

Mode effects in measuring temporary agency employment in the German Mikrozensus

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This paper discusses the effects of a major organisational and methodological change of the German Mikrozensus and integrated EU-Labour Force survey (EU-LFS) in 2020 on the figures of temporary agency employment published by the German Federal Statistical Office (Destatis). Possible reasons for the erroneous effects are assessed, specifically concerning interview modes. Two solutions that were applied by Destatis are presented and conclusions are drawn regarding the connection between question wording and used interview mode.

1. The relevance of temporary agency employment in Germany

Temporary agency (TA) employment has been existing in West Germany since the 1960ies with a first legal regulation of this form of employment in the early 1970ies. For a long time, the number of TA workers was very small, moderately rising since the mid-1980ies but stayed below 200,000 until the end of the 1990ies.

The perception of this employment form changed with a major labour market reform in Germany called “Agenda 2010”, implemented in the beginning of the 2000s. One objective was to sustainably lower the level of unemployment by making the labour market more flexible. TA employment was seen as one instrument to increase this flexibility. Consequently, several restrictions from the law on the protection of TA workers (“Arbeitnehmerüberlassungsgesetz”) were suspended or modified. Even though principals of equal treatment were introduced, they proved to be of limited effectiveness. TA employment gained high political interest as either being a key tool for fighting unemployment or lowering employment standard for a significant share of the labour force. Consequently, German official statistics put a focal point on this form of employment. In the reporting of Destatis it became one of four forms of atypical employment. The current situation is that TA employment quantitatively plays a smaller role, and standard employment (“Normalarbeitsverhältnis”) dominates all forms of employment. Still, concerns regarding the quality of this form of employment remain valid and, despite several legal countermeasures, temporary agency workers often earn less than the regular staff of the companies they are sent to. Atypical employment and TA employment continue to play a prominent role in our annual reporting and relevant data is highly requested by national policy makers and researchers.

2. Existing data sources on temporary agency employment

There are two sources in official statistics that cover TA employment. One is the “Arbeitnehmerüberlassungsstatistik” (AUS) of the Federal Employment Agency (BA). Therefore temporary employment agencies are legally obliged to report twice per year to the BA their number of persons in TA employment. With this, the BA has a complete survey of (declared) temporary agency work and can provide, in addition to the number of employees, job-related information e. g. whether they are covered by social insurance, full- or part-time, the length of the employment spell, as well as

employee characteristics on sex, age groups, vocational qualification groups and German vs. foreign nationality. The size of the agency is also known.

The other source is the EU-LFS with the variable TEMPAGCY, which is integrated into Germany's largest household survey Mikrozensus. Data on temporary agency employment is available since 2006, and since 2012 it is covered with the full 1% sample. It consequently allows a wide range of combinations with other variables and analyses. It is mainly used as part of Destatis' statistics on atypical employment. These statistics break down employment forms with regard to standard employment ("Normalarbeitsverhältnis"), which is a dependent employment relationship with a permanent, full-time labour contract, where work is directly done for the employer and which is subject to social insurance. The statistics focus on the part of the population for which employment normally is the main source of income. Accordingly, only persons aged 15 to 64 years who are not in education or training are considered part of this "core employment" group.

3. Inconsistencies in Mikrozensus results since 2020

According to the Mikrozensus, the number of TA employees increased steadily from about 680,000 in 2013 to a temporary maximum of 932,000 (2.5% of core employment) in 2017. Against the negative trend, afterwards the number surged suddenly to 1,8 mill. in 2020, and even 2,8 mill. in 2021. This increase was most obviously caused by a methodological effect. First, it contradicted theoretical expectations as, in a period of significantly reduced labour demand, TA employment should reduce at first. Secondly, the AUS as alternative source did not reflect in any way the development found with the Mikrozensus, even though both sources had shown quite similar results over time. Thirdly, in 2020 comprehensive methodological changes were implemented in the Mikrozensus and there was the COVID-19 pandemic. The latter had not only significant effects on the German Labour market, but also implied drastic changes in the means of data collection for the Mikrozensus. Due to the problems in data collection in 2020, and in contrast to the increase in TA employment, the Mikrozensus identified a total decline in employment by almost 820,000 persons compared to 2019. A considerable share of that decline can be assumed to have methodological reasons, as German employment accounts identified for the same period a decrease of only 315,000.

4. Organisational changes of the Mikrozensus as possible cause

The relevant methodological changes and their unfortunate interaction with the impacts of the COVID-19 pandemic have to be described in more detail. The major methodological overhaul of the German Mikrozensus in 2020 concerned mostly survey design and survey organisation. It also anticipated some changes coming with the IESS regulation and actually integrated all surveys covered by the regulation into one organisational and methodological framework. This means the LFS, SILC and ICT Survey are part of one comprehensive Mikrozensus from 2020. The surveys are covered by different sub-samples within this frame. Nevertheless, most EU-LFS variables actually remain in the full 1% core sample of the Mikrozensus as a compulsory question because they are covered by national legislation. This big change also introduced CAWI as a new interview mode, while so far CAPI and, to a lesser extent, PAPI were the most important modes.

While some logistic and technical problems were expected during the transition between 2019 and 2020, the COVID-19 pandemic completely changed the conditions for this system in its first year of real-life operation. CAPI, being so far the backbone of the data collection, was mostly impossible, and the newly introduced CAWI with unknown effects became quickly the main interview mode. As the Mikrozensus is a so-called "decentralised statistic", it is conducted by the statistical offices of the Länder (LSO). Depending on available resources, the LSO applied different strategies to cope with the

obstacles to data collection. The enforcement of response to this normally compulsory survey was suspended, and for 2020 unit non-response turned out to be 35%.

5. Identifying the main factors driving the effect

There was a strong indication that the shift in interview modes played an important role. In 2019, for 55% of persons in employment CAPI was the most common interview mode, and for 35% the interviews were conducted by self-administered paper questionnaire (PAPI). CATI conducted by CAPI-interviewers and administrative staff in the LSOs served as fall-back options. In contrast, in 2020 almost 46% of the interviews of persons in employment were conducted through CAWI, the share of CAPI plunged to 1.5%, while about 24 % of the interviews were conducted through CATI by the interviewers.

For quality checks the most important aggregates were compared in further analysis. Among others, the share of TA workers among all persons in core employment is used and compared between sub-groups. Between 2019 and 2020 the share among all employed persons more than doubled, from 2.3% to 4.9%. Analysis by sex, age, education and industry reflected this increase for all sub-groups. Notable variations could only be found among industries, where industries with a lower share of TA employment in 2019 showed a larger relative increase.

In contrast, comparing these shares by interview mode supports the hypothesis that it has an influence on the overall increase between 2019 and 2020. Interviewer supported modes like CAPI and CATI provide almost unchanged TA employment rates and are clearly lower than the overall share in 2020 (1.6 and 2.1%). For self-administered PAPI, the share increases in 2020 to an already higher level of 3.9%. The share of TA employees interviewed with CAWI stands out with a share of 7.3%.

Combining that with the mode shift in 2020, where almost half of the interviews of employed persons were conducted through CAWI, can explain the considerable increase of the total number of TA employees.

Further support for this hypothesis can be found by comparing the TA employment of LSOs who are, as explained above, responsible for conducting the interviews. In 2020, very pronounced differences in the mode mix can be found between statistical offices. The shares of CATI conducted by interviewers in each Land vary between 51% and 0%. The use of CAWI ranges from more than 76% to 0.5%. One Land conducts almost all interviews by PAPI, while another uses it only for 9% of its interviews. Even though the mode mix does not reflect all differences in data collection, it does have an effect on the TA employment shares of the Länder. With a few exceptions, the share of TA persons in employment increases with the share of CAWI conducted in each Land. In some Länder a very high share of PAPI seems to contribute to that increase. The five Länder with a CAWI share of more than 50% also have the highest shares of TA workers among their employed persons. Their shares rise between 2019 and 2020 by up to 350%, while for a few Länder they remain almost unchanged.

These results strongly support the assumption the self-administered interview modes - especially CAWI, but to some extent also PAPI - drove the increase in the overall number of TA employees. They do not only identify relatively more TA workers than the other modes, but also remarkably increased their share from 35% in 2019 to 72% in 2020.

6. Analysing interaction between question wording and interview mode

This finding raises the question why the question wording on TA employment that provided reliable results with personal interview modes produces inflated results with self-administered modes.

The EU-LFS simply defines the variable TEMPAGCY as “...the respondent is in a triangular employment relationship, where he/she is employed with a temporary employment agency but working for another firm that has a corresponding service contract with the former”.

As a model question it is recommended to either ask “who pays the salary” or about the nature of the contract. The German approach in 2020 did the latter by asking if the respondent has concluded for his/her job an employment contract with a company that has placed him/her in temporary agency work: “*Haben Sie für Ihre Tätigkeit einen Arbeitsvertrag mit einer Firma abgeschlossen, die Sie in Leiharbeit vermittelt hat?*”

The question is conceptionally correct but phrased in a complicated way; it has two parts and the main stimulus “Leiharbeit” (TA employment) is mentioned at the end. There are two possible explanations why respondents might have answered this question in self-administered interviews with “yes”. (1) They did not fully understand the intent of the question after already having answered a large part of the interview and followed the behavioural tendency to answer positively (approval), as there is no “don’t know” category offered. (2) Again, bearing in mind the number of questions already answered, respondents might have only grasped the first part of the question, which they correctly answered with “yes” as they had an employment contract with their employer.

Experienced Mikrozensus interviewers might have compensated the complicated question wording by deviating from it and asking in CAPI more directly, eventually achieving more valid results. This presumption can be supported by the circumstance that CATI conducted by the LSO staff, whose main task is survey administration but not conducting interviews, led to a higher share of supposed TA workers.

Still, the above described problem only occurred to a small part of the (employed) respondents, even though their number was sizeable enough to cause the observed effect.

7. Troubleshooting and a more sustainable solution

The results of our analysis called for an immediate revision of the question wording, but there were no available resources to verify our conclusions by cognitive testing. Additionally, a solution had to be found regarding the publication of results on atypical employment for 2020 and 2021, as the problem with temporary agency work was only discovered in the second quarter of 2021.

We tested the imputation of the values for respondents in employment who answered with self-administered modes by using the distribution from personal interviews with a simple hot-deck approach. This provided plausible results with a total of 700,000 TA employees according to Mikrozensus compared to 780,000 according to AUS in 2020, considering also the undercoverage of employment by the Mikrozensus in that year. The disadvantage of this approach was that it did not allow further breakdowns of the results due to the distorting effect of hot-deck on bivariate distributions. Furthermore, in 2021 and 2022, the numbers on TA employment exceeded those of the AUS, indicating that this simple correction was less and less viable as the share of personal interviews continued to decline.

To achieve a sustainable solution - still without the possibility of conducting cognitive testing - we chose to implement the question wording from the Sozio-ökonomisches Panel (SOEP), a non-official but well-established large-scale panel survey that is conducted since 1984 by the Deutsches Institut für Wirtschaftsforschung (DIW). The SOEP uses a question that is short and simple, asking if the [main] job is a temporary agency employment by using two specific terms that can alternatively be used in German: “Handelt es sich bei Ihrer Tätigkeit um ein Zeitarbeits- oder Leiharbeitsverhältnis?”

Given the long lead time to change questions in printed questionnaires, the question was first changed for 2023 in all electronically supported modes, and for 2024 for the whole Mikrozensus. While in 2022 the total number of TA employees in the Mikrozensus without imputation amounted to 2.25 mill., it dropped to 1.05 mill. in 2023 without any subsequent correction. This probably still exceeds the number of TA workers according to the AUS, which only will be published later this year. We expect a further downward adaption of the Mikrozensus figure, along with the modification in the paper questionnaire that made up for about one sixth of the interviews of employed persons in 2023.

8. Methodological conclusions

We could identify in our analyses a significant shift of interview modes as the main factor for the emerging inconsistencies in the results on TA employment. We have a plausible hypothesis why the German question on TA employment works in personal interviews with professional interviewers, but not in self-administered interviews, especially CAWI. Our step to improve the question wording appears to be successful. This supports the hypothesis, but a real confirmation could only be gained through qualitative testing by conducting cognitive interviews.

Our lessons learned from this experience are so far:

- Mode interfunctionality should be assessed on the level of individual questions. Judging it solely based on the complexity of a (survey) topic is not sufficient.
- The feasibility for CAWI is not only determined by question length, number of answer categories, and the presentation. Also, relatively short questions can be too complex or mis-phrased for self-administered interview modes.
- Even without obvious cues, a question that works very well in one mode can cause massive problems in another. Sometimes a mode can even mask problems.
- Cognitive pre-testing is advisable before introducing new interview modes to a survey. Even then problems may remain undiscovered when the question is generally understood but actually applies only to a small sub-group. In Germany, temporary agency employment applies only to about 2.5% of the persons in core employment, and up to additional 5% presumably misunderstood the question. Considering the small numbers of test persons, it is hard to imagine how this could be identified through cognitive tests.
- Ideally, a combination of qualitative and quantitative pre-tests should be conducted for most questions before introducing new modes into a survey.