

GIZ-VET Impact Assessment Report

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EXECUTIVE SUMMARY

This report provides evidence on the impact of attending a vocational education profile, a so-called modernized profile, implemented according to the dual education model. In a previous report, we examined the effect of attending a modernized profile for the 2015 entering cohort. This report takes first a closer look at the 2016 cohort using the same methodology as for the 2015 cohort. In a second part of the report we pool together cohorts 2015 and 2016 and examine the overall effect and the differences between the two cohorts. The focus of the report is on labor market outcomes, but other outcomes related to the quality of secondary school education and modernized profiles are also examined.

Modernized profiles in question were introduced in Serbian schools with the support of German Development Cooperation in 2014/2015, through “Reform of Vocational Education and Training” project, implemented jointly by GIZ and Serbian Ministry of Education, Science and Technological Development. The modernized profiles studied in this analysis include: locksmith-welder, electrician, and industrial mechanic. The modernization consisted in either innovating the existing VET profiles (locksmith-welder and electrician) or developing a new profile (industrial mechanic) and setting up a close cooperation with companies where pupils had their practical training/work-based learning. In order to implement those profiles in a proper way, school workshops have been equipped with necessary basic tools and equipment. Capacity development measures for school staff and instructors in companies have been implemented as well. All this had the goal to provide pupils with better chance for employment and better positioning on the labor market after graduation.

The report uses the difference-in-difference methodology to estimate the causal effect of attending a modernized profile on various labor market outcomes. In order to estimate the causal effect (or impact), this methodology uses three different comparison groups; one within the schools with modernized profiles, and two comparison groups in comparison schools.

Baseline data on pupil characteristics were collected in spring of the final year of school and a follow-up survey was conducted approximately half a year after pupils finished secondary school. The baseline data was collected in person by a GIZ field research team with support from the Serbian Ministry of Education, Science and Technological Development. Pupils were contacted by phone approximately 6 months after finishing secondary school and were asked a battery of questions on the subjective quality of education, employment outcomes, job quality of the employed and job search behavior of the unemployed.

The following main findings emerged from analysis of 2016 cohort:

- Overall the subjective quality of education is higher among treated pupils than among comparison pupils. This is confirmed by how pupils perceive their secondary education experience, treated pupils were 24 percentage points more likely to give a good (4) or very good (5) grade on a 5-point scale compared to comparison pupils. Other outcomes related to the quality of secondary education such as school equipment and conditions, readiness for work and likelihood of choosing again the same educational profile, are higher for treated pupils, but they do not reach statistical significance.
- Treated pupils were 23 percentage points less likely to say that they plan to continue with their education in the coming years. We believe that the reason for this response is that they felt better prepared for the labor market than comparison pupils.
- We do not find differences between treated and comparison pupils in terms of holding a job, but the quality of jobs is higher in the case of treated pupils.

- The bond between secondary school and pupils is strong for modernized profiles and this is reflected by the fact that treated pupils were 35 percentage points more likely to get employment at the company where they did their practical training during school.
- Treated pupils held at the time of the survey jobs with more job security. They were 23 percentage points more likely to hold a written contract, and they had somewhat better chances of having an unlimited contract, but this outcome is not statistically significant.
- They rated the relatedness and usefulness of their current work with respect to their educational background higher than comparison pupils, but these outcomes do not reach statistical significance.
- The salary of treated pupils was not higher at the time of the survey and their levels of satisfaction with their current work were not affected by the program.
- There are no differences in terms of job search behavior between treated and comparison pupils.

The following main findings emerged from the overall impact analysis of the program which includes cohorts 2015 and 2016:

- Treated pupils rated clearly higher their secondary education compared to comparison pupils. They were 25 percentage points more likely to rate their secondary education good (4) or very good (5) on a 5-point scale. They were 16 percentage points more likely to claim that the equipment and conditions in their schools were at least good and they were 13 percentage points more likely to say that they would again enroll the same educational profile.
- The grade average in the last year of school and the likelihood of finishing school (conditional on enrolling the third grade) are not affected by the program.
- Treated pupils were somewhat more likely to claim that they felt prepared for work after finishing secondary school, but this outcome does not reach statistical significance.
- Treated pupils were not more likely to be employed 6 months after graduation than comparison pupils. However, they were better matched to their jobs than comparison pupils in the sense that they were more likely to report that they work in jobs related to their education and that they applied the skills and knowledge acquired during school. Some evidence for other outcomes is positive, but does not reach statistical significance.
- Treated pupils were 36 percentage points more likely to find their first employment in the company where they did their training during school. This finding underscores the important bond between companies, schools and pupils in the program.
- In comparison with control pupils, treated pupils were 27 percentage points more likely to respond that their current work was VET related and 32 percentage points more likely to say that they use their knowledge and skills from school at work.
- While the distribution of wages does appear somewhat higher among treated pupils, this outcome is not statistically different between treated and comparison pupils. Contract conditions such as formal employment and duration of employment are not different between treated and comparison pupils
- No difference in terms of job search behavior is found for treated and comparison pupils.
- There might be a concern that companies cooperating with the schools have only a limited number of vacancies and that the program might be successful in terms of labor market placement only in the initial year(s). We do not find any such evidence in the data. To the contrary, we find that 2016 cohort pupils had employment contracts with better conditions than 2015 cohort pupils. It is not possible to pinpoint the exact cause for this finding, but it certainly does speak in favor of the program.

Overall, the report confirms the positive findings from the previous report. First, pupils attending the modernized profiles perceived the quality of their education higher and second, they reported to be better matched to their jobs in terms of skills than their peers. This report adds to the discussion on how the impact of the program changes over time and it provides evidence that the program was similarly successful in both years. The evidence suggests that cohort 2016 pupils had more job security than the previous cohort.

1. Introduction

In 2016, the German Federal Ministry for Economic Cooperation and Development commissioned the Sector Project Employment Promotion in Development Cooperation to implement three pilot evaluations in the target regions MENA (Jordan), Sub-Saharan Africa (Rwanda) and the Balkans (Serbia) with the aim to conduct rigorous evaluations of the projects' ex-post employment effects. The evaluations were carried out as a cooperative effort between the "Sector Project Employment Promotion in Development Cooperation", the respective projects and the "RWI - Leibniz Institute for Economic Research". In Serbia, FREN was the fourth collaboration partner.

The main objective of the pilot projects was to quantify the employment effects achieved ex-post through context-specific evaluation designs and to use the results for project management. To ensure compliance with international requirements and standards for impact evaluation, evaluation methods shall be improved and the results used to communicate employment effects to the public. Additionally, the resulting learning experience should facilitate possible ex-ante assessments of similar projects.

In Serbia, impact assessment analysis was part of the program "Sustainable Economic Growth and Employment" in Serbia", in the project "Reform of Vocational Education and Training in Serbia", implemented by GIZ on behalf of the German Federal Ministry for Economic Cooperation and Development. The goal of the project "Reform of VET in Serbia" was to improve the offer of inclusive, demand-oriented cooperative education in technical professions as part of the formal Serbian vocational education and training system.

The goal of the impact analysis is to estimate the net impact of the intervention provided by the project on the employment status of the VET graduates who attended one of the profiles with elements of dual education. A VET profile with elements of dual education in secondary school is a three- study program that prepares pupils to work in a given profession, by partly attending the classes in school and partly attending the training in the company. The current analysis includes three profiles with elements of dual education: locksmith-welder, electrician, and industrial mechanic. These profiles have been developed based on the qualification standards and are outcome based. The amount of practical lessons with outcomes that need to be achieved in the company have been increased comparing to the standard profiles. The most important difference is that it was envisaged that students who are going to companies for practical lessons participate in the working process instead of just observing or even not attending at all and that they had a trained instructor supporting them in this process.

A first impact analysis of the 2015 entering cohort of pupils attending the modernized VET profiles was conducted in 2019 in cooperation between RWI - Leibniz Institute for Economic Research, FREN and GIZ. The aim of this report is to repeat the impact analysis exercise for the 2016 entering cohort, to give an overall effect for the two cohorts (2015 and 2016) and to discuss the differences between the two years.

The report is structured as follows: Section 2 describes the evaluation methodology, survey design and sample selection for cohorts 2015 and 2016. Section 3 provides the results of the impact evaluation for entering 2016 cohort. Section 4 presents compares the results for entering cohorts 2015 and 2016 and provides an overall evaluation of the impact of the program for these two cohorts.

2. Impact Evaluation Methodology, Survey Design and Sample Description

2.1. Impact Evaluation Methodology

The goal of the impact assessment is to estimate the effect of attending a modernized profile on labor market outcomes of graduates. For the remainder of the report we refer to these pupils as the “treatment group”. Related, we call newly introduced (modernized) profiles in these schools the “treated profiles” and the collaborating school “treated” schools. In order to estimate the true impact of being in the treatment group, we select three comparable groups of pupils, so-called comparison groups:

1. Comparison group 1: Pupils attending a non-treated profile in a treated school.
2. Comparison group 2: Pupils attending a profile similar to the modernized profile, who are attending a comparison school
3. Comparison group 3: Pupils attending a non-treated profile in a comparison school. Ideally, comparison group 1 and comparison group 3 profiles should be the same.

A comparison of pupils from modernized profiles with only one comparison profile would have certain disadvantages.

1. Within school comparison with one comparison group

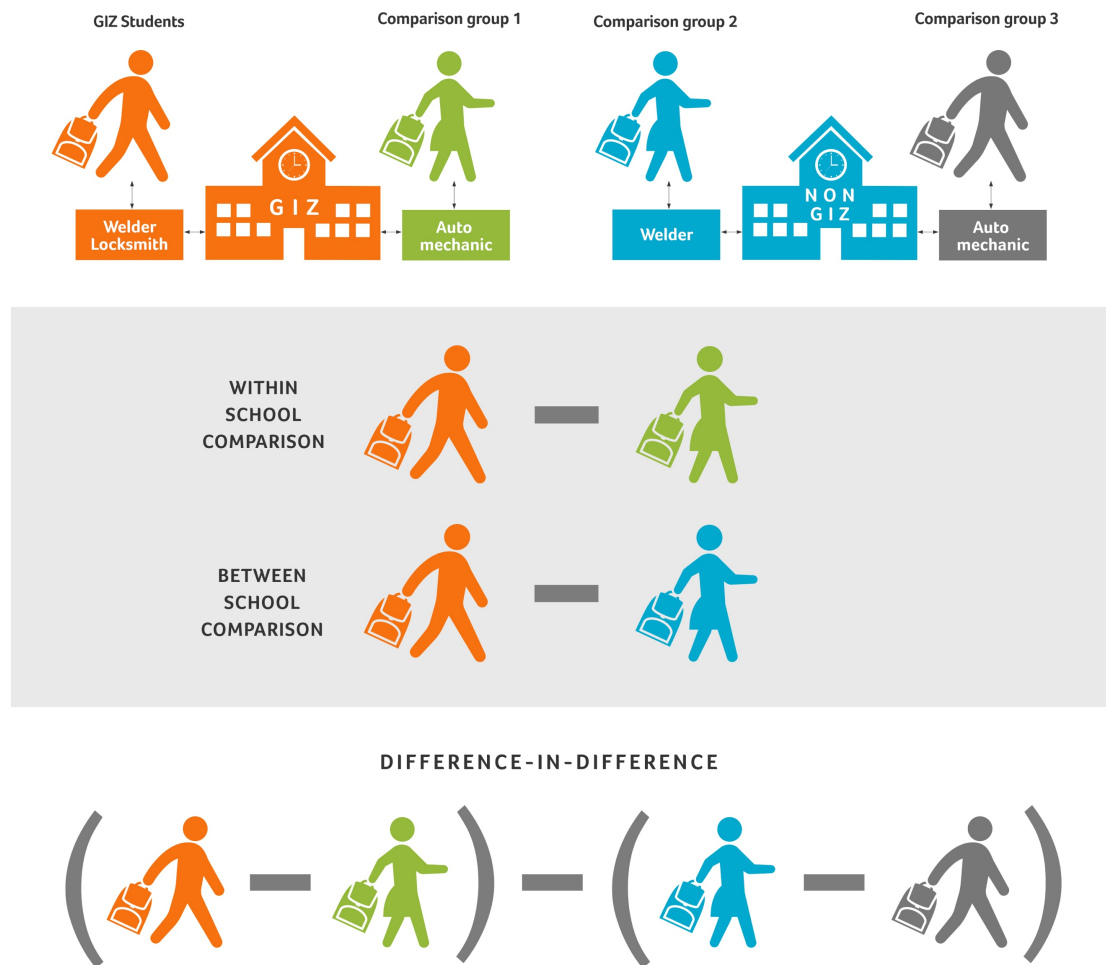
If the treated profile would be compared only with comparison profiles within the same treated school (comparison group 1), we could not account for the problem of *pupil selection*. That is the effect that pupils in treated and comparison profiles could be of different quality. E. g. we could not exclude the possibility that a positive effect is simply driven by better pupils enrolling the locksmith-welder profile than the other profiles in the same school.

2. Between school comparison with one comparison group

If we compared the treated profile, for instance locksmith-welder, with a similar profile, e.g. welder, in a different school (comparison group 2), we would not be able to account for the problem of *school and area selection*. The two schools could be of different quality, one school could be much better than the other. Additionally, the two schools are located in different areas and these areas could offer different labor market opportunities which in turn could be driving the differences between the treated and comparison group.

To alleviate the disadvantages of selecting only one comparison group, we select three groups and rely on the so-called difference-in-difference methodology to estimate the effect of attending a modernized profile. We calculate the difference in terms of outcomes, e.g. employment, *within* the GIZ schools by subtracting the average outcome of pupils in comparison profiles from outcomes of pupils in treated profiles within the same treated school. Similarly, we calculate the difference in outcomes *within* comparison schools between the profile similar to the modernized profile (comparison group 2) and the comparison profile (comparison group 3). Finally, the two simple differences are subtracted from each other and by doing so we account for the problems of pupil, school and area selection. The methodology is illustrated in Figure 1. A simple example on the difference-in-difference methodology is provided in the Appendix in A.1.

Figure 1: Illustration of difference-in-difference methodology



2.2. Survey and Sample Description

In order to estimate the effect of modernized profiles on labor market outcomes, a baseline and follow-up survey were conducted in schools with modernized VET profiles and comparison schools. The baseline surveys were conducted in spring 2018 and 2019 and pupils were asked to give a consent so that their data can be used for research purposes. In the case of pupils who were minors when the baseline survey was conducted, they were asked to provide the consent from their legal guardian. The follow-up survey was conducted over phone in the winter of 2019 and in the winter of 2020.

The selection of comparison schools was driven by the availability of a similar comparison profile in these schools. For each modernized profile the Institute for the Improvement of Education and Upbringing and the Institute for the Evaluation of Education determined similar comparison profiles with respect to the content and labor market opportunities. We call these comparison profiles 2. Table 1 shows all selected comparison profiles for each of the three modernized profiles: locksmith-welder, electrician and industrial mechanic. Both modernized profiles and similar comparison profiles belonging to the group comparison profiles 2 have a duration of three years. In a second step, we selected schools based on the fact whether they enrolled the relevant comparison profiles. Each comparison school has at least one profile comparable to the GIZ modernized profile. In a third step, in both treated and comparison schools we chose comparison profiles 1 and comparison profiles 3, that is profiles which are not necessarily related to the GIZ profile, but these profiles serve to account for differences between treated and comparison schools in school quality and local labor markets. In terms

of profile duration for comparison profiles 1 and 3, for the 2015 cohort it was possible to select three-year profiles, but we had to use and rely on four-year profiles in the 2016 cohort due to the availability of enrolled profiles in comparison schools.

Table 1: Modernized profiles and P1 profiles in comparison schools

Modernized profiles	Locksmith-welder	Electrician	Industrial mechanic
	Locksmith	Electro-installer	Operator for machine processing
Comparison group 2 profiles	Welder	Electro-mechanic for machines and equipment	Mechanic for hydraulics and mechanics
	Machine-locksmith	Electro-mechanic for thermal and cooling devices	CNC machinist
		Electro-fitter for networks and facilities	Lathe worker

Notes: Comparison group 2 profiles refer to profiles that are similar to GIZ modernized profiles.

Table 2 summarizes the number of schools, profiles and pupils included in the survey in the first and second round. In total, both rounds had a similar number of schools (31 in first round and 32 in second round), but the number of treated pupils included in the baseline survey was larger for the first round (208) than for the second round (169). Similarly, the number of comparison group 2 pupils was larger in the first round. The number of pupils in treated profiles is relevant for the statistical power of the study which depends both on the number of treated pupils and on the overall sample size. So, while there are more pupils in total there are fewer treated pupils in the second round and hence data collected in round two do not have more statistical power.

Table 2: Number of schools, profiles, classes and pupils in baseline sample

School Profile	Total	Treated		Comparison	
		Treated group	Comparison group 1	Comparison group 2	Comparison group 3
Cohort 2015					
Number of schools	31		10		21
Number of distinct profiles	16	3	10	6	6
Number of class/profile combinations	79	11	19	23	26
Number of pupils enrolled in last year	872	208	165	231	268
Cohort 2016					
Number of schools	32		15		17
Number of distinct profiles	31	3	18	8	13
Number of class/profile combinations	84	17	24	18	25
Number of pupils enrolled in last year	1255	169	466	153	467

Table 3 summarizes the response rates, the rejection rates and the unreachable rates based on the sample of pupils who completed the baseline questionnaire. The baseline questionnaire was completed by a subsample of pupils enrolled in the targeted classes.¹ The main reasons for not participating in the baseline survey were the following: pupils were not at school at the time of the survey, pupils did not provide a consent from parents (in case of minors) and some pupils refused to participate. Overall,

¹ In 2018/2019 the average class size in secondary education in Serbia was 25.08. Multiplying 25.08 with the number of 84 class/profile combinations gives 2107 pupils. This is a rough estimate of pupils at baseline. Using this estimate, we interviewed at baseline approximately 60% of all pupils in the targeted classes.

64.09% of pupils from the baseline could be reached in the follow-up phone survey in the first round, while in the second round the response rate in the follow-up survey was 57.61%. In both years the treated pupils had the highest response rate compared to the other three groups, in the first year 75.57% and in the second year 68.05%. The overall rejection rate was low in both years, it stood at 7.56% in the first year and 5.10% in the second year. What is different between the years is the overall unreachable rate. The unreachable rate rose from 26.35% in the first year by more than 11 percentage points to 37.37% in the second year. The two reasons for not being able to reach a pupil were either that the phone number was incorrect or there was no response when the interviewer called. We kept track only in the second year whether the number was incorrect or whether the pupil could not be reached. Among the 468 unreachable pupils, 83 of them had a wrong phone number, while 373 could not be reached. We can only speculate why the unreachable rate was higher in the second year. One possible explanation is that pupils in comparison schools were less motivated to participate in the survey and hence were more likely not to give the correct phone number. This is also reflected in the higher unreachable rate in the comparison schools compared to the treated schools.

Table 3: Follow-up sample size and response rate

Schools	Total	Treated		Comparison	
Profiles		Treated group	Comparison group 1	Comparison group 2	Comparison group 3
Cohort 2015					
# Baseline questionnaires completed	582	131	108	152	191
# Follow-up questionnaires completed	373	99	64	96	114
Response rate	64.09%	75.57%	59.26%	63.16%	59.69
Persons who rejected	44	9	11	11	13
Rejection rate	7.56%	6.87%	10.19%	7.24%	6.81
Persons who were unreachable	165	23	33	45	64
Unreachable rate	26.35%	17.56%	30.56%	29.61%	33.51
Cohort 2016					
# Baseline questionnaires completed	1255	169	466	153	467
# Follow-up questionnaires completed	723	115	287	72	249
Response rate	57.61%	68.05%	61.59%	47.06%	53.32%
Persons who rejected	64	3	24	11	26
Rejection rate	5.10%	1.78%	5.15%	7.19%	5.57%
Persons who were unreachable	468	51	155	70	192
Unreachable rate	37.37%	30.18%	33.26%	45.75%	41.11%

2.3. Survey Implementation: Challenges

The major challenge faced in the research was to collect baseline data and ensure that a large number of pupils participates in the baseline survey and provides reliable contact information for the follow-up survey. In order to collect data for the baseline survey external consultants, on behalf of GIZ visited each school, went to the classes to explain the purpose of the project to the pupils and involve them in the survey. The participation in the research project was voluntary. According to the law,² collecting personal data requires that participants in the research are informed about which data is collected and the purpose of research. They also need to sign an informed consent form so that their data can be used. Many pupils in our sample were minors and the informed consent form had to be signed by their parents which posed a further challenge.

The Ministry of Education, Science and Technological Development (MoESTD) was very supportive throughout the research project and it helped both to find appropriate comparison schools and it facilitated the initial contact with comparison schools. The data collection would have not been possible without the support of the MoESTD.

² The Law on the Protection of Personal Data regulates the procedures on data collection for research purposes.

MoESTD is working on establishing an information system with individual level data on all pupils. It would have been beneficial for our research project to have data on background characteristics of pupils and their past performance at school from administrative sources in order to better understand potential differences between comparison and treated schools and avoid the problem of missing values due to self-reported data.

A second challenge arose in the second round of the evaluation with respect to the selection of comparison profiles. The modernized profiles are three-year profiles and we initially intended to select only three-year profiles for the comparison. However, this was not possible in the second round due to a low number of available three-year profiles in the treated and comparison schools and we had to turn to four-year profiles. While this is methodologically correct and four-year profiles are valid as a comparison, a higher share of these pupils continues with their education after finishing secondary school and hence we had a lower number of observations of pupils who went on the labor market for comparison.

3. Impact Evaluation: Cohort 2016

3.1. Summary Statistics: Sample Selection and Descriptive Statistics

3.1.1. Sample selection

As a first step we examine whether pupils who were surveyed at baseline and follow-up differ in their socio-demographic characteristics from pupils surveyed only at baseline (survey dropouts). Ideally there should not be any differences between those two groups and we could infer that the sample of pupils included in the baseline and follow-up survey represents well the overall sample of pupils surveyed at baseline. Table 4 compares the gender, number of points for enrolment in secondary school, position of the enrolled school on wish list and mother's education between the pupils included in follow-up survey and those not included in follow-up. The comparison of baseline characteristics suggests that mother's education is somewhat higher among dropouts, but the difference is small and it is unlikely that this can have significant implication for the analysis.³

³ Note that even if the different education of the mother would impact our results, we know from theory that mother's education has a positive effect on both educational and labor market outcomes. Thus, we can infer that our results would be underestimated due to the bias resulting from having pupils with lower education of the mother in the subsample than in the overall sample.

Table 4: Background characteristics of pupils who were surveyed only at baseline and pupils surveyed both at baseline and follow-up: cohort 2016

	Baseline and follow-up completed	Only baseline completed (dropouts)	T-Test/Chi-Square Difference
Female	0.19	0.16	not sign.
Points for secondary school			not sign.
59 or less points	0.20	0.22	
60-69 points	0.28	0.21	
70-79 points	0.29	0.31	
80 or more points	0.23	0.25	
Position of enrolled school on wish list			not sign.
First	0.63	0.59	
Second	0.17	0.18	
Third or higher	0.20	0.23	
Mother's education			*
Primary school or less	0.16	0.13	
3- or 4-year secondary school	0.73	0.71	
College or higher	0.11	0.16	
Number of pupils	723	532	

*Notes: Difference: significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. Not sign. denotes not significant. T-test for Female and Chi-Square test for Points for secondary school, Position of enrolled school on wish list and Mother's education.*

3.1.2. Background Characteristics of Pupils

This section reports and analyses the available characteristics of pupils such as mother's education and their other characteristics at the end of primary school such as gender, number of points for secondary school enrolment and position of enrolled school on wish list. This analysis is required to understand to which extent the pupils in treated and comparison profiles are similar.

Figure 2 shows the distribution of points for secondary school enrolment for the treatment and comparison groups. Remember that treated group and Comparison group 2 are expected to be similar in terms of background characteristics, because pupils enrolled in Comparison group 2 profiles are attending profiles similar with respect to content and skills to the treated modernized profiles. We first note that the largest share (86%) of treated pupils had less than 69 points for enrolment. Comparison group 2 pupils had a very similar share of pupils who scored less than 69 points (83%). It can be also seen from the figure that a higher share of comparison group 2 pupils had 59 points or less (58%) than among treatment pupils (41%). The figure also displays that Comparison group 1 and Comparison group 3 pupils had a higher number of points for enrolment, the reason for this is that they are enrolled in four-year profiles which enrol pupils with higher scores.

Figure 2: Average points for secondary school enrollment: cohort 2016

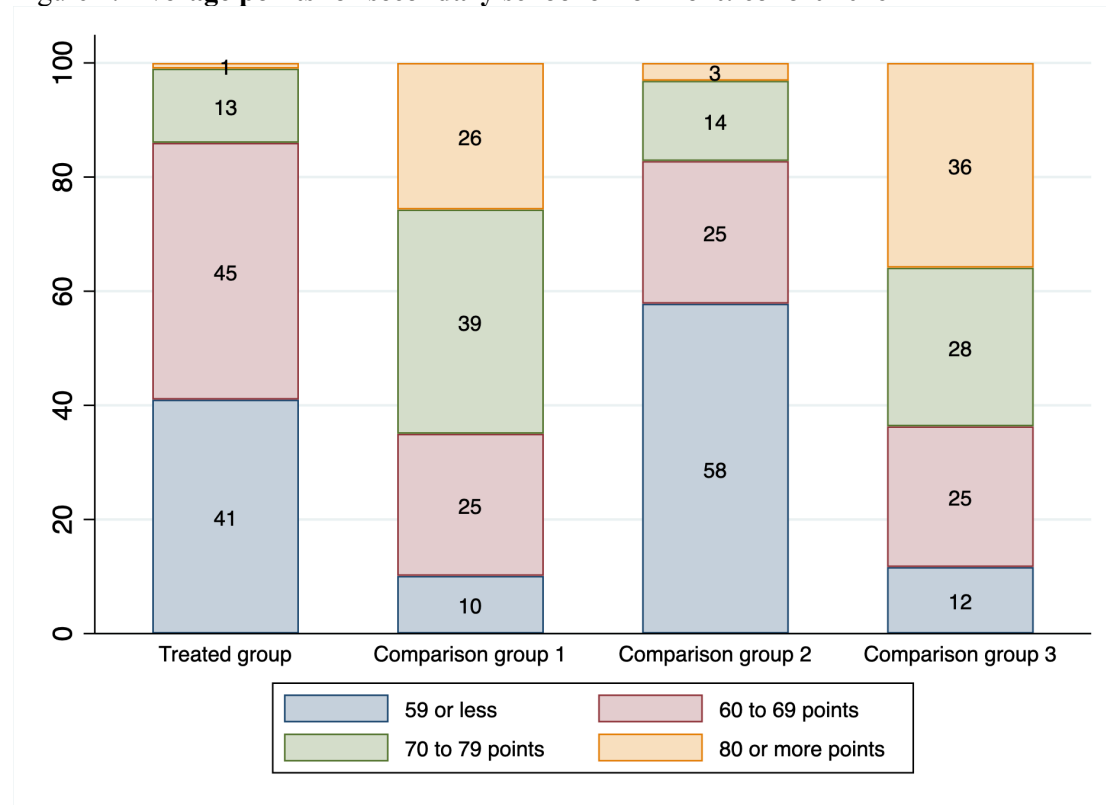
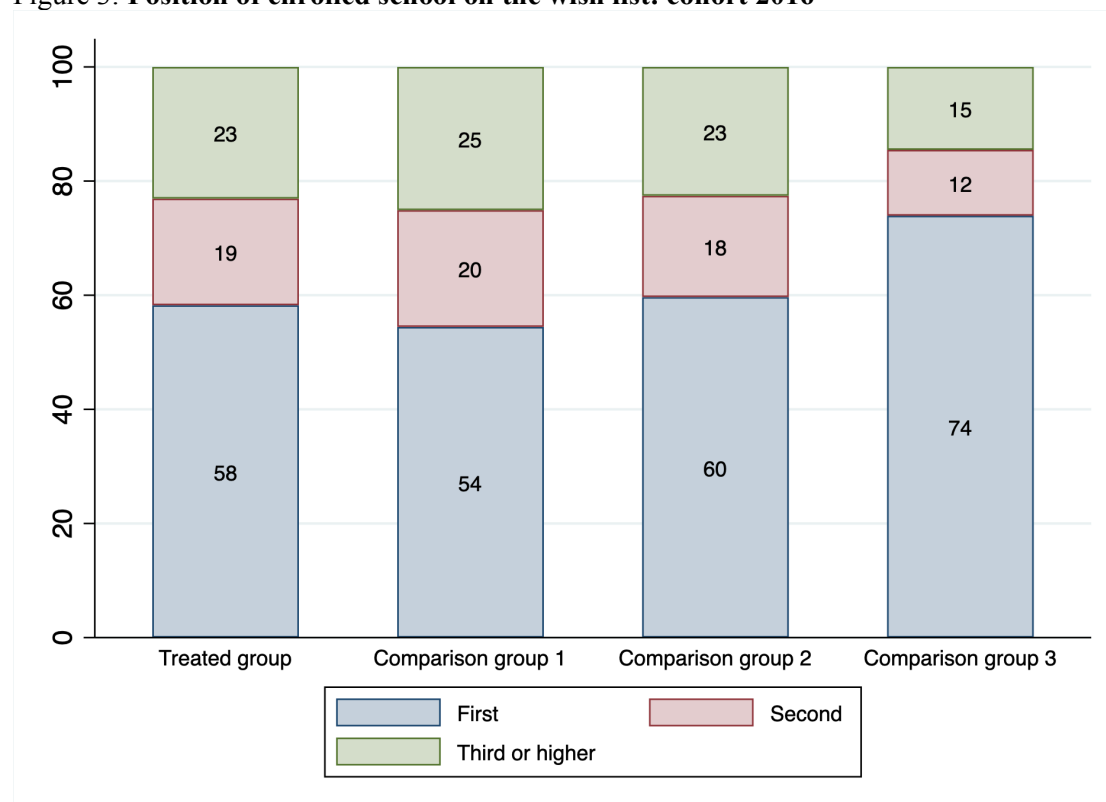


Figure 3 reports the position of enrolled school on the wish list. The figure shows that both in treated and comparison group the majority of pupils enrolled the profile of their first choice. The share of pupils enrolling their first choice profile is somewhat larger for *Comparison group 3* pupils than for treated pupils and the other two comparison groups.

Figure 3: **Position of enrolled school on the wish list: cohort 2016**



Turning now to mother's education in Figure 4 we see that mothers of most pupils finished a secondary school for all four groups. The share between the three levels of education are very similar between the *Treated group* and *Comparison group 2*, however, it appears from the graph that mothers of *Comparison group 1* and *Comparison group 3* pupils are slightly more educated.

Figure 4: **Mother's educational level: cohort 2016**

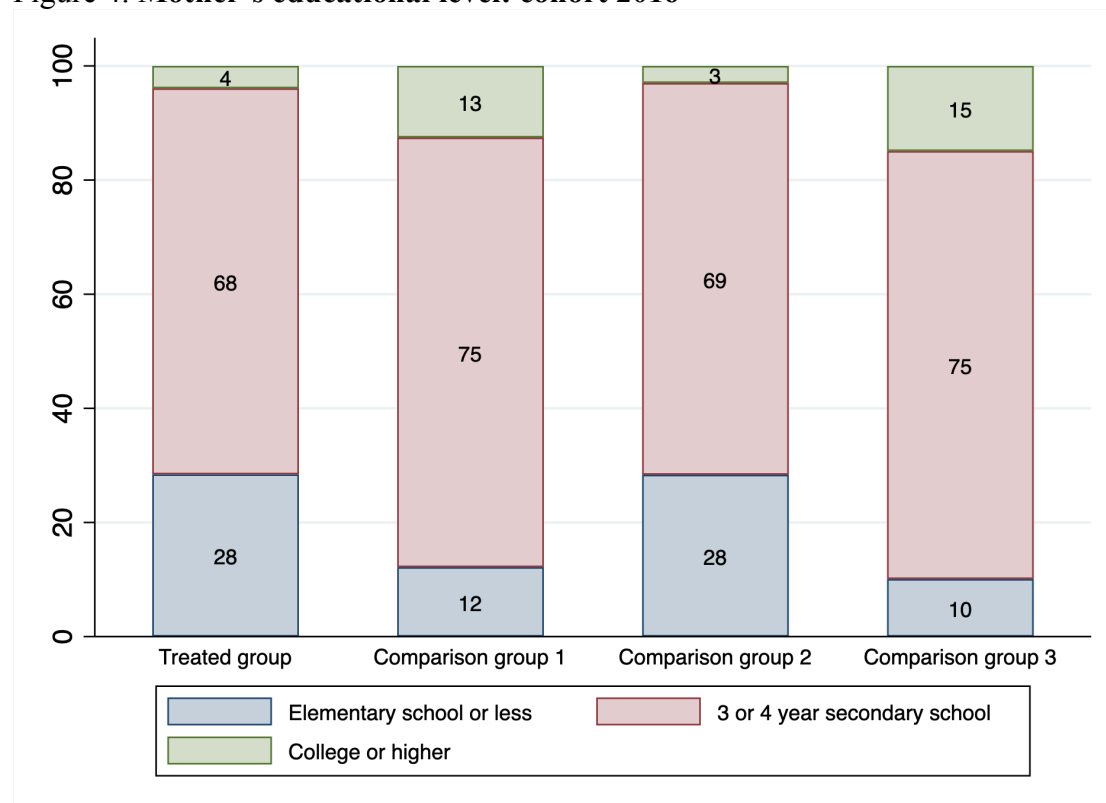


Table 4 compares the available background characteristics between treated and comparison profiles and reports the numbers from the previous three figures in a tabular form. In the columns (1) to (4), we report the characteristics for each of the four groups. The last column *Diff-in-Diff* reports the difference-in-difference estimator from a simple regression and this number is the difference between the treated group and the comparison groups in the difference-in-difference setting. A statistically significant number in column *Diff-in-Diff* implies that the characteristics of the treated group is statistically different from the comparison groups. This structure of the columns will be used for all tables that follow in this report and that analyse the effect of the program on the treated group.

The statistical analysis reveals that pupils in the *Treated group* are slightly better in terms of points than the comparison group pupils. This effect is driven by *Comparison group 2* pupils, who have a larger share of pupils with less than 59 points for enrolment. This can be suggestive evidence that the modernized profiles (*Treated group*) are attracting better pupils than comparable three-year profiles (*Comparison group 2*). We also find a statistically significant difference for *Position of enrolled school on wish list*, namely the *Treated group* enrolled in schools lower on the wish list than comparable pupils. This difference is driven by *Comparison group 3* pupils, who predominantly enrolled in the schools of their first choice. The position on the wish list does reveal only to some extent the preferences of pupils for certain profiles, because pupils express their wishes only after being informed about the number of points at the final exam of primary school. Overall, we do find statistically significant differences between treated and comparison pupils, but they do not provide clear evidence that treated pupils are either better or worse than comparison pupils putting forward that the selection of comparison pupils is satisfactory.

Table 4: Background characteristics of treated and comparison pupils: cohort 2016

School Profile	Treated		Comparison		Diff-In-Diff
	Treated group	Comparison group 1	Comparison group 2	Comparison group 3	
	(1)	(2)	(3)	(4)	[(1)-(2)]-[(3)-(4)]
Female	0.04	0.24	0.03	0.24	not sign.
Points for secondary school					*
59 or less points	0.41	0.10	0.58	0.12	
60-69 points	0.45	0.25	0.25	0.25	
70-79 points	0.13	0.39	0.14	0.28	
80 or more points	0.01	0.26	0.03	0.36	
Position of enrolled school on wish list					**
First	0.58	0.54	0.60	0.74	
Second	0.19	0.20	0.18	0.12	
Third or higher	0.23	0.25	0.22	0.15	
Mother's education					not sign.
Primary school or less	0.28	0.12	0.28	0.10	
3- or 4-year secondary school	0.68	0.75	0.69	0.75	
College or higher	0.04	0.13	0.03	0.15	
Number of pupils	115	287	72	249	
Total pupils			723		

Notes: significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. Not sign. denotes not significant. The impact estimates and confidence intervals are obtained by a linear regression model for Female and ordered logit for other outcome variables..

3.2. Impact analysis

The main outcomes of interest for the empirical analysis are the quality of educational profiles, the employment status and job characteristics.

3.2.1. Quality of educational profiles

In a first step, we would like to assess whether the profiles that are used as comparison are objectively and subjectively of the same quality. It is expected that the modernisation of profiles raised their quality and thus it is expected that the higher quality is captured by at least some of the measures.

Pupils were asked a series of questions on their opinion of the quality of the education, such as: what was the overall quality, how were the school and the company equipped, whether they felt prepared for work after finishing secondary school and if they would choose the same educational profile again. These questions are expected to reflect the subjective opinion of pupils on the quality of education. The results are reported in Table 5. In the columns (1) to (4), we report the characteristics for each of the four groups and the last column *Diff-in-Diff* reports the difference-in-difference estimator from a simple regression.

The findings in Table 5 reveal that all pupils in treated and comparison profiles with the exception of 1 pupil in the *Comparison group 2* completed the third grade by the time of the survey. This is not surprising as most dropouts in secondary school happen in the first grade. Among the interviewed students, the grade average in the third grade was somewhat smaller than 4 on a scale from 1 (worst) to 5 (best). Compared to control peers, treated pupils were less likely to respond that they plan to continue with their education within the next two years. The *Overall quality of secondary education* was rated higher by treated pupils. On the other hand, the other outcomes *School: Equipment and conditions*, *Company: Equipment and conditions*, *Readiness for work* and *Likelihood of choosing again the same profiles* were not significantly different between the treated and comparison group. Both treated and comparison pupils said they would choose again the same educational profile if they were offered this choice.

Table 5: Subjective and objective measures of quality of education: cohort 2016

School Profile	Treated		Comparison		Diff-In-Diff
	Treated	Comparison group 1	Comparison group 2	Comparison group 3	
	(1)	(2)	(3)	(4)	
Completed last grade	1.00	1.00	1.00	1.00	0.00
Grade average	3.77	3.91	3.71	3.99	13.39
Started education after finishing school	0.11	0.48	0.14	0.54	0.04
Plans to continue with education	0.32	0.48	0.48	0.40	-0.23**
Overall quality of secondary education ^a	0.85	0.73	0.71	0.83	0.24**
School: Equipment and conditions ^a	0.73	0.63	0.60	0.56	0.07
Company: Equipment and conditions ^a	0.92	0.82	0.92	0.82	-0.01
Readiness for work ^a	0.86	0.68	0.74	0.63	0.07
Choose again same educational profile ^b	0.82	0.75	0.78	0.78	0.06
Number of pupils	115	287	72	249	
Total pupils			723		

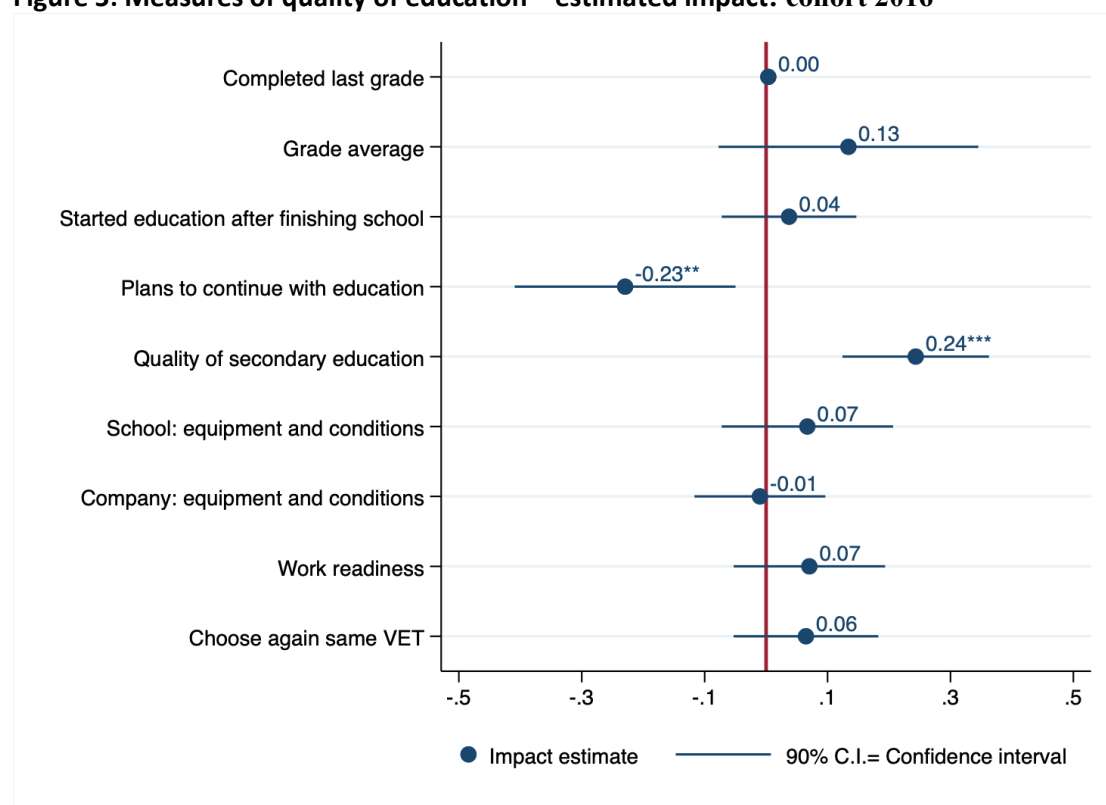
Notes: significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. The impact estimates and confidence intervals are obtained by a linear regression model.

^aThe scale is equal to 1 if the student reported very good or good and 0 if the student reported acceptable, poor, very poor.

^bThe scale is equal to 1 if the student reported very likely or likely and 0 if the student reported maybe, unlikely, very unlikely.

The difference-in-difference estimates from the last column in Table 5 are presented graphically in Figure 5. Overall, we find a statistically significant positive impact on treated pupils with respect to quality of their secondary education, treated pupils were 24 percentage points more likely to say that their education was good or very good. Other measures of school quality were higher for treated pupils, but they do not reach statistical significance. The other statistically significant difference is found for the outcome *Plans to continue with education*. Treated pupils were 23 percentage points less likely to express an interest to continue with their education in the future. We believe that the reason for this response among treated pupils is that they felt better prepared for work and that there were better job opportunities available to them in their field of study.

Figure 5: Measures of quality of education – estimated impact: cohort 2016



Notes:

significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. The impact estimates and confidence intervals are obtained by a linear regression model. The impact estimate refers to the Diff-In-Diff column from Table 5.

3.2.2. Employment status and job search

We now assess the employment status at the time of the survey nine to ten months after graduation. Table 6 shows whether pupils ever held a job and whether they are currently employed. We can see that among treated pupils 77% ever held a job and 65% are currently employed. We can also observe that the employment rates of the *Treated group* is similar to the *Comparison group 2*, while *Comparison group 1* and *Comparison group 3* pupils have lower rates of employment because these pupils attended four-year profiles and many of them continued their educational path. Both treated and comparison group pupils work, on average, somewhat more than the statutory working hours (40-hours week).

Table 6: **Employment status: cohort 2016**

School Profile	Treated		Comparison		Diff-In-Diff
	Treated group	Comparison group 1	Comparison group 2	Comparison group 3	
	(1)	(2)	(3)	(4)	$\frac{[(1)-(2)]}{[(3)-(4)]}$
Ever employed	0.77	0.52	0.74	0.50	0.01
Currently employed	0.65	0.38	0.57	0.34	0.03
Hours worked per week	44.09	42.80	42.73	42.64	1.19
Number of pupils	115	287	72	249	
Total pupils			723		

Notes: significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. The impact estimates and confidence intervals are obtained by a linear regression model.

Following the same methodology, in Table 7 we compare characteristics of the employed individuals in both treated and comparison profiles and analyze whether their job characteristics differ. Most pupils in all groups are still employed in their first job. Almost half of all treated pupils (48%) got their first job in the company where the training took place, whereas this share is much lower in the comparison groups. Almost two thirds of treated pupils (64%) said that their job is work related, the numbers in the comparison groups are lower. Similarly, treated pupils gave higher scores than comparison group pupils for the usefulness of their VET education in their current job. In terms of salary, we observe that half of all treated pupils have a salary higher than 45.000 RSD while this share is lower for the comparison groups. We further observe that the *Treated group* has a similar distribution of net salaries to the *Comparison group 2* pupils, while *Comparison group 1* and *Comparison group 3* have larger shares in the lowest salary category (approximately one third of all employed). Most pupils do have a written fixed term contract. Finally, all four groups of pupils report high levels of satisfaction with their jobs.

Table 7: **Job characteristics of employed: cohort 2016**

School Profile	Treated		Comparison		Diff-In-Diff
	Treated group	Comparison group 1	Comparison group 2	Comparison group 3	
	(1)	(2)	(3)	(4)	$\frac{[(1)-(2)]}{[(3)-(4)]}$
Still in first job	0.77	0.80	0.73	0.70	-0.06
First job in training company	0.48	0.05	0.14	0.06	0.35**
Current work VET related	0.64	0.23	0.55	0.31	0.18
Current work VET useful ^a	0.60	0.24	0.43	0.25	0.18
Monthly net salary					not sign.
Less than 35.000 RSD	0.21	0.35	0.14	0.34	
Between 35.000 and 45.000 RSD	0.27	0.28	0.43	0.41	
More than 45.000 RSD	0.52	0.38	0.43	0.24	
Written contract	0.91	0.73	0.73	0.79	0.23**
Unlimited duration contract	0.26	0.12	0.21	0.19	0.12
Satisfied with job ^a	4.45	4.21	4.50	4.22	-0.04
Number of pupils	74	110	41	84	
Total pupils			309		

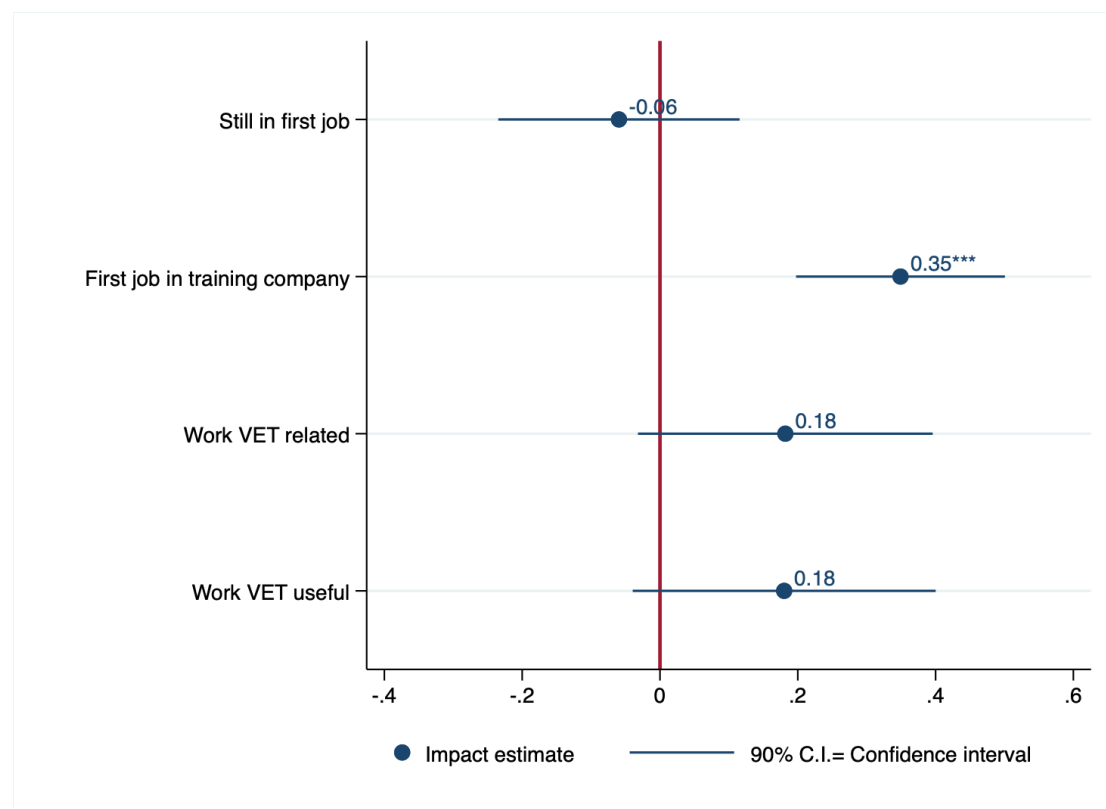
Notes: * significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. Not sign. denotes not significant. The impact estimates and confidence intervals are obtained by a linear regression model with the exception of Monthly net salary which was estimated with an ordered logit model.

^a The scale is equal to 1 if the student reported very helpful or helpful/very satisfied or satisfied and 0 otherwise.

We now turn to presenting the impact estimates (last column in Table 7) in a graphical form and discussing them. Figure 6 displays the estimated impact for job conditions related to VET education. Compared to the comparison pupils, treated pupils were 35 percentage points more likely to find their first job in the company where they had their training during secondary school. They also reported a

higher score than comparison pupils in terms of relatedness and usefulness of their VET education for their current job, but these numbers do not reach statistical significance.

Figure 6: **Job conditions (VET) – estimated impact: cohort 2016**

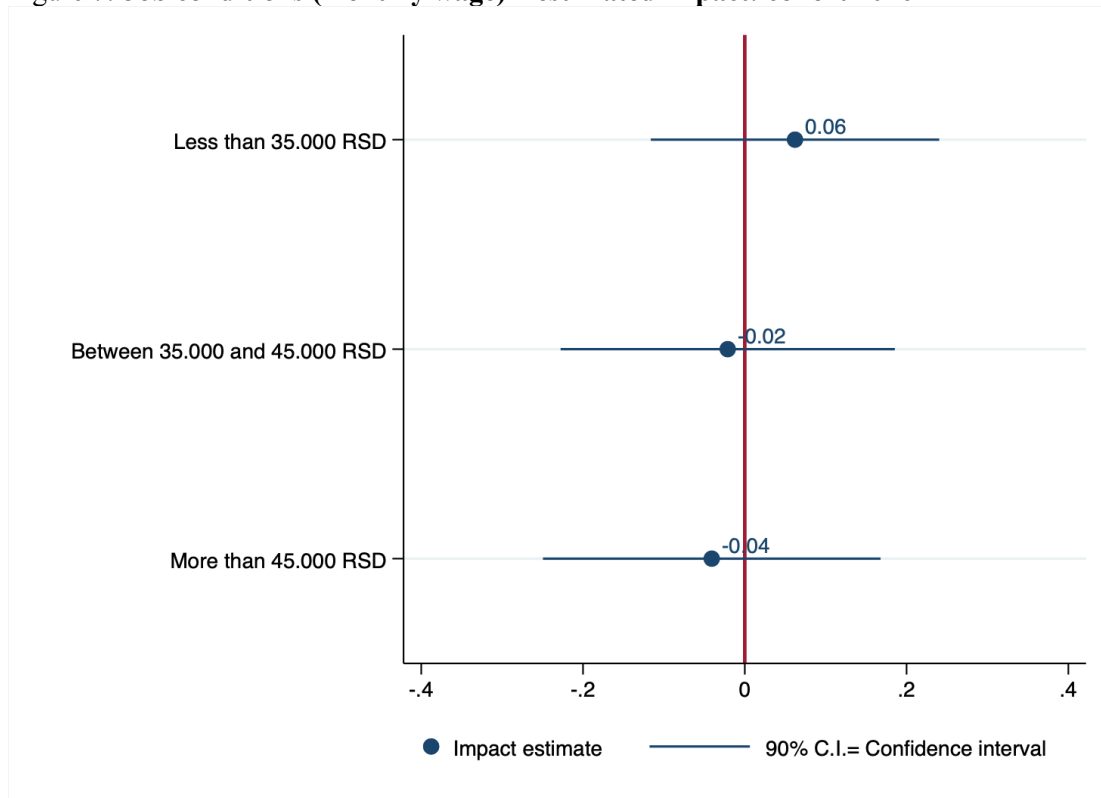


Notes: * significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. The impact estimates and confidence intervals are obtained by a linear regression model. The impact estimate refers to the Diff-In-Diff column from Table 7.

In Figure 7 we present the differences between the different wage categories and we confirm graphically that wages are not different between the treated and comparison pupils.

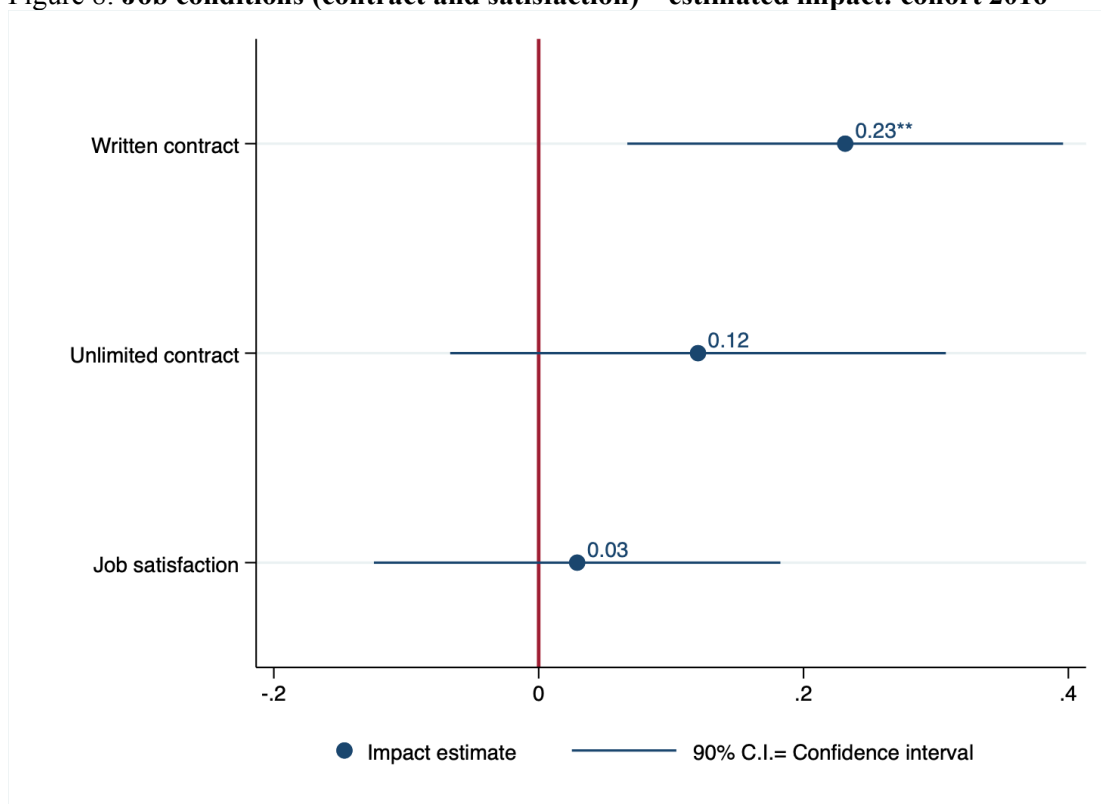
We consider the contract conditions and job satisfaction in Figure 8. Treated pupils are 23 percentage points more likely to hold a written contract than comparison pupils. In terms of contract duration, we see that treated pupils are 12 percentage points more likely to have an unlimited contract, but this impact is not significant. Finally, treated and comparison pupils do not differ in terms of job satisfaction.

Figure 7: Job conditions (monthly wage) – estimated impact: cohort 2016



Notes: significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. The impact estimates and confidence intervals are obtained by an ordered logit model. The impact estimate refers to the diff-in-diff column from Table 7..

Figure 8: Job conditions (contract and satisfaction) – estimated impact: cohort 2016



Notes: * significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. The impact estimates and confidence intervals are obtained by a linear regression model. The impact estimate refers to the Diff-In-Diff column from Table 7.

Table 8 provides an insight into the share of the employed and unemployed/inactive searching for a job. Generally, graduates could be searching for a (better) job irrespective of their current labor market status. We do not find statistically significant differences in terms of the share of pupils searching for jobs between treated and comparison pupils. Among the 297 pupils not searching for a job, the two main reasons why they were not searching for a job are: (1) they are still in education or doing a practical training (65.32%), (2) they plan to start looking for a job at some later point of time (13.13%) and (3) they plan to start education or training (8.42%).

Table 8: Job search by employment status

School Profile	Treated		Comparison		Diff-In-Diff
	Treated group	Comparison group 1	Comparison group 2	Comparison group 3	
	(1)	(2)	(3)	(4)	[(1)-(2)]- [(3)-(4)]
Searches for job - Employed	0.36	0.32	0.43	0.41	-0.07
Searches for job - Unemployed / Inactive	0.79	0.40	0.63	0.30	0.00
Number of pupils	115	287	72	249	
Total pupils			723		

Notes: * significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. The impact estimates and confidence intervals are obtained by a linear regression model.

3.2.3. Summary of findings

This part of the report has examined in depth the survey results of 2016 cohort pupils who finished secondary school in 2019. Overall the findings for the 2016 cohort confirm the results that we had in the previous report which examined only 2015 cohort pupils. We find again evidence that treated pupils rated their secondary education higher and that they had better jobs especially with respect to more job security.

While we do find that treated pupils were 24 percentage points more likely to give a good or very good grade for their secondary education, other important outcomes such as *School: Equipment and conditions*, *Readiness for work*, and *Likelihood of choosing again same educational profile* are larger for treated pupils, but the impact estimates do not reach statistical significance. Interestingly, treated pupils were 23 percentage points less likely to say that they plan to continue their education, presumably because they perceive they have the required skills for the labor market and/or they are happy with their current work.

We do not find differences on employment rates between treated and comparison pupils. However, the bond between secondary school and thus pupils and the companies is stronger for treated pupils. This is reflected by the fact that treated pupils are 35 percentage points more likely to get employment at the company where they did their practical training during school. Treated pupils are also 23 percentage points likely to have a written contract and thus they are more likely to be formally employed. While the outcome of having an unlimited contract does not reach statistical significance, this outcome is larger for treated pupils. The relatedness and usefulness of their current work with respect to their educational background was graded higher by treated pupils, but these outcomes do not reach statistical significance. We do not find that the modernization of profiles affected the wages of treated pupils and their levels of satisfaction with the job. We do not find differences with respect to job search behavior between treated and comparison pupils.

4. Impact Evaluation: Overall Impact of the Program

This section aims to give a comprehensive overview of the impact of modernizing VET profiles on cohorts enrolling in secondary school in 2015 and 2016 and thus finishing school in 2018 and 2019. We do so by analyzing the characteristics of the treated group in each cohort, we present the impact estimates for each year both separately and for both years together, and finally we discuss possible differences in impacts between the two cohorts. The analysis includes only pupils who completed both baseline and follow-up survey.

4.1. Summary Statistics: Sample Selection and Descriptive Statistics

We start by examining the characteristics of pupils who enrolled in modernized VET profiles in 2015 and 2016. Figure 9 shows the average points for secondary school for each cohort separately and for both cohorts together. Overall, we find that a large majority of pupils had less than 70 points (81%). In 2015 the share of pupils with 70 points or higher was larger than in 2016.

Figure 9: Average points for secondary school enrollment: both cohorts

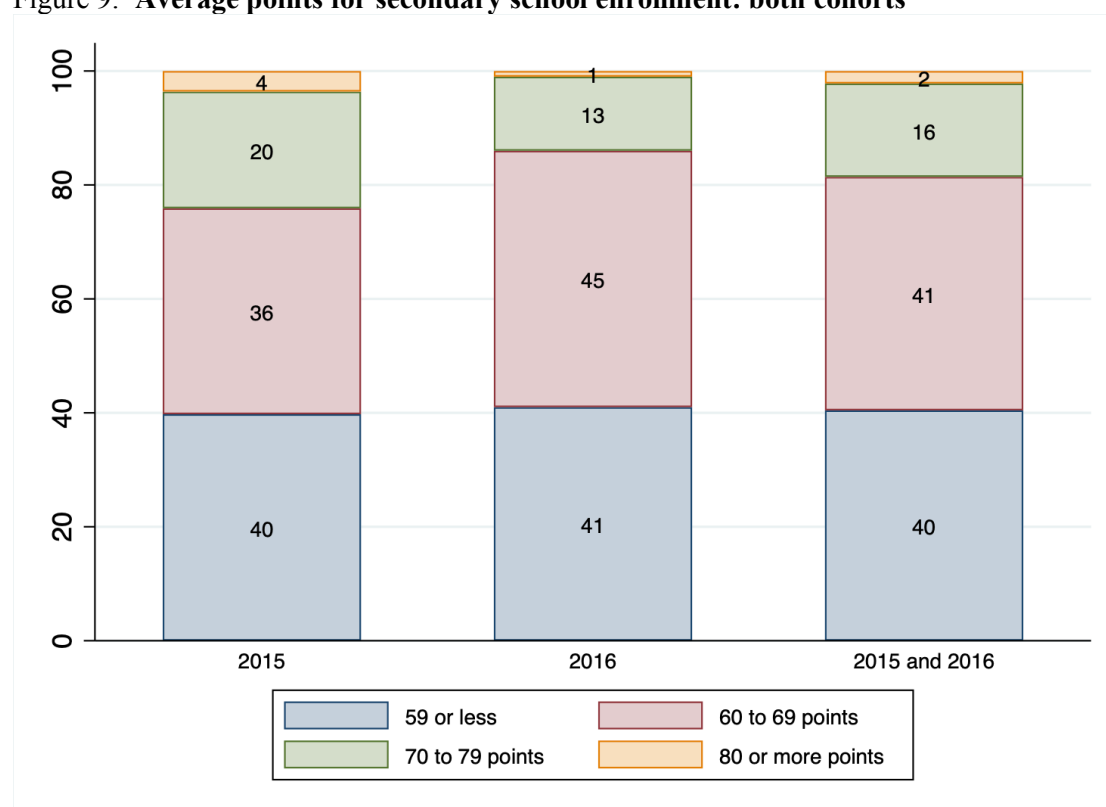


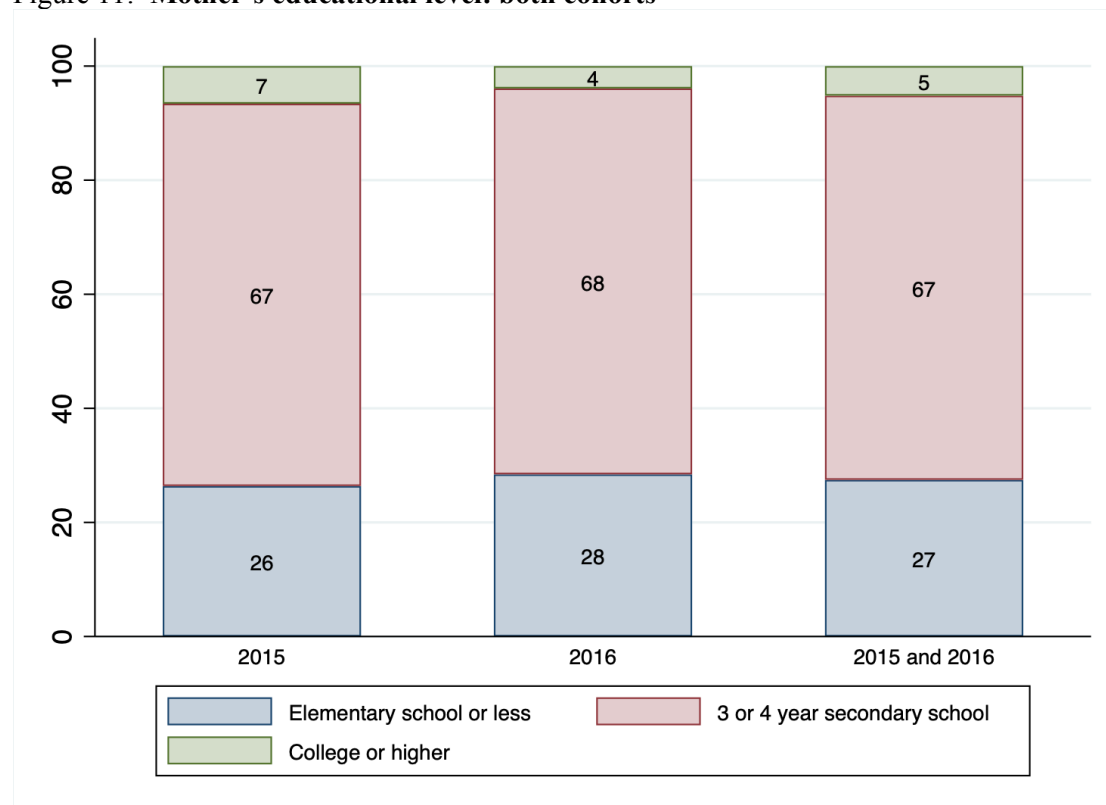
Figure 10 shows that the modernized profiles were the first choice for most pupils in both cohorts. We do observe though that in the 2015 cohort a larger fraction (85%) of pupils who enrolled the modernized profiles had them as the first choice, while in the cohort 2016 this share is 26 percentage points lower.

Figure 10: **Position of enrolled school on the wish list: both cohorts**



Figure 11 shows mother's highest educational attainment. This background characteristic is fairly balanced between the two cohorts. Most mothers have a secondary school attainment (67%), followed by elementary school or less (27%) and there are least mothers with a higher education degree (5%).

Figure 11: **Mother's educational level: both cohorts**



We report the data from the previous three graphs in Table 9 (in the first two columns). We present the background characteristics for the treatment group for cohorts 2015 and 2016 separately in columns (1) and (2), in columns (3) and (4) we report the estimated difference between the treatment and comparison pupils for each cohort separately, in column (5) for both cohorts and the comparison between the diff-in-diff estimates for cohort 2015 and cohort 2016 in column (6). The interpretation of Diff-in-diff columns ((3) to (5)) is that a significant difference implies that treatment and control group differ in terms of the background characteristic in the specified time period. The last column compares the estimates for 2015 and 2016 and it reports the difference for the diff-in-diff estimates between the two cohorts.

Column (3) refers to the 2015 cohort and it shows that treated pupils were more likely to enroll their first choice VET profile than comparison pupils. Additionally, mothers of pupils enrolling modernized profiles were slightly more educated than mothers of pupils from the comparison group. Column (4) refers to the 2016 cohort and we find that treated pupils had a slightly higher score for enrolling secondary school than comparison pupils. In terms of position on the wish list, treated pupils were less likely to enroll their preferred profiles compared to the comparison pupils. Column (5) includes pupils from both cohorts and it suggests that in the whole sample there are still differences. We find that pupils from modernized profiles enrolled more frequently their preferred VET profiles than comparison pupils and their mother's had a slightly higher educational level than comparison pupils. Finally, with the exception of minor difference of mother's education, the diff-in-diff estimates of the two cohorts are similar (column (6)). Ideally, there should not be any statistically significant differences neither between treated and control pupils in the whole sample, nor between the two diff-in-diff estimates. However, the differences that we find are rather small and we proceed with the analysis assuming that these differences will not affect the impact estimates.

Table 9: Background characteristics of treated and comparison pupils: both cohorts

Cohort	Only	Only	Diff-in-	Diff-in-	Diff-in-	Comparison
	Treated	Treated	diff	diff	diff	
	2015	2016	2015	2016	Both	Both
	(1)	(2)	(3)	(4)	(5)	(6) [(3)-(4)]
Female	0.03	0.04	not sign.	not sign.	not sign.	not sign.
Points for secondary school			not sign.	*	not sign.	not sign.
59 or less points	0.40	0.41				
60-69 points	0.36	0.45				
70-79 points	0.20	0.13				
80 or more points	0.04	0.01				
Position of enrolled school on wish list			*	**	***	not sign.
First	0.85	0.58				
Second	0.07	0.19				
Third or higher	0.08	0.23				
Mother's education			***	not sign.	*	*
At most primary school	0.26	0.28				
Secondary school (3 or 4 years)	0.67	0.68				
College or higher	0.07	0.04				
Number of pupils	99	115	373	723	1096	1096

Notes: significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. The impact estimates and confidence intervals are obtained by a linear regression model for Female and order logit for other outcome variables.

4.2. Impact analysis for cohorts 2015 and 2016

4.2.1. Quality of educational profiles

We proceed by discussing the survey results related to the subjective and objective measures of quality of education. In this and the subsequent tables in the impact analysis part of the report, we follow the following structure. Columns (1) and (2) in Table 9 display the responses of the treated pupils from cohort 2015 and 2016. Remember that we cannot compare these two groups without considering the comparison pupils. Columns (3) and (4) report diff-in-diff estimates for cohort 2015 and 2016. These impact estimates express the effect of attending a modernized profile in a treated school for a given cohort. Column (5) shows the impact estimates for the two cohorts together, this is the overall impact of the program for the two cohorts. Finally, column (6) compares the diff-in-diff estimates between the two cohorts and it illustrates whether the impact estimates changed from one year to another.

Table 9: Subjective and objective measures of quality of education: both cohorts

Cohort	Only Treated	Only Treated	Diff-in- diff	Diff-in- diff	Diff-in- diff	Comparison
	2015	2016	2015	2016	Both	Both
	(1)	(2)	(3)	(4)	(5)	(6) [(3)-(4)]
Completed last grade	1.00	1.00	0.01	0.00	0.00	0.00
Grade average	3.79	3.77	0.01	0.13	0.04	-0.12
Started education after finishing school	0.12	0.11	-0.01	0.04	-0.01	-0.05
Plans to continue with education	0.44	0.32	0.03	-0.23**	-0.09	-0.20*
Overall quality of secondary education ^a	0.77	0.85	0.20**	0.24**	0.25***	-0.04
School: Equipment and conditions ^a	0.59	0.73	0.31***	0.07	0.16***	0.24*
Company: Equipment and conditions	0.79	0.92	-0.12	-0.01	-0.02	-0.11
Readiness for work ^a	0.80	0.86	0.10	0.07	0.09	0.03
Choose again same educational profile ^b	0.87	0.82	0.10	0.06	0.13**	0.04
Number of pupils	99	115	373	723	1096	1096

Notes: significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. The impact estimates and confidence intervals are obtained by a linear regression model.

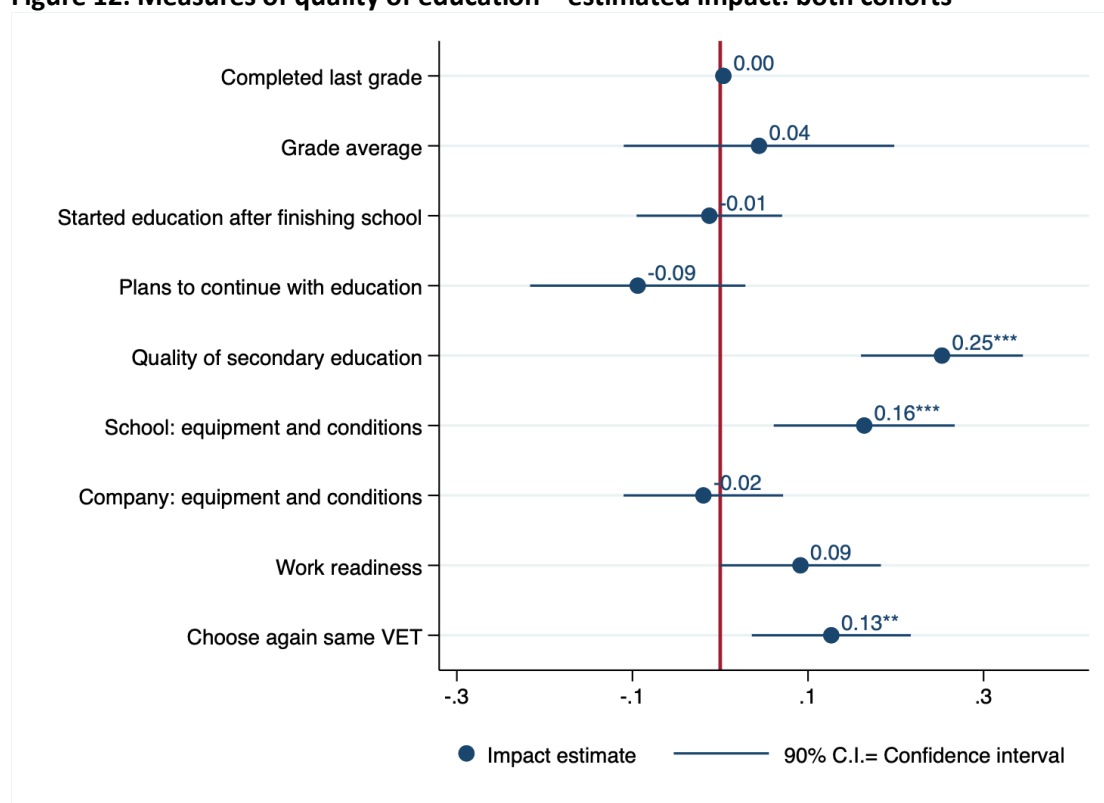
^aThe scale is equal to 1 if the student reported very good or good and 0 if the student reported acceptable, poor, very poor.

^bThe scale is equal to 1 if the student reported very likely or likely and 0 if the student reported maybe, unlikely, very unlikely.

For the two cohorts separately in columns (3) and (4), we find for cohort 2015 that the *Overall quality of secondary education* and *School: Equipment and conditions* were rated higher by treated pupils than by comparison pupils. Similarly, for cohort 2016 we find that again the *Overall quality of secondary education* was rated higher, but cohort 2016 pupils were also less likely to state that they plan to continue with secondary education. The latter finding is attributed to the fact that cohort 2016 students perceive to be better equipped for the labour market due to the attendance of the modernized profiles.

When putting together both cohorts we find evidence that several outcomes were positively affected by the modernization of profiles. The impact estimates are shown in column (5) and graphically presented in Figure 12. Pupils who attended modernized profiles (1) were 25 percentage points more likely to rate their secondary education good or very good, (2) were 16 percentage points more likely to state that the equipment and conditions of the school are good or very good and (3) they were 13 percentage points more likely to respond that they would choose again the same VET profile. On the other hand, it is not surprising that the outcome *Company: equipment and conditions* was rated similarly between treated and comparison pupils as companies were not additionally equipped as part of the program. Work readiness was perceived higher by treated pupils, but the impact estimate does not reach statistical significance. Treated pupils had a similar grade average compared to comparison pupils and were not more likely to continue (or plan to continue) with education than comparison pupils.

Figure 12: Measures of quality of education – estimated impact: both cohorts



Notes: significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. The impact estimates and confidence intervals are obtained by a linear regression model. The impact estimate refers to the Diff-In-Diff column from Table 9.

Finally, it is possible to discuss differences in impact estimates between the two cohorts (column (6) in Table 9). We find that 2016 cohort pupils were significantly less likely to say that they plan to continue their education which is puzzling. One explanation could be that they perceived their chances on the labor market better than comparison pupils. However, with the available data it is not possible to find the cause for this difference. The outcome *School: equipment and conditions* was rated higher in both years by treated pupils, but it is statistically significant only in the first year and the difference between the two cohorts is also statistically significant. Put differently, 2015 cohort pupils were 24 percentage points more likely to say that their school was better equipped and that they had overall better conditions than cohort 2016 pupils. There are two explanations that we can suggest. One would be that for cohort 2016 other students (students attending non-modernized profiles) from the same school used and benefitted from the equipment purchased initially only for modernized profiles. The other potential explanation is that control schools received some other equipment in 2016 independently from the GIZ program.

4.2.2. Employment status and job search

We continue with a discussion of employment status, quality of jobs of the employed and job search behavior. The employment status of the pupils is presented in Table 10. For cohort 2015 we find that 88% of treated pupils ever held a job, while 73% were employed at the time of the survey (columns (1) and (2)). For cohort 2016 the numbers for treated pupils are somewhat smaller, 77% ever held a job and 65% were employed at the time of the survey (columns (1) and (2)). The diff-in-diff estimates for the two outcomes are not statistically different neither for the cohorts separately nor for the two cohorts together (columns (3) through (5)). Likewise, employed pupils work a similar number of hours like the

comparison pupils and the diff-in-diff estimates are not statistically significant (columns (3) though (5)).

Table 10: Employment status: both cohorts

	Only Treated	Only Treated	Diff-in- diff	Diff-in- diff	Diff-in- diff	Comparison
Cohort	2015	2016	2015	2016	Both	Both
	(1)	(2)	(3)	(4)	(5)	(6) [(3)-(4)]
Ever employed	0.88	0.77	0.07	0.01	0.03	0.06
Currently employed	0.73	0.65	0.02	0.03	0.01	-0.01
Hours worked per week	44.36	44.09	1.65	1.19	1.47	0.46
Number of pupils	99	115	373	723	1096	1096

Notes: significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. The impact estimates and confidence intervals are obtained by a linear regression model.

In Table 11 we report the job characteristics for the employed pupils. In both cohorts, most employed treated pupils were still in their first job at the time of the survey and roughly a half of all treated pupils found their first job in the company where they did their training. Approximately two thirds of employed treated pupils in both cohorts reported that their job is both VET related and that their knowledge and skills from school are useful. In both cohorts approximately, a half of employed treated pupils had a salary of more than 45.000RSD, the second largest category for both cohorts are pupils earning between 35.000RSD and 45.000RSD and the smallest category are pupils earning less than 35.000RSD. In terms of impact estimates of the program for each cohort separately and then together we report these in columns (3) through (5). We find for cohort 2015 the following: (1) they were more likely than comparison pupils to find a job in the company where they did their training during secondary school, (2) they were more likely to report that their VET education was useful, (3) they were less likely to have an unlimited contract and (4) they reported to be little less satisfied with their current job at the time of the survey. For cohort 2016 we find that (1) treated pupils were more likely to be employed in the company where they did their training and (2) were more likely to report that their education is useful for their current work.

Table 11: Job characteristics of employed: both cohorts

	Only Treated	Only Treated	Diff-in- diff	Diff-in- diff	Diff-in- diff	Comparison
Cohort	2015	2016	2015	2016	Both	Both
	(1)	(2)	(3)	(4)	(5)	(6) [(3)-(4)]
Still in first job	0.81	0.77	0.06	-0.06	-0.06	0.12
First job in training company	0.53	0.48	0.23**	0.35**	0.36***	-0.12
Current work VET related	0.65	0.64	0.23	0.18	0.27***	0.05
Current work VET useful ^a	0.70	0.60	0.38***	0.18	0.32***	0.20
Monthly net salary			*	/	/	/
Less than 35.000 RSD	0.14	0.21				
Between 35.000 and 45.000 RSD	0.42	0.27				
More than 45.000 RSD	0.45	0.52				
Written contract	0.82	0.91	-0.06	0.23**	0.06	-0.29**
Unlimited duration contract	0.06	0.26	-0.22**	0.12	0.04	-0.36**
Satisfied with job	0.79	0.84	-0.14*	0.03	-0.04	-0.17
Number of pupils	72	74	286	309	595	595

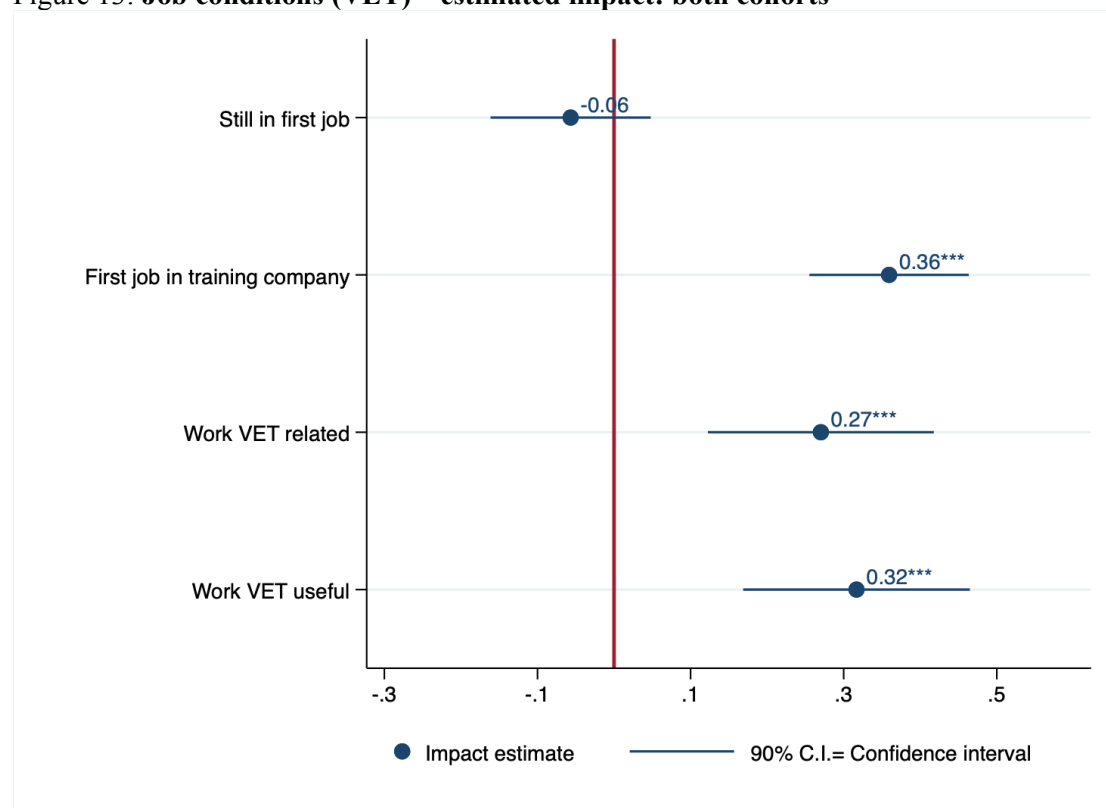
Notes: * significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. Not sign. denotes not significant. The impact estimates and confidence intervals are obtained by a linear regression model with the exception of Monthly net salary which was estimated with an ordered logit model.

^a The scale is equal to 1 if the student reported very helpful or helpful/very satisfied or satisfied and 0 otherwise.

While the results for each cohort are relevant, the most important results are impact estimates in column (5) which are also graphically presented in Figures 13, 14 and 15. In Figure 13 we examine where the pupils are employed and their perception if their job is related to their VET education and if the skills they acquired during schooling are useful. We find a statistically significant effect of the program on the likelihood of getting hired in the company where the training took place. Moreover, in comparison

to pupils in the control group, treated pupils were 27 percentage points more likely to state their job was related to their VET education and 32 percentage points more likely to find their education is useful for their current work. These findings suggest that the program was successful in bringing together in the educational process the company and the pupils and after the education ended, in placing pupils in companies which require their skills.

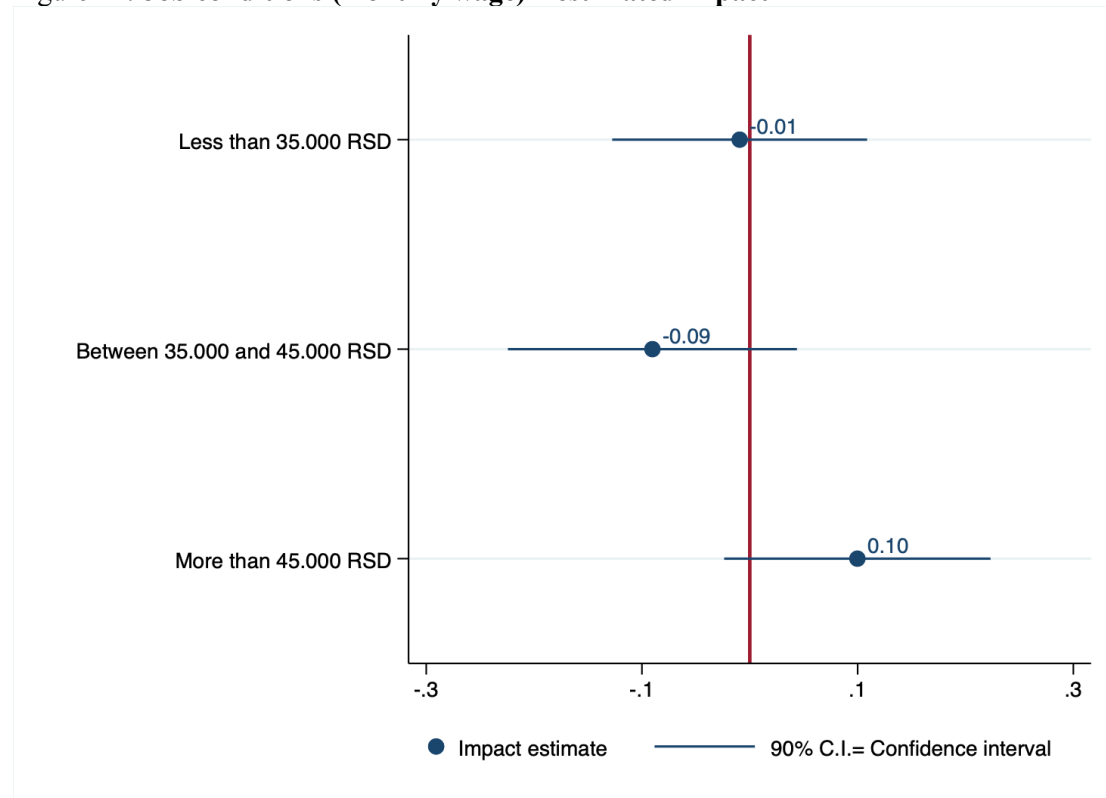
Figure 13: **Job conditions (VET) – estimated impact: both cohorts**



Notes: * significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. The impact estimates and confidence intervals are obtained by a linear regression model. The impact estimate refers to the Diff-In-Diff column from Table 11.

Figure 14 displays the distribution of wages and it suggests that pupils in the category more than 45.000 RSD are 10 percentage points more represented among treated pupils, but this difference does not reach statistical significance. Note, however, that here we look only at wages when the pupils enter the labor market and we are not able to capture any medium- or even long-term wage trajectory.

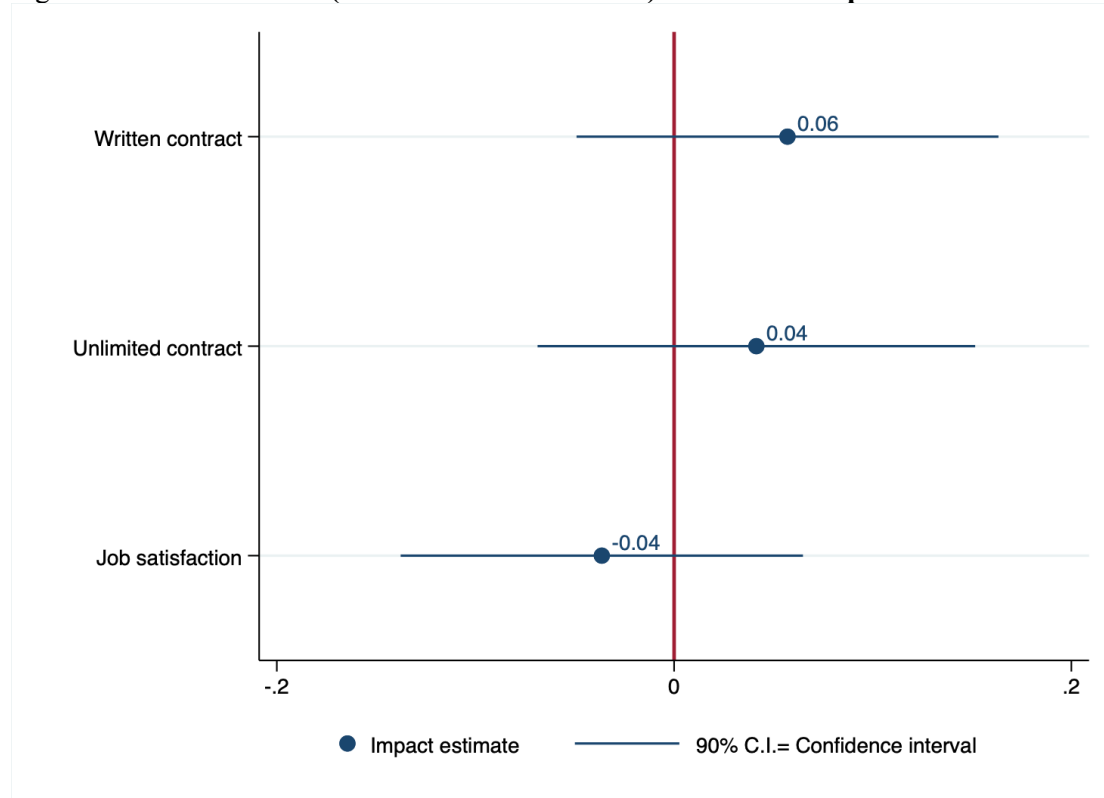
Figure 14: **Job conditions (monthly wage) – estimated impact**



Notes: significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. The impact estimates and confidence intervals are obtained by an ordered logit model. The impact estimate refers to the diff-in-diff column from Table 11..

In Figure 15 we consider outcomes related to the quality of jobs that employed pupils hold. We do not find any statistically significant effect of the program on the type of contract (written contract and unlimited contract) and on job satisfaction. Again, these are only short-term impacts which could change over time and some positive effects of the program could emerge with more tenure on the job.

Figure 15: **Job conditions (contract and satisfaction) – estimated impact: both cohorts**



Notes: * significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. The impact estimates and confidence intervals are obtained by a linear regression model. The impact estimate refers to the Diff-In-Diff column from Table 11.

There might be some concern that companies which train treated pupils have only a limited number of positions and that after the initial year (or years) the graduates of modernized profiles do not get employed in these companies anymore. We do not find such evidence for the first two years, the employment rate of treated pupils is similar in both years and impact estimates of the employment rate, when compared between the two cohorts, are not statistically different. We find that the likelihood of getting the first job is the same between the two cohorts (column (6) in Table 11). There are no differences in perception of relatedness and usefulness of the current job suggesting that treated pupils from both cohorts work in similar jobs. Still, some differences between the impact estimates of the two cohorts are statistically different between the two cohorts. We find that pupils in the 2016 cohort were 29 percentage points more likely to work with a written contract and that they were 36 percentage points more likely to have a permanent contract at the time of the survey. This finding means that pupils from cohort 2016 held better contracts than the previous cohort. With the available data it is not possible to be certain what are the underlining causes of these results, but some possible explanations can be offered. One explanation is that there was a higher demand for these professions when cohort 2016 pupils graduated in 2019 and that employers were ready to give them better contracts and more job security. Also, it is possible that employers were satisfied with how the previous cohorts of treated pupils adapted in their companies and that as a result they gave better contract conditions to the new hires.

Finally, Table 12 shows whether employed and unemployed/inactive pupils are searching for a job. What is important in this table is that among employed pupils, few of them are searching for a job. Whether employees search for a new job can be a good indicator whether they are satisfied with their current job. These impact estimates are not statistically significant for the whole sample and not for each cohort separately.

Table 12: **Employment status: both cohorts**

Cohort	Only Treated	Only Treated	Diff-in- diff	Diff-in- diff	Diff-in- diff	Triple- diff
	2015	2016	2015	2016	Both	Both
	(1)	(2)	(3)	(4)	(5)	(6) [(3)-(4)]
Searches for job - Employed	0.27	0.36	0.12	-0.07	0.07	0.19
Searches for job - Unemployed / Inactive	0.56	0.79	0.20	0.00	0.04	0.20
Number of pupils	99	115	373	723	1096	1096

Notes: * significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. The impact estimates and confidence intervals are obtained by a linear regression model.

4.2.3. Discussion of findings

This part of the report evaluates the impact of the introduction of modernized VET profiles on pupils completing secondary school in Serbia for cohorts 2015 and 2016 for which data is available. Treated pupils entering school in 2015 finished in 2018 while treated pupils entering school in 2016 finished in 2019. The analysis uses baseline data collected in schools while pupils were still attending school and a follow-up survey conducted six to eight months after completing school.

The empirical analysis examines the effect of the modernization of profiles on quality of educational outcomes, employment status and quality of jobs of the employed. We employ a rigorous difference-in-difference methodology that compares pupils of GIZ profiles to comparable pupils within and across schools. Three main results follow from the analysis.

First, with respect to subjective and objective measures of quality of education, we find that overall treated pupils were 25 percentage points more likely to state that their secondary education was good or very good, they were 16 percentage points more likely to state that their schools were well equipped and they were 13 percentage points more likely to state that they would enroll the same educational profile. The grade average in the last year of school and the likelihood of finishing school (conditional on enrolling in third grade) are not affected by the program. The outcome equipment and conditions of the company is rated similar between treated and comparison pupils. This is expected because the program did not provide additional equipment to the companies. Although treated pupils were 9 percentage points more likely to say that they felt prepared for work after secondary school, this impact estimate is not statistically significant.

Second, with regards to employment, we find that treated pupils were not more likely to be employed 6 months after graduation than their comparable peers. However, the quality of jobs that pupils had at the time of the survey was higher. Treated pupils were 36 percentage points more likely to get employed in the company where they had their training suggesting that the program established a close cooperation between the school and the company. In comparison with control pupils, treated pupils were 27 percentage points more likely to respond that their current work is VET related and 32 percentage points more likely to respond that they use their VET skills and knowledge at work. While wages are somewhat higher among treated pupils, this outcome does not reach statistical significance. There are no differences between employed treated and comparison pupils in terms of likelihood to be employed with a written contract (formally employed) and to hold a permanent contract.

Third, it is very important to follow treated pupils over several cohorts in order to understand whether some impacts change over time and in this report, we are able to look at two cohorts. There might be a concern that the companies cooperating with the schools can absorb only a limited number of pupils of a certain profession and that only the first cohort(s) will be successful on the labor market. We do not find any evidence that the 2016 cohort is performing worse on the labor market compared to the 2015 cohort. Moreover, we do find that 2016 cohort pupils had employment contracts with better conditions

than 2015 cohort pupils. While the exact cause for this is difficult to pinpoint, it shows an improvement of job quality for the 2016 cohort compared to the 2015 cohort.

Overall, the rigorous analysis shows that treated pupils judged the quality of their education better. While the employment rate was not affected by the program, the jobs that they got were of higher quality than the jobs of their similar peers. We do not find any evidence that 2016 cohort pupils did worse on the labor market, in fact, we find the opposite.

This report has looked only at the short-term impact of the program of pupils attending modernized profiles. It would be very important to follow pupils over their career and examine medium- and long-term effects of attending modernized profiles. This is particularly important in the light of concerns that some VET educational paths offer firm-specific knowledge. Also, it would be important to monitor on an annual basis the placement of graduates of modernized profiles. The Government of the Republic of Serbia is setting up an information system so that administrative educational data can be linked with administrative labor market data at the individual level and this new system will offer the possibility to monitor the main labor market outcomes of graduates both in the short- and long-term.

Appendix

A1. Example

Assume that:

1. GIZ schools are located in better areas
2. Welders generally have worse employment chances than auto mechanics.

The fact that GIZ schools are located in better areas can be seen from the fact that auto mechanics from GIZ schools have better employment rates than auto mechanics from non GIZ schools. The fact that welders in non GIZ schools have worse outcomes than auto mechanics suggests that welders are less employable.

The difference-in-difference methodology would yield the following calculation:

$$\begin{aligned} \text{True impact} &= (80\% - 70\%) - (50\% - 60\%) \\ &= 10\% - (-10\%) = 20\% \end{aligned}$$

The true impact would thus be 20%, meaning that treated pupils have a 20% better chance of employment thanks to the program.

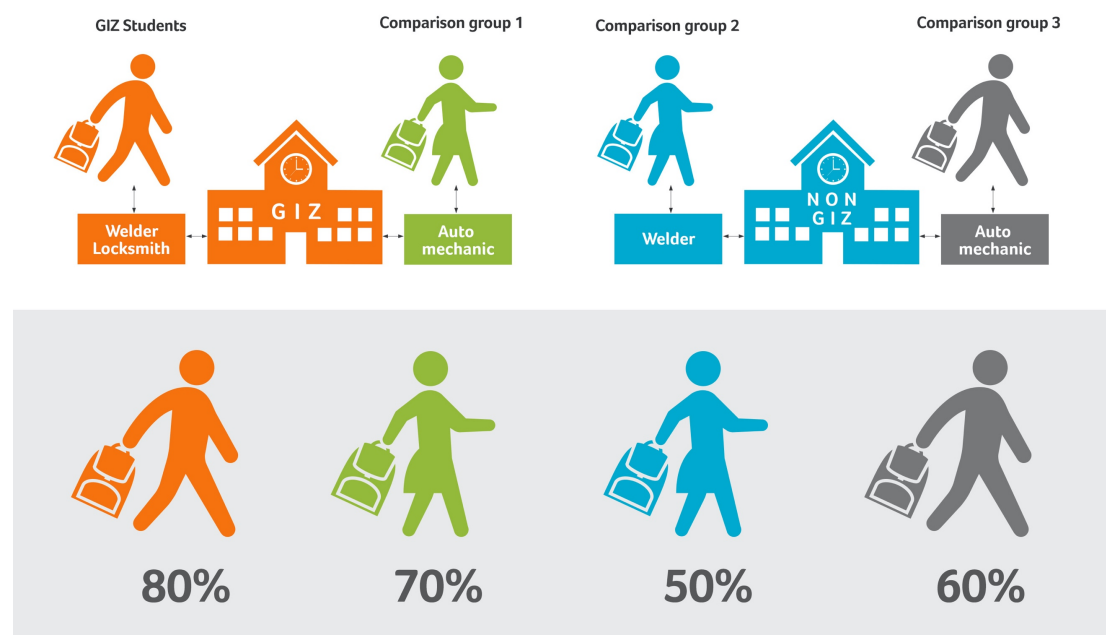


Figure A.1 Employment rates of treated and comparison group pupils

A2. Additional Tables

Table A.2: Schools and profiles included in the analysis for cohort 2016

	School	City	Profile	Type
1	Tehnička škola "Ivan Sarić"	Subotica	Locksmith-welder	T
2	Tehnička škola "Ivan Sarić"	Subotica	Industrial mechanic	T
3	Tehnička škola "Ivan Sarić"	Subotica	Computer guidance technician	C1
4	Tehnička škola "Ivan Sarić"	Subotica	Technician for computer construction	C1
5	Elektrotehnička škola "Mihajlo Pupin"	Novi Sad	Electrician	T
6	Elektrotehnička škola "Mihajlo Pupin"	Novi Sad	Electrical engineer for thermal and cooling devices	C1
7	Tehnička škola "Milenko Verkić Neša"	Pećinci	Industrial mechanic	T
8	Tehnička škola "Milenko Verkić Neša"	Pećinci	Electrician	T
9	Tehnička škola "Milenko Verkić Neša"	Pećinci	Heating and cooling equipment mechanic	C1
10	Tehnička škola "Milenko Verkić Neša"	Pećinci	Merchant	C1
11	Srednja tehnička škola "Nikola Tesla"	Sremska Mitrovica	Locksmith-welder	T
12	Srednja tehnička škola "Nikola Tesla"	Sremska Mitrovica	Computer control technician for CNC machines	C1
13	Tehnička škola "Zmaj"	Beograd	Locksmith-welder	T
14	Tehnička škola "Zmaj"	Beograd	Computer guidance technician	C1
15	Tehnička škola "Zmaj"	Beograd	Agricultural technician	C1
16	Tehnička škola "Zmaj"	Beograd	Fire protection technician	C1
17	Tehnička škola	Obrenovac	Locksmith-welder	T
18	Tehnička škola	Obrenovac	Electrical engineer for process control	C1
19	Tehnička škola "Kolubara"	Lazarevac	Electrician	T
20	Tehnička škola "Kolubara"	Lazarevac	Computer technician	C1
21	Tehnička škola "Kolubara"	Lazarevac	Mechanical technician for computer construction	C1
22	Srednja stručna škola	Kragujevac	Locksmith-welder	T
23	Srednja stručna škola	Kragujevac	Computer guidance technician	C1
24	rednja stručna škola	Kragujevac	Road traffic technician	C1
25	Mašinska tehnička škola "14.oktobar"	Kraljevo	Locksmith-welder	T
26	Mašinska tehnička škola "14.oktobar"	Kraljevo	Computer guidance technician	C1
27	Mašinska tehnička škola "14.oktobar"	Kraljevo	Electromechanic for machines and equipment	C1
28	Srednja mašinska škola	Novi Sad	Locksmith-welder	T
29	Srednja mašinska škola	Novi Sad	Computer guidance technician	C1
30	Mašinska škola	Pančevo	Operator for machine processing	C2
31	Mašinska škola	Pančevo	Computer guidance technician	C3
32	Srednja škola "1300 kaplara"	Ljig	Welder	C2
33	Srednja škola "1300 kaplara"	Ljig	Economic technician	C3
34	Srednja škola "1300 kaplara"	Ljig	General education	C3
35	Srednja tehnička škola Mihajlo Pupin	Kula	Computer control technician for CNC machines	C3
36	Srednja tehnička škola Mihajlo Pupin	Kula	Computer technician	C3

37	Srednja tehnička škola Mihajlo Pupin	Kula	Energy Systems Engineering Technician	C3
38	Tehnička škola	Odžaci	Welder	C2
39	Tehnička škola	Odžaci	Computer control technician for CNC machines	C3
40	Tehnička škola	Smederevo	Computer guidance technician	C3
41	Tehnička škola	Smederevo	Welder	C2
42	Tehnička škola	Smederevo	Electrician for networks and plants	C2
43	Tehnička škola	Smederevo	Road traffic technician	C3
44	Tehnička škola	Smederevo	Technician for computer construction	C3
45	Tehnička škola	Loznica	Electromechanic for machines and equipment	C2
46	Tehnička škola	Loznica	Car tinsmith	C3
47	Srednja škola 'Dragačevo'	Guča	Locksmith-welder	T
48	Srednja škola 'Dragačevo'	Guča	Chemical technology technician	C1
49	Srednja škola 'Dragačevo'	Guča	Economic technician	C1
50	Elektrotehnička škola "Nikola Tesla"	Niš	Electrician	T
51	Elektrotehnička škola "Nikola Tesla"	Niš	Computer technician	C1
52	Elektrotehnička škola "Nikola Tesla"	Niš	Energy Systems Engineering Technician	C1
53	Mašinska škola	Niš	Industrial mechanic	T
54	Mašinska škola	Niš	Computer guidance technician	C1
55	Tehnička škola	Vladičin Han	Industrial mechanic	T
56	Tehnička škola	Vladičin Han	Robotics technician	C1
57	Tehnička škola	Užice	Operator for machine processing	C2
58	Tehnička škola	Užice	Computer guidance technician	C3
59	Tehnička škola	Valjevo	Operator for machine processing	C2
60	Tehnička škola	Valjevo	Electromechanic for thermal and cooling devices	C3
61	Tehnička škola	Valjevo	Electro installer	C2
62	Tehnička škola	Valjevo	Robotics technician	C3
63	Elektrotehnička i građevinska škola "Nikola Tesla"	Zrenjanin	Electromechanic for thermal and cooling devices	C2
64	Elektrotehnička i građevinska škola "Nikola Tesla"	Zrenjanin	Computer technician	C3
65	Srednja škola '17.septembar'	Lajkovac	Locksmith	C2
66	Srednja škola '17.septembar'	Lajkovac	Mechatronics technician	C3
67	Tehnička škola	Požega	Computer guidance technician	C3
68	Tehnička škola	Požega	Locksmith	C2
69	Tehnička škola "9. Maj"	Bačka Palanka	Computer guidance technician	C3
70	Tehnička škola "9. Maj"	Bačka Palanka	Machine-Locksmith	C2
71	Tehnička škola	Ub	Machine-Locksmith	C2
72	Tehnička škola	Ub	Computer control technician for CNC machines	C3
73	Tehnička škola	Negotin	Electromechanic for machines and equipment	C2
74	Tehnička škola	Negotin	Heating and cooling equipment mechanic	C3

75	Tehnička škola	Negotin	Computer technician	C3
76	Tehnička škola "Nikola Tesla"	Velika Plana	Locksmith	C2
77	Tehnička škola "Nikola Tesla"	Velika Plana	Computer control technician for CNC machines	C3
78	Tehnička škola "Nikola Tesla"	Velika Plana	Computer technician	C3
79	Tehnička škola	Vranje	Operator for machine processing	C2
80	Tehnička škola	Vranje	Road traffic technician	C3
81	Mašinsko-elektrotehnička škola	Pančevo	Electro installer	C2
82	Mašinsko-elektrotehnička škola	Paraćin	Energy Systems Engineering Technician	C3
83	Tehnička škola	Vlasotince	Industrial mechanic	T
84	Tehnička škola	Vlasotince	Motor Vehicle Engineer	C1

A3. Questionnaire

Questionnaire for measuring the employment effects of youth in the project "Reform of secondary vocational education" 6-month follow-up phone survey

Final Version, 14. Feb. 2020

Color Scheme:

[text] – Instructions for enumerators

Text – Text to be adapted, depending on interview partner

Text – Variable name to be inserted from baseline questionnaire

Nr – Questionnaire number, to be adapted

[Please note any irregularities or problems during the interview in the notes field on the final survey page.

Please also note the correct participant telephone number if obtained in this field.]

ID respondent: _____

Name and surname of the respondent: _____

Name of secondary school: _____

Date of filling out the form _____ [DD/MM/YYYY]

Section 1: Verification and introduction

ID.1. [Please call IntervieweeMobileNumber]

Hello. Am I talking to IntervieweeFullName?

1.1. Yes → ID.2

1.2. No → ID.3

ID.2. [Introduction]

Good day. My name is Name of interviewer and I am calling from the Faculty of Economics in Belgrade on behalf of the German Development Cooperation. We conduct research on the effectiveness of the vocational education training profile that you attended. We are calling you because you participated in our survey last year and you gave us your phone number so that we can call you again. This phone survey will take no more than 7 minutes. The questionnaire is anonymous and all questions are voluntary to answer. Would you be willing to participate in the survey?

[The interviewee can further elaborate on how the data will be used if the respondent is unsure: The information we gather will be used for research purposes and will be dealt with in highest confidentiality and are only used to improve the vocational educational profile and training for future participants.]

2.1. Yes → Q.1

2.2. No → ID.5

ID.3. [Wrong number]

I would like to speak to IntervieweeFullName regarding his vocational education and training. Do you know IntervieweeFullName? Would you be able to refer me to IntervieweeFullName or provide a current mobile number?

[Please take notes detailed outcomes of the call (e.g. why the interviewee did not provide the participants phone number). In case the interviewee does not provide the participants number, please ask whether the interviewee knows about his current location, or knows other people through which the participant could be reached. Please take notes]

3.1. Does not know participant → ID.4

3.2. Knows participant and provided telephone number → ID.6

3.3. Knows participant but did not provide telephone number → ID.4

ID.4. [Please call landline number.]

Hello. My name is Name of interviewer and I would like to speak to IntervieweeFullName regarding his vocational education and training. Do you know IntervieweeFullName? Would you be able to refer me to IntervieweeFullName or provide a current mobile number?

[Please take notes detailed outcomes of the call (e.g. why the interviewee did not provide the participants phone number). In case the interviewee does not provide the participants number, please ask whether the

interviewee knows about his current location, or knows other people through which the participant could be reached. Please take notes.]

- 4.1. Participant responded to the call → ID.1
- 4.2. Does not know participant → ID.5
- 4.3. Knows participant and provided telephone number → ID.6
- 4.4. Knows participant but did not provide telephone number → ID.5
- 4.5. No landline phone number provided → ID.5

ID.5. [Reason that interview could not be conducted.]

- 5.1. No correct phone number available.
- 5.2. Participant and/or related person could not be contacted. Please note details.
- 5.3. Participant not willing to take part in the survey. Please note reasons.
- 5.4. Other: *[Provide reason as text]*

ID.6. [New phone number provided.]

- 6.1. _____ *[insert updated phone number]* → ID.1
- 6.2. Does not apply

Section 2: Education

Q.1. Which school and educational profile did you attend during secondary school?

[Please let the interviewee tell the name of the school and profile and compare it to the data in the pupils list.]

- 1.1. School and profile coincide with the data provided in the pupils' list
- 1.2. School and profile do not coincide with the data provided in the pupils' list, please explain (please write down the name of the school and profile that the pupil attended)

1.a. Does not want to answer

1.b. Does not know

Q.4. On a 1 to 5 points scale, how would you rate the overall quality of your secondary education?

- 4.1. 1-Very Poor
- 4.2. 2-Poor
- 4.3. 3-Acceptable
- 4.4. 4-Good
- 4.5. 5-Very Good

4.a. Does not want to answer

4.b. Does not know

Q.5. On a 1 to 5 points scale, how would you rate the equipment and conditions of the school for performing practical training?

- 5.1. 1-Very Poor
- 5.2. 2-Poor
- 5.3. 3-Acceptable
- 5.4. 4-Good
- 5.5. 5-Very Good

- 5.a. Does not want to answer
 - 5.b. Does not know
- Q.6. On a 1 to 5 points scale, how would you rate the equipment and conditions of the company for performing practical training?
- 6.1. 1-Very Poor
 - 6.2. 2-Poor
 - 6.3. 3-Acceptable
 - 6.4. 4-Good
 - 6.5. 5-Very Good
 - 6.6. Does not apply (did not have practical training in company)
 - 6.a. Does not want to answer
 - 6.b. Does not know
- Q.7. If you had an opportunity to choose again, how likely is it that you would choose the same educational profile?
- 7.1. Very unlikely (0 – 20%)
 - 7.2. Unlikely (21 – 40%)
 - 7.3. Maybe (41 – 60%)
 - 7.4. Likely (61 – 80%)
 - 7.5. Very likely (81 – 100%)
 - 7.a. Does not want to answer
 - 7.b. Does not know
- Q.8. In which month did you finish secondary school?
- 8.1. _____ [*Calendar month*]
 - 8.2. _____ [*Calendar year*]
 - 8.3. Did not graduate from secondary school → Q.10
 - 8.a. Does not want to answer
 - 8.b. Does not know
- Q.9. What was your grade average in the third year of secondary school?
- 9.1. Not sufficient
 - 9.2. Sufficient
 - 9.3. Good
 - 9.4. Very good
 - 9.5. Excellent
 - 9.a. Does not want to answer
 - 9.b. Does not know
- Q.10. On a 5-point scale, how well prepared did you feel for working after you left school?

10.1. 1-Not prepared at all

10.2. 2-Not prepared

10.3. 3-Somewhat

10.4. 4-Well prepared

10.5. 5-Very well prepared

10.a. Does not want to answer

10.b. Does not know

Q.11. Did you start any additional education or training after you left school?

[Please explain to the respondent that the training could have been a training period preceding employment with the current employer.]

11.1. Yes → Q.12

11.2. No → Q.13

11.a. Does not want to answer → Q.13

11.b. Does not know → Q.13

Q.12. Which type of education did you start after you left school?

[Please let the respondent provide an open answer first and tick the respective category, then ask if this is the only kind of education he considered (please tick all that apply)]

12.1. 4-year vocational secondary school → Q.15

12.2. Training/internship/apprenticeship at the employer/firm where I went during secondary school → Q.15

12.3. Training/internship/apprenticeship with a different employer/firm → Q.15

12.4. Private training provider, please specify: _____ → Q.15

12.5. Public training provider (e.g. NES), please specify: _____ → Q.15

12.6. Other, please specify: _____ → Q.15

12.a. Does not want to answer → Q.15

12.b. Does not know → Q.15

Q.13. Do you plan to continue with further education or training in the next two years?

13.1. Yes → Q.14

13.2. No → Q.17

13.a. Does not want to answer → Q.19Q.17

13.b. Does not know → Q.17

Q.14. What kind of education do you plan to continue?

[Please let the respondent provide an open answer first and tick the respective category, then ask if this is the only kind of education he considered (please tick all that apply)]

14.1. 4-year vocational secondary school

14.2. College

14.3. University

14.4. Training at the employer/firm where I went during secondary school

14.5. Training with a different employer/firm

14.6. Other training measure (e.g. by NES), please specify: _____

14.7. Other, please specify: _____

14.a. Does not want to answer → Q.17

14.b. Does not know → Q.17

Q.15. Is this education or training in the professional field of your vocational education?

15.1. Yes → Q.17

15.2. No → Q.16

15.a. Does not want to answer → Q.17

15.b. Does not know → Q.17

Q.16. What is the reason you want to continue with another professional field?

[Please let the respondent provide an open answer first and tick the respective categories, then ask if this is there are any other reasons (please tick all that apply)]

16.1. I realized that this professional field is not right for me

16.2. There are no job vacancies in this professional field

16.3. The pay is too low in my field

16.4. My parents would like me to change to a different field

16.5. I am not interested in my field of studies

16.6. The work is too demanding in my field

16.7. Other, please specify: _____

16.a. Does not want to answer

16.b. Does not know

Section 3: Employment status

Q.17. We would like to know how easy it was for you to find a job after graduating from secondary school.

In the past months since graduating, did you ever perform any work to earn an income (either as an employee, being self-employed or on occasional jobs / freelancing)?

[Please make clear that this may include working as an employee, being self-employed or on occasional jobs / freelancing, in a family business or at a (paid) internship.]

17.1. Yes → Q.18

17.2. No → Q.37

17.a. Does not want to answer → Q.37

17.b. Does not know → Q.37

Q.18. Could you kindly tell in which of the past six months after graduation you were working, in education or not employed?

[Categories for each month should be inferred from the interviewer. Tick all that apply in each month. Please probe the question extensively. For each month, tick the respective number]

	1 = employee d	2 = selfem. or free- lancing	3 = in educ. or training	4 = looking for work	5 = inactive	99 = other	.a = Does not know	.b = Doesn't want to answer
18.1. June								
18.2. Jul.								
18.3. Aug								
18.4. Sept								
18.5. Oct.								
18.6. Nov.								

Q.19. Do you currently perform any work to earn an income (either as an employee, being self-employed or on occasional jobs / freelancing)?

[Please make clear that this may include working as an employee, being self-employed or on occasional jobs / freelancing, in a family business or at a (paid) internship.]

19.1. Yes → Q.20

19.2. No → Q.35

19.a. Does not want to answer → Q.35

19.b. Does not know → Q.35

Q.20. How do you currently earn an income?

[Please read the available options to the respondent. Please probe the question extensively by reading other probable categories to the respondent. Please tick all that apply.]

20.1. Full-time employed

20.2. Part-time employed

20.3. Self-employed (without employees)

20.4. Owner of a company with _____ employees

20.5. Working on occasional jobs (own-account worker / freelancer)

20.6. Paid work as intern

20.7. I work in a family business

20.8. Other, please specify: _____

20.a. Does not want to answer

20.b. Does not know

Q.21. Do you currently work in the job where you first started working after you finished secondary school?

[Clarify that this could also be the self-employment / business / freelance work they started after graduating secondary school.]

21.1. Yes → Q.23

21.2. No → Q.22

21.a. Does not want to answer → Q.23

21.b. Does not know → Q.23

Q.22. What are the reasons why you stopped working in the first job that you started after graduating from secondary school?

[Please let the respondent provide an open answer first and tick the respective categories (tick all that apply). Then ask if there are any other reasons and note these in the other field. Please probe the question to elicit all reasons.]

22.1. Left for a better job

22.2. Dismissed/fired

22.3. Unhappy with workplace

22.4. Temporary job has ended

22.5. Health reasons

22.6. Started education/training/apprenticeship job

22.7. Other, please specify _____

22.a. Does not want to answer

22.b. Does not know

Q.23. Was your first work a job in the company where you went for training during secondary school?

23.1. Yes → Q.27

23.2. No → Q.24

23.3. Does not apply: Did not have practical training in company → Q.27

23.a. Does not want to answer → Q.24

23.b. Does not know → Q.24

Q.24. How did you find your current work?

[Please let the respondent provide an open answer first and tick only the most relevant category. If the respondent has more than one job, ask about the main job.]

24.1. Through my previous employer or vocational training institute / school

24.2. Personal contacts (family, friends)

24.3. Applying to job advertisements (internet/newspaper/radio/TV)

24.4. Direct application to employer

24.5. Job fair

24.6. Placement/support national employment service

24.7. Placement/support private employment service

24.8. Registration of a new agency or company in the Agency for Regulatory Records (for self-employed and entrepreneurs)

24.9. other, please specify: _____

24.a. Does not want to answer

24.b. Does not know

Q.25. Is your current work related to what you studied in secondary school?

25.1. Yes

25.2. No

25.a. Does not want to answer

25.b. Does not know

Q.26. On a 1-5-point scale, how helpful was your secondary education to start at your current job (or being a freelancer / self-employed)?

26.1. 1-Not helpful at all

26.2. 2-Not very helpful

26.3. 3-Somewhat helpful

26.4. 4-Helpful

26.5. 5-Very helpful

26.a. Does not want to answer

26.b. Does not know

Q.27. How many working hours do you work in a usual day?

27.1. _____ hours

27.a. Does not want to answer

27.b. Does not know

Q.28. How many days do you work in a usual week?

28.1. _____ days

28.a. Does not want to answer

28.b. Does not know

Q.29. Please estimate your current income in a usual month from all sources of income. If you are self-employed or a business owner, estimate the average income generated for you by your business. Please state either the exact amount or an appropriate category:

[Before asking this question, please remind the respondent that the questionnaire is anonymous.]

29.1. Exact amount: _____ RSD

29.2. Less than 17000 RSD

29.3. Between 17.001 and 25.000 RSD

29.4. Between 25.001 and 35.000 RSD

29.5. Between 35.001 and 45.000 RSD

29.6. Between 45.001 and 60.000 RSD

29.7. Between 60.001 and 80.000 RSD

29.8. More than 80.001 RSD

29.a. Does not want to answer

29.b. Does not know

Q.30. Are you currently employed on the basis of ...?

30.1. A written contract

30.2. An oral contract

30.a. Does not want to answer

30.b. Does not know

Q.31. Is your contract/agreement of ...?

31.1. Unlimited duration → Q.33

31.2. Limited duration → Q.32

31.a. Does not want to answer → Q.33

31.b. Does not know → Q.33

Q.32. Why is your contract or agreement of limited duration?

32.1. On the job training, internship

32.2. Probation period

32.3. Seasonal work

32.4. Occasional/daily work

32.5. Work as replacement/substitute

32.6. Public employment program

32.7. Specific service or task

32.8. Other, please specify _____

32.a. Does not want to answer

32.b. Does not know

Q.33. In your current job, can you benefit from the following services ...?

[Please read each category to the respondent and tick all that apply.]

33.1. Annual paid leave (holiday time)

33.2. Paid sick leave

33.3. Pension/old age insurance

33.4. Medical insurance coverage

33.5. Social security contribution

33.a. Does not want to answer

33.b. Does not know

Q.34. On a 1 to 5-point scale to what extent are you satisfied with your current work situation?

34.1. 1-Not at all, please specify why not: _____

34.2. 2-Not much

34.3. 3-Somewhat

34.4. 4-Much

34.5. 5-Very much

34.a. Does not want to answer

34.b. Does not know

[→ Q.38 for all answers]

Q.35. Was your first work a job in the company where you went for training during secondary school?

35.1. Yes → Q.36

35.2. No → Q.37

35.3. Does not apply: Did not have practical training in company → Q.38

35.a. Does not want to answer → Q.38

35.b. Does not know → Q.38

Q.36. What are the reasons why you stopped working in the first job that you started after graduating from secondary school?

[Please let the respondent provide an open answer first and tick the respective categories (tick all that apply). Then ask if there are any other reasons and note these in the other field. Please probe the question to elicit all reasons.]

36.1. Left for a better job

36.2. Dismissed/fired

36.3. Unhappy with workplace

36.4. Temporary job has ended

36.5. Health reasons

36.6. Started education/training/apprenticeship job

36.7. Other, please specify _____

36.a. Does not want to answer

36.b. Does not know

Q.37. What is the reason you did not start working at the company where you went for training?

37.1. _____

37.2. Did not finish school/still in secondary education

37.3. Continued with education after finishing three-year or four-year secondary school (still in education)

37.4. Does not apply (did not have training in company)

37.5. Did not want to get employed in the company

37.6. There were no vacant positions in the company

37.7. He was not offered a job in the company

37.8. Other, please specify _____

37.a. Does not want to answer

37.b. Does not know

Section 4: Job search

Q.38. Irrespective of whether you are working or not: Are you currently looking for a job?

[Please make clear to the respondent that this could be irrespective of whether he is currently already working]

38.1. Yes → Q.40

38.2. No → Q.39

38.a. Does not want to answer → Q.39

38.b. Does not know → Q.39

Q.39. What is the reason you are currently not looking for a job?

[Please let the respondent provide an open answer first and tick the respective category, then ask if this is there are any other reasons. You may also probe the question by reading other probably categories to the respondent. Please tick all that apply.]

39.1. Currently working (employed, self-employed, freelancing)

39.2. In education (training, internship, etc.)

39.3. Attending a training that enables me employment

39.4. Plan to get employed or start own business later

39.5. Plan to get in education or start a training later

39.6. I'm ill

39.7. Family responsibilities

39.8. There is no adequate employment in my area or for my level of education

39.9. I don't know how and where to look for a job

39.10. I still haven't started looking for a job

39.11. Other, please specify: _____

39.a. Does not want to answer

39.b. Does not know

[→Q.43 for unemployed 19.1 YES]

→ Q.51 for employed 19.2 NO]

Q.40. Since when are you looking for work?

40.1. _____ *[Calendar month]*

40.2. _____ *[Calendar year]*

40.a. Does not want to answer

40.b. Does not know

Q.41. How are you currently looking for work?

[Please let the respondent provide an open answer first and tick the respective categories, then ask if this is there are any other ways he looks for work. Please tick all that apply.]

41.1. Through my previous employer or vocational training institute / school

41.2. Personal contacts (family, friends)

41.3. Applying to job advertisements (internet/newspaper/radio/TV)

- 41.4. Direct application to employer
- 41.5. Job fair
- 41.6. Placement/support national employment service
- 41.7. Placement/support private employment service
- 41.8. Registration of a new agency or company in the Agency for Regulatory Records (for self-employed and entrepreneurs)
- 41.9. other, please specify: _____
- 41.a. Does not want to answer
- 41.b. Does not know

Q.42. What type of employment are you currently looking for at the moment?

[Please let the respondent provide an open answer first and tick the respective categories, then ask if this is there are any other type of work he is looking for. Please tick all that apply.]

- 42.1. Public sector employment
- 42.2. Private sector employment
- 42.3. Self-employment (without employees)
- 42.4. Owner of a company with _____ employees
- 42.5. Work on occasional jobs (own-account worker / freelancer)
- 42.6. Work in a family business
- 42.7. Work as intern, volunteer
- 42.8. Other, please specify: _____
- 42.a. Does not want to answer
- 42.b. Does not know

Q.43. Are you currently registered with the National Employment Service?

[Please make clear to the respondent when he should/would be registered with NES (e.g. he went to the office to register with NES, once in three months he goes to NES to inform them that he is still searching, once in six months he meets his advisor).]

- 43.1. Yes → Q.45
- 43.2. No → Q.44
- 43.a. Does not want to answer → Q.44
- 43.b. Does not know → Q.44

Q.44. Were you ever registered with the National Employment Service?

- 44.1. Yes → Q.45
- 44.2. No → Q.46
- 44.a. Does not want to answer → Q.46
- 44.b. Does not know → Q.46

Q.45. When was the first time that you registered with NES?

- 45.1. _____ *[Calendar month]*

45.2. _____ [Calendar year]

45.a. Does not want to answer

45.b. Does not know

Q.46. On a 1 to 5 scale, how likely is it that you would move to another municipality for work?

46.1. 1-Definitely not (0 – 20%)

46.2. 2-Probably not (21 - 40%)

46.3. 3-Possibly (41 - 60%)

46.4. 4-Probably (61 - 80%)

46.5. 5-Definitely (81 – 100%)

46.a. Does not want to answer

46.b. Does not know

Q.47. Would you like to work in the area of your vocational training profile?

47.1. Yes → Q.51

47.2. No → Q.48

47.a. Does not want to answer → Q.51

47.b. Does not know → Q.51

Q.48. Why do you not want to work in the area of your vocational training profile?

[Please let the respondent provide an open answer first and tick the respective categories, then ask if this is there are any other reasons. Please tick all that apply.]

48.1. Not interesting

48.2. Not enough jobs

48.3. Not enough money

48.4. Not prestigious enough

48.5. Other, please specify: _____

48.a. Does not want to answer

48.b. Does not know

Section 5: Demography

Q.49. Gender

49.1. Male

49.2. Female

Q.50. Could you please tell me what your date of birth is?

50.1. __/__/____ [Format: dd/mm/yyyy]

Section 6: End of questionnaire

Q.51. Thank you very much for your time and willingness to participate in this survey which will help us to improve the secondary vocational training in Serbia. Do you have any other ideas or comments regarding your education that you like us to know?
