, respectively.

These figures are far lower than those produced by Petrović et al. [15] and imply the precarious nature of growing employment, driven by low labour productivity and low wages which, due to high labour taxes and contributions to social security funds, most often remain in informal sector. Such employment growth might not be expected, even in theory, to be proportionally reflected on GDP growth and social security contribution revenue.

Section 3: Quality of employment

Encouraged by the findings listed in the previous section, we further scrutinise the quality of employment. Once again, we rely on LFS as the source, since it offers not only the information about the quantity of employment, but also a mine of information on the quality of employment.

LFS results suggest that recent labour market recovery is followed by a decline in quality of employment due to the expansion of non-standard employment (hereinafter "NSE"). Although there is no common definition of NSE, in this paper, we will use the definition adopted at ILO Meeting of Experts on Non-Standard Forms of Employment in February 2015 [6] which distinguishes four types of NSE: (1) temporary employment; (2) part-time work; (3) temporary agency work and other forms of employment involving multiple parties; and (4) disguised employment relationships and dependent self-employment, of which first three categories might be obtained from LFS.

The emergence of new forms of employment has been a legitimate response of enterprises to volatile market

2 The definition of formal employment in agriculture in CRCSI differs from the one in LFS. LFS considers persons who are registered in the Ministry of Agriculture formally employed. Since law does not stipulate that they have to be registered in CRCSI, they might be missing from the Employment Register.

Table 1: Comparative analysis of employment growth by CRCSI and LFS, in thousands, 2012-2016

	2012	2014	2014 rev.	2016	2012-2014	2014 rev.-2016	2012-2016
	(in thousands)						
Total employment (formal and informal), LFS	2,228.3	2,421.3	2,559.4	2,719.4	192.9	160.0	**352.9**
Formal employment, LFS	1,838.9	1,887.5	2,016.9	2,120.2	48.7	103.3	**152.0**
Formal employment excl. agriculture*, LFS	1,654.9	1,700.3	1,830.4	1,888.0	45.4	57.6	**103.0**
Registered employment excl. agriculture**, CRCSI	1,825.0	1,806.5	1,806.5	1,920.7	-18.5	114.1	**95.7**

Source: LFS, CRCSI

* Agriculture encompasses the following sectors of economic activity: agriculture and part of households as employers related to agricultural activities.

** Here, agriculture encompasses agriculture as a sector of economic activity by NACE rev.2 and individual farmers.

demands, recorded not only in Serbia, but also in many other industrialised and developing countries. The main reasons that affect the change in the quality of employment at a global level are technological progress, growth of the service sector at the expense of agriculture and industry, decline in the unionised share of the work force, etc. Specific reasons for recent non-standard employment expansion in Serbia are various. In public sector, temporary contracts are a way to circumvent the legal decision on the prohibition of employment brought in 2014. Non-standard employment growth in informal sector is the result of unfavourable tax burden for companies hiring low-paid, temporary, part-time or seasonal workers due to a low level of progressivity in the taxation of wages.

The expansion of new forms of employment adversely affects the quality of employment, in terms of job security, wages, access to retirement benefits, holiday and sick pay, on-job trainings. While, from economic perspective, non-traditional, usually unstable, employment has a detrimental effect on innovative work behaviour, consumption and, consequently, economic growth, from social perspective, increasing job insecurity leads to a decline in well-being and reduction of birth rate.

Our intention here is to show that employment growth characterised by stagnation of permanent employment and expansion of temporary, part-time and multiparty employment cannot follow the same pattern of economic growth, private consumption and social contribution revenue as the growth of traditional, stable employment. Especially not in the circumstances of unfavourable demographic trends and emigration of highly educated youth which adversely reflects on the labour market demand for skilled and innovative workforce.

Temporary employment

According to LFS results from 2016, the number of employees[3] with temporary contracts was 441,000, representing almost a quarter of total employment. While the number of employees on permanent contract has been stagnating over the past years, the number of employees on temporary contracts rose by 112,000 in the period from 2014 to 2016, which resulted in the increase in temporary employment rate[4] by 5 percentage points, from 19% in 2014 to 24% in 2016. Moreover, cautiously assuming that change in weighting procedure in LFS[5] does not affect the structure of employees by type of working arrangement and that share of temporary employment in 2010 and 2016 can be compared, it appears that the temporary employment rate has doubled in the last six years (Figure 1).

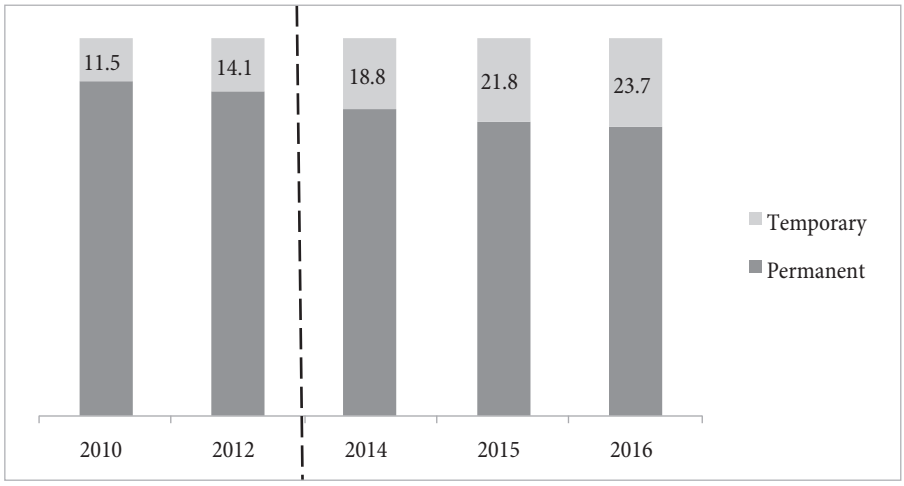
A more detailed analysis shows that temporary jobs are not reserved for a specific group of people. They are

3 The question on type of contract refers to employees, not to self-employed persons and contributing family workers.

4 Temporary employment rate represents the share of employees on temporary contract in the total number of employees.

5 The weighting procedure in LFS was changed in 2014. It caused a break in time series. The previous results for 2014 were revised to ensure forward comparability.

Figure 1: Structure of employees by type of working arrangement, %



Source: LFS, SORS

performed by a wider variety of people (Table 2), most importantly vulnerable categories – the youngest (15-24) and the oldest (65+), people with the lowest level of education, those employed in agriculture, construction and accommodation and food service activities and at households as employers. Temporary employment rates by sex, age groups, education and economic activities for 2014-2016 suggest growth of more than 10 percentage points in some branches of activity (e.g. administrative and support service activities) over that period.

Furthermore, the most volatile part of temporary employment – short-term temporary employment with the duration of work of up to 3 months, suggests even stronger growth. The share of short-term temporary employment in the total number of employees was 9.5% in 2016, compared to 4.6% in 2014.

Table 2: Temporary employment rate, population 15+, 2014-2016

	2014	2015	2016
	(percentage)		
Total	19	22	24
Sex			
Men	20	23	26
Women	17	20	21
Age groups			
15-24	59	61	63
25-34	29	32	35
35-44	15	18	18
45-54	10	13	15
55-64	10	12	14
65+	47	50	46
Economic activities			
Agriculture, forestry and fishing	53	55	53
Mining and quarrying	12	18	16
Manufacturing	17	21	24
Electricity, gas, steam and air conditioning supply	10	14	18
Water supply; sewerage, waste management and remediation activities	13	10	13
Construction	37	44	45
Wholesale and retail trade; repair of motor vehicles and motorcycles	20	24	25
Transportation and storage	13	18	19
Accommodation and food service activities	37	33	38
Information and communication	10	17	18
Financial and insurance activities	14	17	15
Real estate activities	(14)	(22)	(21)
Professional, scientific and technical activities	19	17	20
Administrative and support service activities	26	31	37
Public administration and defence; compulsory social security	13	11	14
Education	15	16	19
Human health and social work activities	8	9	11
Arts, entertainment and recreation	24	30	29
Other service activities	33	34	33
Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use	95	85	70
Activities of extraterritorial organisations and bodies	-	-	-
Education level			
Lower	32	35	35
Middle	19	23	25
Higher	15	16	18

( ) less reliable estimates; - unreliable estimates;
Source: LFS, SORS

Compared to Serbian rate of 24%, the average temporary employment rate for 28 countries of the EU was significantly lower, reaching 14.2% in 2016[6]. However, the indicator that better reflects the negative aspects of temporary employment in Serbia compared to Europe is involuntary temporary employment rate, calculated as the proportion of employees who work on temporary contracts because they could not find a permanent job in the total number of employees. While the average involuntary temporary employment rate in the EU was 8.8%, it reached 21.5% in Serbia in 2016, suggesting that temporary employment in our country is not a personal choice that brings autonomy over the work and a high degree of flexibility as it might be in some other, developed countries of the EU. It is more likely to be a necessity characterised by economic insecurity, lower degree of social protection and poor working conditions.

Part-time employment

Since minimum social security contribution is not adjusted to the hours of work performed, formal work does not pay for part-time jobs, so that mini-jobs and midi-jobs almost always remain in informal sector. According to LFS, the number of employed persons with part-time jobs (less than 36 hours of work in a week) has lately slightly increased and reached 353,000 in 2016.

6 Eurostat

Table 3. Part-time employment, 2016

2016	Total employment	Informal employment	Informal employment rate (%)
Part-time	353,000	252,000	71.4

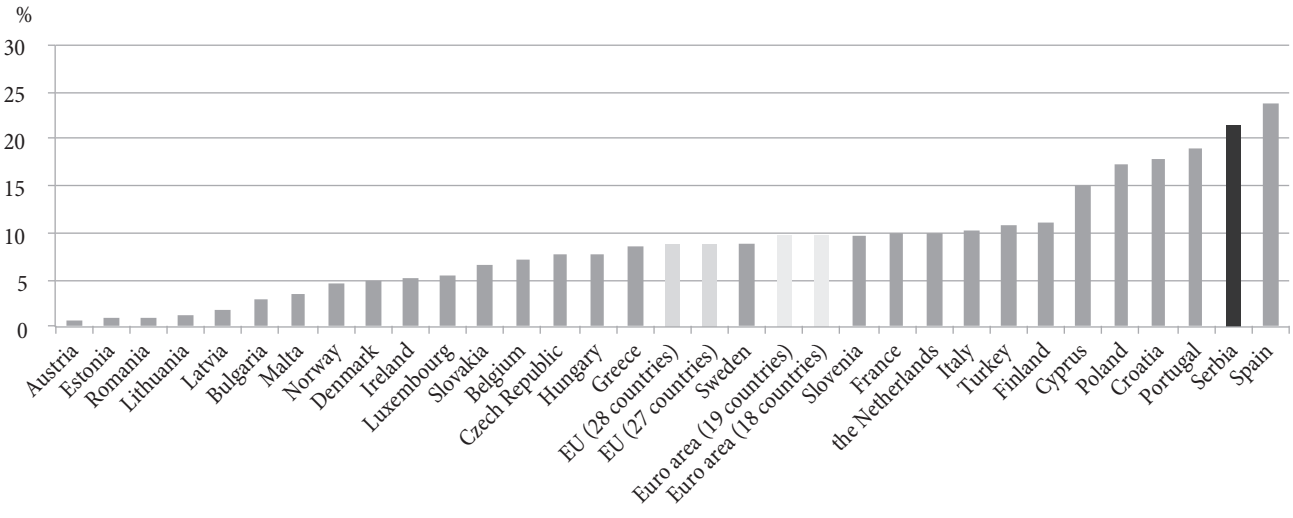
Source: LFS, SORS

However, in just a four-year span, from 2012 to 2016 (if we assume again that the methodological change in LFS in 2014 did not affect the proportion of informally employed part-time workers), informal employment rate among part-time workers rose from 66% in 2012 to 71% in 2016. It means that seven out of ten part-time workers were informally employed, contributing to social security contribution bill with 0 dinars. On the other hand, informal employment rate for those who have regular full-time jobs was about 14% in 2016, meaning that chances of being informally employed are more than five times higher for part-time workers than for their full-time counterparts.

Temporary agency workers

In addition to all mentioned above, LFS results suggest that temporary agency work has emerged as well. Temporary agency work is organised through a triangular relationship between the temporary agency worker, the agency and the user firm. Workers hired by agencies are often in a precarious position, since the duration of their employment is usually less than 12 months, and the quality of their

Figure 2: Involuntary temporary employment rate in EU countries, 2016



Source: Eurostat

jobs and wages is often lower while the work intensity is higher than among the core workforce.

The number of temporary agency workers reached 38,000 in 2016.

Section 4: Employment elasticity and "inconceivable" disconnection between employment and GDP

In the last two decades, employment elasticity has become one of the most common approaches used to assess the labour intensity of economic growth. Employment elasticity is defined as a percentage change in the number of employed persons in an economy compared with a percentage change in the economic output, measured by the gross domestic product. This concept provides insights into what part of GDP change occurs due to a change in productivity and which part is the result of a change in size of total (general) employment. Sustainable growth is growth that secures permanent increase in both employment levels and living standards (productivity), but there is no such thing as ideal employment elasticity ratio. We can only talk about expected long-term values of employment elasticity, which are between 0 and 1. Furthermore, if elasticity is closer to zero, economic growth comes mostly from productivity growth and if it is closer to 1, a major contribution to economic growth is provided by total employment growth.

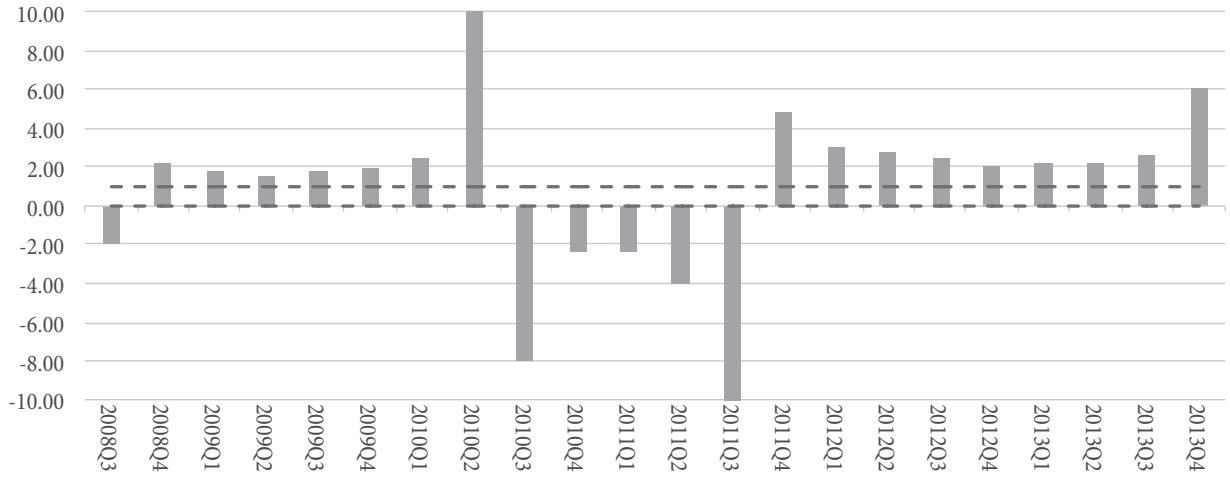
However, there are at least two problems with using this methodology (at least in its rudimentary form)[7]. First, as pointed out by some authors [10], [11], if employment elasticity is calculated for a short period of time, it tends to be very unstable and often outside of the expected 0-1 range. Secondly, some studies suggest [9] and [3] that Okun's coefficients[8], and consequently employment elasticity, are much more unstable during economic recessions than in other phases of the business cycle.

To show how short periods and business cycle can reflect on the values of employment elasticity, we took Spain, which had two recessions – one in early 2009 and another in mid-2012, as an example. We used seasonally and calendar-adjusted data of employment and economic activity and calculated their percentage change compared to the same period previous year. As we can see from Figure 3, in 22 observed periods, employment elasticity was not, for a single period, inside theoretically expected values (0, 1). During that span, the result closest to the theoretically expected value was around 1.5, while the furthest was 25 (bars for second quarter of 2010 and third quarter of 2013 are stacked; their actual values are 25 and -20, respectively).

7 More complex approach is based on using a multivariate log-linear regression model.

8 Regression coefficients used for estimating the sensitivity of output to unemployment - named after Arthur M. Okun, who proposed the relationship between unemployment and GDP in 1962.

Figure 3: Employment elasticity in Spain, 2008Q3 - 2013Q4



Source: Own calculation using Eurostat data, National Accounts [namq_gdp_k], [namq_nace10_e];
Note: Seasonally and calendar-adjusted data, percentage change compared to corresponding period of the previous year.

Without taking into account the aforementioned shortcomings, Petrović et al. in their recent papers [14], [15] applied the simple methodology explained above to examine employment elasticity in Serbia in 2012-2014. In their calculation, employment elasticity was 19.9% at first, and then - after revision - 12.4%. They found that the value was "far outside of the expected and, indeed, any possible range", which led them to the conclusion "that the major discrepancy in employment elasticity in Serbia over the 2012-2014 period, from either the expected theoretical values or actual values in comparable countries, strongly suggests that the reported market trends are highly suspicious". Is the recorded value of employment elasticity indeed outside of any possible range and is that the reason why SORS should stop conducting the Labour Force Survey (LFS) which is used to measure the change in total employment and employment elasticity afterwards? We do not think so.

Firstly, while doing the calculation, they combined the two abovementioned problems which are inherent to this indicator. Besides its calculation for a short period of time, they chose the period in which Serbian economy was in recession. It should be noted that, barring the recession in 2009 (caused by the financial crisis) and recession in 2011 (caused by the European sovereign debt crisis), unlike EU, Serbia had another recession in 2014 (partially caused by floods and partially by structural issues). Consequently, the synergy of both these factors contributed to shifting the values of employment elasticity far over the expected boundaries.

Secondly, and more importantly, even if we disregard the previous fact and attribute it to coincidence, the next example shows the dangerous level of selectivity which is not allowed at this level of scientific debate. As Table 4 shows, Petrović et al. chose an exact time period in which Serbia was "the champion" (as they said) in employment growth and employment elasticity. For this purpose, we divided the whole period of economic crisis (2008-2015) in two-year subperiods and then calculated employment elasticity for 33 European countries (including Serbia). By doing that, we just wanted to show that the choice of exactly 2012-2014 by Petrović et al. was everything but coincidence. Namely, out of all seven examined subperiods, Serbia was an outlier in employment elasticity only in 2012-2014. In all other subperiods Serbia was far from the maximum with regard to recorded employment elasticity.

By carefully analysing the data from Table 4, we can notice exactly what Arandarenko et al. [2] claim: "Extend that period... and some other country would certainly replace Serbia as an outlier". Moreover, Petrović et al. argue "that employment elasticity in Serbia, which is roughly 30 times higher than the average in CEE economies, clearly indicates that something is wrong with the reported employment series in Serbia". Using their erroneous logic, we can say that employment elasticity in Hungary and Romania (which are quite comparable with Serbia) was roughly 84 and 88 times higher than the EU 28 average, respectively. It remains unclear why at least one of these two countries has not ceased to conduct LFS.

Tracking employment elasticity over time could be a useful indicator providing important insights into the extent to which part of the growth is associated with the increase in total employment and to which part is achieved due to productivity growth per worker, but it

Table 4: Highest employment elasticity in Europe by two-year subperiods

	08-10	09-11	10-12	11-13	12-14	14*-16*
EU 28	1.34	-0.35	-0.28	2.10	0.38	0.63
Luxembourg	31.56					
Romania		-29.35				
Hungary			24.61	7.36		
Serbia	6.08	-6.84	-19.99	1.74	12.39	1.76
Cyprus						
Greece						-15.04

Source: Authors' own calculation using Eurostat data on real GDP growth and total employment growth, percentage change in previous year and revised SORS data from LFS for Serbia in 2015 and 2016.
*Revised data

must be interpreted cautiously, taking into account not just the quantity, but the quality of employment as well.

The theory that employment growth depends exclusively on economic growth is long outdated. Nowadays it is clear that the combination of factors, such as the capacity of the labour market and the labour market institutions, in addition to the economic environment, should be taken into account when it comes to employment elasticity.

Section 5: Social security contribution and private consumption and the reasons for their non-linear relationship with LFS employment

Petrović et al. [15] also emphasised the disconnection between social security contribution (SSC) revenues and LFS employment, claiming once again that something was clearly wrong with reported labour market trends and that LFS data were highly suspicious. Such a bold claim does not help us to better understand the trends in the labour market, but it can potentially harm the integrity of internationally standardised and undisputed LFS in public.

Petrović et al. [15] persistently ignore the explanation given by Arandarenko et al. [2] that LFS is not designed to provide a direct link between the employment data and any macroeconomic outcome which is reflected by national accounts. For that purpose, most of the countries use national-accounts-based employment (NA employment). The main reason for that is the fact that without precise weights (mainly wages, but also working hours), satisfying consistency between LFS employment and macroeconomic outcomes, such as personal consumption and social security contribution revenue, cannot be expected.

To clarify the difference between LFS and NA employment, it is worth briefly noting the relevant definitions [5], [16].

In accordance with the International Labour Office (ILO), the LFS defines a person as employed when the person in a given reference week has received compensation in the form of wages, salaries, fees, gratuities, payment by results or payment in kind for a minimum of at least one hour of work, or has been temporarily absent from a job. LFS employment comprises formal and informal employment, whereby formal employment includes persons who have a formal contract on employment, as well as persons who undertake an agricultural activity registered in official government institutions, while informal employment involves work in unregistered enterprises, work in registered enterprises but without a formal contract of employment and without social and retirement security, as well as work of contributing family workers.

The NA uses the European standard for national accounts, ESA2010, and defines persons in employment as persons who supply workforce for the production of goods and services.

NA employment estimates may differ from LFS employment. There are differences due to integration of sources and due to conceptual reasons. While **the choice of sources used to produce NA employment might have a notable impact on the employment figures**, the size of conceptual adjustments is modest.

Differences due to integration:

- National accounts integrate information from many sources. All sources available (including LFS) are assessed and subsequently the decision is made on the best way of integrating them. Each source may shed light on a part of the economy. **Some countries use LFS very modestly in national accounts.** In Denmark, for instance, NA employment is primarily compiled from register-based data. The information is combined to provide the most complete and consistent estimate. As a consequence, each individual basic source may provide results that are different from the integrated NA estimates.

In national accounts, employment figures must be consistent with other variables, such as output and compensation of employees (i.e. wages, salaries and social contributions). Ensuring consistency between variables may result in adjustments.

Conceptual differences:

- Geographical scope: National accounts calculate both domestic (employment in resident production units irrespective of the place of residence of the employed person) and national (resident persons in employment) employment, but more importance is given to the former (e.g. this concept is more appropriate when

examining employment and GDP together). LFS, on the other hand, covers resident households. This means that LFS data must be adjusted, mainly for cross-border workers, to align with the domestic concept normally used in national accounts.

- Coverage differences: LFS does not cover persons living in institutional or collective households (e.g. conscripts), unpaid apprentices and trainees and/or persons on extended parental leave. They are all covered by ESA2010 employment. Appropriate adjustments are therefore needed.
- Recording thresholds: LFS results exclude persons below 15 years of age from the definition of employment (in some countries the exclusion boundaries are below 16 years of age and/or above 75 years of age). National accounts do not exclude individuals from employment because of age. The difference is very small in developed economies.

Bearing in mind the aforementioned, it is clear, before any quantitative analysis, how meaningless it is to expect the correlation between SSC and private consumption trends with LFS-based employment trend. Since data from the most important administrative source, Tax Administration, are not available for statistical use, although there are indications that it will become available soon, SORS still lacks precise figures on NA employment, as well as on total wage bill and actual working hours.

In addition to this, many other factors could have contributed to the non-linear relationship between LFS-based employment and SSC revenue [13], [15]. The most important are:

1. Nature of recent employment growth.
2. Change of pension and disability insurance contribution rate, as well as change of compulsory health insurance contribution rate (both in the middle of 2014).
3. Reduction of salaries for public sector employees (at the end of 2014).
4. Amendment to the Labour Law in 2014 which caused the reduction of salaries.
5. Employers' delay with the payment of mandatory taxes and contributions.

As indicated in Section 3, temporary and part-time jobs have recently expanded. Due to a lack of tax wedge incentives, these types of jobs usually stay in informal sector and, as such, are invisible in SSC total revenues. Just to point out the figures indicated in Section 2 again: total LFS employment went up for cca 350,000 in 2012-2016 period, of which cca 200,000 are in informal sector and cca 50,000 are on the edge of informality (agricultural activities registered in the Ministry of Agriculture which do not have to be registered in CRCSI). Therefore, only cca 100,000 "newly employed" out of 350,000 contribute to SSC revenue and total wage bill.

All of the mentioned facts once again prove that the link between LFS employment and SSC revenues should never be seen as linear, at least not without any insight into LFS microdata.

However, we continue monitoring the SSC trends and our findings, based on the available series of data (we still do not have access to 2016 data), suggest the increase in revenues from payroll tax by 1% (RSD 1.078 million) and from contributions for unemployment insurance by 1.4% (RSD 109.9 million) in 2015 compared to 2014. Here, we ignored the impact of amendments to the Labour Law in the middle of 2014 on salaries and salary reduction in the public sector at the end of 2014. Due to a change in the composition of SSC in 2014, we avoided measuring the increase of revenue in 2014/2015 period. As we do not have access to SSC revenue data for 2016, we are leaving it to Petrović et al. to confirm our hypothesis that SSC revenue growth in 2012-2016 period (taking into account the effects of the amendment to the Labour Law, reduction of salaries in public sector and change in the composition of SSC) was even more moderate than registered employment growth in the same period.

With the aim of measuring the impact of "suspicious" employment growth on private consumption, Petrović et al. [15] made completely irrelevant objections. They obtained "a complete discrepancy between the employment and private consumption trend". Their findings incited us to inspect wages and private consumption trends and to put them in relation with employment growth. Our findings, listed in Table 5, are exactly the opposite of theirs, suggesting a strong correlation between employment

and private consumption growth. Namely, following their logic, we estimate the total wage bill by multiplying average net wage with the registered employment and formal LFS employment figures. Employees on temporary contracts and individual farmers are excluded from the total registered employment figures, since there were no elements to estimate their number, when the revision of the numbers previously used for registered employment, obtained from RAD survey (for the period 2000-2014), was done based on the information from the new source CRCSI. In 2012-2016 period, total wage bill, estimated on the basis of registered employment, went up by 14.7% in nominal terms, while total wage bill estimated on the basis of formal employment figures from LFS went up by 20%. For the estimation of private consumption, we used retail trade turnover instead of HBS survey used by Petrović et al. [15]. Retail trade turnover increased by 14.2% in the same period.

Even though we used both LFS and registered employment figures in this calculation, we find registered employment definition more adequate for this kind of calculation, as it is closest, in terms of weights (hours worked and wages), to the national accounts concept of employment which is supposed to be used in the analysis of the correlation between employment growth and macroeconomic indicators.

Even though private consumption growth, measured by annual retail trade turnover, did not reach 20% as Petrović et al. expected, results do not support their remark on "complete discrepancy between the employment and private consumption trend". Despite the fact that private consumption trend in this case supports the reliability of LFS, we remain firm in the belief that challenging the quality of LFS based on the strength of the relationship of LFS estimates and some macroeconomic indicators is inadmissible. LFS is a priceless instrument for recording informal employment and other atypical types of employment. It provides information on the quality of employment, as well as international comparability. Thus, it should be used primarily for what it was made, instead of requesting from SORS to revise its LFS statistics so as to fit in better with the macroeconomic trends.

Almost perfect correspondence of formal employment from LFS with registered employment, as demonstrated in Section 2, confirms the quality of LFS estimates. Since cca 80% of total LFS employment (formal employment) is benchmarked against CRCSI, it seems that there is no room for scepticism in terms of its accuracy.

However, to demonstrate the complexity of relationships presented in statistics to Petrović et al., we examined other statistics related to private consumption and found that real growth rate of NA-based household final consumption expenditure in 2015 (data for 2016 still not available) was 98.7% compared to 2012. The growth of employment and real growth rate of average salaries to 95% in that period additionally blur the relationship between employment and private consumption trends.

In the next section, we will examine closely the issue of labour underutilisation in our country.

Section 6: Labour underutilisation

The main objective of monitoring labour markets is to assess the extent to which the economy is fully utilising its available human resources, or, in other words, the extent to which it provides opportunities to employ its

Table 5: Employment and private consumption trends, 2012-2016

	2012	2016	Growth, %
Registered employment** (a1)	1,865,614	1,920,679	2.95
Formal employment, LFS (a2)	1,968,000	2,120,000	7.72
Average net wage, RAD, dinars (b)	41,377	46,097	11.41
Estimated total wage bill (a1)*(b)	77,193,510,478	88,537,539,863	**14.70**
Estimated total wage bill (a2)*(b)	81,429,936,000	97,725,640,000	**20.01**
Annual retail trade turnover, mill. dinars	1,196,095	1,366,044	**14.21**

Source: Domestic trade and labour market statistics, SORS

** Registered employment without temporary workers and individual farmers

population to its full potential. With an increasingly diversified and fragmented labour market and varying degree of attachment to it, the unemployment rate is not a sufficient measure of labour underutilisation anymore. Besides the unemployment rate, two additional measures of labour underutilisation have been introduced by ILO: (1) time-related underemployment[9] and (2) potential labour force[10].

Based on LFS results for the population aged 15-64, it appears that number of underutilised people in Serbian labour market was above 1,000,000 in 2016. Even though LFS data suggest a downward trend of labour underutilisation in the last couple of years, the labour underutilisation rate[11] at the level of around 30% for people aged 15-64 in 2016 was still high.

Figure 4, presenting the structure of underutilised labour broken down to three mentioned categories for the population of 15-64 years of age in 2014 and 2016, suggests that employment growth has reflected solely on unemployment, while the scopes of time-related underemployment and potential labour force have not notably changed.

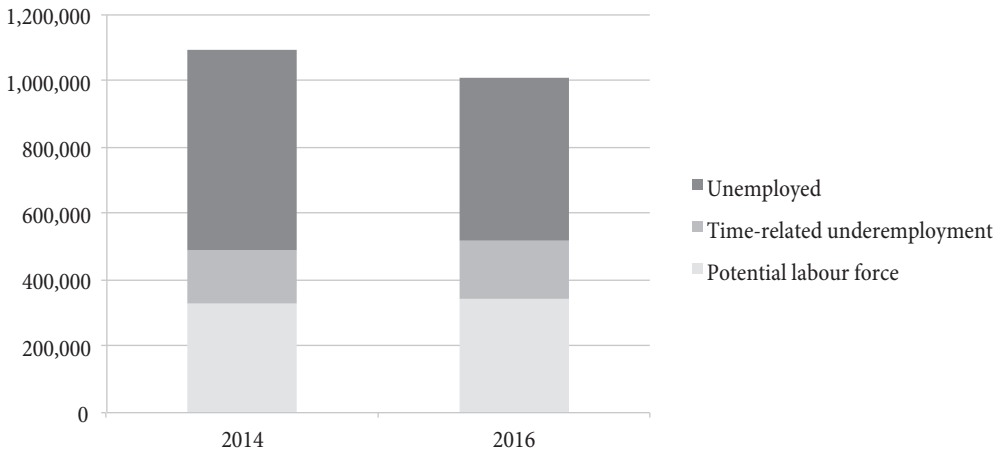
Underutilisation rate among young people aged 15 to 29 was even higher, reaching the level of 40% in 2016. In addition to that, almost one fourth of population aged 15 to 29 is neither in work nor in education or training (NEET), while the employment rate was 33% with notably higher level of informality in this age category (26%) compared to the total population. Furthermore, the survey "School to Work Transition" (SWTS) conducted in 2015 by SORS and ILO for the population 15 to 29 suggests that the school-to-work transition (from the time of graduation to attaining the first job that deems to be either stable or satisfactory) is not sufficient for most youth and that economic and social costs of financial support to youth through a transition period averaging nearly two years are the obstacles to economic growth. Incidentally, it is useful to mention that this survey confirms the soundness of the LFS results since some of its indicators that can be produced in the same way from both LFS and SWTS are almost perfectly consistent. It also confirms the complexity of the link between GDP and employment by warning implicitly that the lack of systematically led transition of young people from school to work leads to human capacity losses and, consequently, to further weakening of the struggling economy.

9 Persons in time-related underemployment are defined as all persons in part-time employment who, during a short reference period, wanted to work additional hours.

10 Potential labour force is made of persons who were neither in employment, nor in unemployment, but who were: (a) unavailable job seekers, that is, carried out activities to seek employment in a recent period but were not currently available to take up employment, or (b) available potential job seekers, that is, did not carry out activities to seek employment in a recent period, but wanted employment and were currently available to take up employment.

11 Labour underutilisation rate is calculated as a proportion of underutilised people in the extended labour force.

Figure 4: Breakdown of labour underutilisation in Serbia, age 15-64



Source: LFS, SORS

Conclusion

Once again, we assess Petrović et al.'s critical arguments against the reliability of LFS data as incorrect and methodologically irrelevant. However, instead of applying their methods of discarding LFS data due to the lack of understanding recent labour market dynamics, we provide additional evidence to support our claims that employment has increased starting from 2012. What we find is that recent employment growth is characterised by stagnation of permanent employment and expansion of temporary, part-time and multiparty employment which cannot follow the same pattern of relationship with economic growth, private consumption and social security contribution revenue as standard employment does. In addition to that, we examine the extent of labour utilisation. The results suggest an insufficient labour demand, on the one hand, and probably (not covered by LFS) an inadequate labour supply, on the other. There is an urgent need to encourage labour demand, to address the substantial work deficit in case of non-standard employment and to strengthen the regulatory framework and active labour market policies for these kinds of employment. There is also a need to better match the educational system to the labour market needs, to promote innovations, to redesign labour taxation system, etc.

We hope that, with this paper, we have achieved our goal: to dispel the suspicion about LFS data reliability and to encourage the academic community to start using valuable resources of LFS in order to target weaknesses of labour market and to support its recovery.

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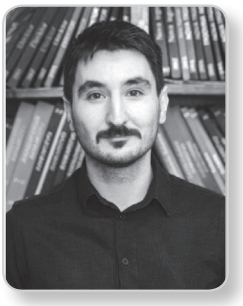

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