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► **Impact evaluation of the
Professional Training for Graduates (PTG)
programme**

Montenegro





Impact evaluation of the Professional Training for Graduates (PTG) programme of Montenegro

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FOREWORD

Starting in 2020, the Foreign, Commonwealth, and Development Office (FCDO) (United Kingdom) and the International Labour Organization (ILO) have worked closely together to facilitate dialogue and encourage policy reforms that would create more inclusive policies and better governance of the labour market in Montenegro.

In the pursuit of these outcomes, the FCDO and the ILO have worked with Montenegro's institutions to provide tools to generate a strong evidence base (e.g. guidelines for employment policy review and functional assessments) but also encourage more evidence based policy decisions. This will enable the Government of Montenegro and its social partners to achieve significant change in labour market outcomes by injecting data and evidence in day-to-day practice of both policy makers and practitioners within institutions and organizations.

This report, together with the companion report on the performance monitoring of active labour market measures implemented by the Employment Agency of Montenegro, is the first attempt to review in a scientific and systematic manner the results achieved by key interventions underpinning the employment policy framework of the country. In the case of the Professional Training for Graduates (PTG) programme, now reaching its 10th year of implementation, it is essential to provide the Montenegrin institutions with solid evidence on which to base decisions for future investments in youth employment and school-to-work transitions.

This is timely given that in 2021 Montenegro endorsed the Declaration on ensuring sustainable labour market integration of young people. The Declaration recognises the disproportionate negative impact of the Covid-19 pandemic on young people and sets out a commitment to gradually implement youth employment guarantees in the region. The Youth Guarantee is the most significant and challenging policy innovation of the past decade in the area of youth employment. Effective implementation of the Guarantee is however dependent on continuous monitoring and impact evaluation. This support and technical assistance provided by the FCDO and the ILO is therefore a crucial first step.

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Executive summary

The *Professional Training for Graduates* (PTG) programme, operational since 2013, targets all young university graduates with no recorded or significant work experience. Typically, around or more than 3,000 young people enrol in and complete it annually, comprising around 90 per cent of new graduates. Around 28,000 people (some 4 per cent of the total Montenegrin population), or approximately 30 per cent of the age cohorts around graduation age in the past nine years, have been involved in the programme since its establishment.

The PTG programme of Montenegro differs substantially from measures implemented in EU countries aimed at providing young people with the work experience employers require. First, it combines the features of two different measures, namely: (i) the traineeships organized as part of academic curricula, aimed at providing access to regulated occupations in the public sector; and (ii) the traineeships organized as part of the active labour market policy portfolio, aimed at easing the entry of young unemployed people into the labour market.¹ Second, its duration (nine months) is beyond the six-month benchmark advised by the EU Council Recommendation on a Quality Framework for Traineeship.²

The primary objective of this report is to evaluate the PTG programme's effectiveness and efficiency. For this purpose, we compare the main labour market outcomes or activity history of PTG participants. These include employment during the first, second and third year after completing programme, as well as wages per employed person and per cohort member in the same period. All outcome variables are based on survey questions on the employment history of participants and non-participants over a three-year period of interest. Additionally, we present descriptive information, including a section on trainees' satisfaction with the PTG programme.

The almost complete participation of exit graduate cohorts since 2012 makes it very difficult to construct a contemporaneous control group. Instead, the control group consists of the university graduates who graduated in 2011, the last year before the programme started, but who presumably have essentially the same basic characteristics as the programme participants. Two key hypotheses were set: H1 – programme participation causes significantly better labour market outcomes compared with non-participation; and H2 – the impact of the PTG programme diminishes over time. To test H2, an additional treatment group was identified in the exit graduate cohort of 2015, which participated in the PTG programme in 2016. This also provided an opportunity to merge treatment cohorts 2013 and 2016.

The evaluation methodology is based on three complementary approaches, which is very favourable for robustness checks. The first approach is simply a direct descriptive comparison of key outcomes of treatment and control groups, assuming that their samples do not differ significantly in terms of the main characteristics relevant for outcomes. If, however, the differences between the groups are potentially significant, it is then better to further refine the comparison groups, picking only individuals with "as similar as possible" characteristics. For that purpose, only a part of the control group was selected. This more precise evaluation of the programme's impact was realized by means of the difference-in-difference and matching econometric approaches.

¹ See ILO: *Developing quality traineeship for young people* (ILO, Geneva, 2017).

² EU Council Recommendation 2014/C 88/01. Available at: [https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014H0327\(01\)&from=EN](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014H0327(01)&from=EN)

Utilizing three different scientific net impact evaluation approaches, our evaluation shows that there are no direct gains from the PTG programme in terms of main labour market outcomes. In other words, any improvements in the labour market situation of university graduates during the period under observation should be ascribed to factors other than the PTG programme.

Despite this objective assessment, PTG participants show high levels of satisfaction with the programme and consider its many aspects useful for their professional advancement. This contradiction is not unique to this programme. We hypothesise is that it provides fair and equitable income support, as well as a sense of security and societal attention important for young people at the sensitive start of their working careers in a difficult labour market.

However, these same non-financial effects could be achieved much more efficiently and effectively with more intensive mentoring and counselling, and a better targeted PTG-type programme expanded to include high-school graduates, possibly within the scope of the Youth Guarantee. Thus, a measure assisting people more intensively but tailored to their needs, instead of extending the same programme to every young graduate, would be superior to the current design. This requires a thorough reform and investment in the capacities of the Public Employment Service.

It is our recommendation that 2022 should be the last year of the PTG programme in its current form, when it will serve the use

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1 Introduction

This report presents outcome indicators and a rigorous impact evaluation of the active labour market programme *Professional Training for Graduates* (PTG), which targets young university graduates (around 3,000 young people annually, or around 90 per cent of the newly graduated) with no work experience. This programme has been implemented by the Ministry of Education since 2012.

1.1 Country context

Montenegro is a small European country belonging to the upper-middle income category, according to the World Bank. Its GDP per capita (purchasing power parity) in 2019 amounted to 49 per cent of the then EU28 average. This is only slightly below the value of this indicator for the poorest EU member state, Bulgaria, which stood at 51 per cent of the EU average. On the other hand, this percentage was higher than in any other country in the Western Balkans. In addition, significant convergence was achieved over the past decade until 2020: GDP per capita (purchasing power parity) in Montenegro in 2011 was 42 per cent of the EU average. In the same period and according to the same purchasing power parity criterion, Montenegro recorded above-average convergence in relation to other countries in the Western Balkans.

The beginning of the past decade was difficult for Montenegro's economy and labour market. It was hit relatively hard by the global economic crisis because of its dependence on tourism and foreign capital inflows. The gradual recovery and return to a stable growth path after 2012, and especially during the second part of the decade, was due primarily to the dynamic development of tourism, inflow of foreign direct investment and more recently also public infrastructure investment, primarily the construction of the first phase of the Bar-Boljare highway. On the other hand, large public investments were financed through an increased fiscal deficit, so there was an increase in public debt and a gradual reduction in fiscal space for further growth. This led to a certain slowdown in 2019 and moderation of expected growth rates in the next few years. The Covid-19 pandemic hit Montenegro especially hard, again because of its over-reliance on tourism.

Retail trade, hospitality, agriculture, the public sector, and construction are the top sectors in terms of value added. Most private sector jobs are in retail, tourism, manufacturing, construction, and transport. Workers' wages in the retail, tourism and construction sectors, however, are approximately 20 per cent below the national average.

Although Montenegro is a small country, it is characterized by extremely large differences in levels of economic development and patterns of economic activity between the three regions (North, Central and Coastal). The main dynamics of the Coastal Region are provided by tourism and related activities. The Central region shows the greatest diversification of economic activity; the main administrative, educational, cultural, financial and industrial capacities are concentrated there. The Northern region relies mainly on activities based on the exploitation of natural resources, namely agriculture, food industry and mining. Around the mid-2010s the Northern region's GDP was only 51 per cent of the Montenegrin average, while the Central and Coastal regions had GDP levels of 23.5 per cent and 62 per cent of the average, respectively.

The stable economic growth recorded up until the Covid-19 crisis was instrumental in improvements in labour market indicators. Labour Force Survey estimates show that in the period 2011–2019 labour force participation rates for the working age population increased by 9 percentage points (from 57.2 per cent to 66.2 per cent), employment-to-population ratios rose from 45.8 per cent to 56 per cent, and unemployment rates declined (from 19.8 per cent in 2011 to 15.4 per cent in 2019). The gender gap in labour force participation and employment rates remained stable throughout the period, with women's activity and employment rates 14 and 12 percentage points, respectively, lower than those of men.

In 2019, the unemployment rate among young people (15–24 years of age) stood at 25.2 per cent, over one-and-a-half times that of adults. Approximately 17 per cent of young people are not in employment, education or training (NEET), with young men more likely than young women to be disengaged (18.8 per cent and 15.8 per cent, respectively). Young people's (15–24) labour market situation has been improving since 2015, with rising labour force participation rates (from 29.2 to 36.5 per cent) and employment rates (from 18.8 per cent to 27.3 per cent), and declining unemployment (from 37.6 per cent to 25.2 per cent). This improvement, however, benefitted young men more than young women and young people with higher educational attainment. The employment gains for young people are due partly to higher employment levels and partly to demographic factors; the population in this age group has declined by 8 per cent since 2010, while replacement demand has increased due to the much larger baby-boom generations exiting the working age population.

Stable but unimpressive GDP growth and stable and slow improvement of labour market indicators provide a very good background.

1.2 Brief description of the Professional Training for Graduates (PTG) programme

Youth employment is high on the Government of Montenegro's policy agenda and the government's commitment to addressing young people's employment situation is emphasized in both the *Human Resource Development and Employment Strategy* (2016–2020) and the annual investment in the *Professional Training for (higher education) Graduates* (PTG) programme.

The PTG programme, operational since 2013, targets all young university graduates with no recorded or significant work experience. Typically, around 3,000 young people enrol and complete it annually, comprising around 90 per cent of new graduates. It has been coordinated by several government bodies, led by the Ministry of Education since 2012, and is still operational. This means that some 28,000 people (around 4 per cent of the total Montenegrin population) or approximately 30 per cent of the age cohorts around graduation age in the past nine years have been involved in the programme since its establishment.

At the time of the programme's adoption, youth unemployment in general, and especially the unemployment of university graduates was considered one of the major socio-economic problems.³ Following the establishment of new universities and the widely criticized expansion

3 A typical example of the dominant contemporary public attitude toward the alleged "overproduction" and "hyperinflation" of university graduates can be seen in this online article <https://www.slobodnaevropa.org/a/hil-jade-novih-fakultetskih-diploma-kao-socijalni-problem/25284153.html>. One interlocutor in the article put it like this: "Montenegro needs workers more than lawyers, Montenegro needs farmers more than managers, and Montenegro needs craftsmen more than diplomats."

of enrolment quotas in tertiary education, the problem of university graduates' deteriorating labour market position – an increase in the total number of unemployed graduates, their share in the number of unemployed, and their average duration of unemployment – was seen as serious enough to deserve extraordinary action. Then Prime Minister Lukšić initiated the PTG programme as his flagship action aimed at curbing the number of unemployed university graduates, which stood at over 2,000 in the summer of 2012, with a further 2,500 expected to graduate by the end of the year.

The programme was primarily intended to overcome supply-side limitations among the unemployed university graduates. Employers are typically looking for workers with at least some work experience. Additionally, the state exam, often a precondition for employment in certain occupations, requires a certain period of mandatory practice. It is generally found that Montenegrin universities equip students with theoretical knowledge, but the lack of work practice hampers their employability.

The programme offers young university graduates a period of work experience recognized by the special law on PTG. This experience is needed to: (i) sit the state exam for accessing public sector jobs, and (ii) access jobs in the private sector. The programme requires young graduates to register as unemployed with the Employment Agency of Montenegro (EAM), but the EAM has little involvement in programme implementation and monitoring, aside from registering and de-registering young graduates (administrative requirement).

The PTG programme has the following key design and implementation features:⁴

- The objective of the programme is to provide graduates with higher educational attainment, with the knowledge, skills and competencies required for the independent performance of job and work tasks.
- The programme has two strands: one for implementation in ministries, public administration bodies and the judiciary (with the application to be submitted to the Human Resource administration), and one for private employers (with the application to be submitted to the Employment Agency).
- The programme runs for a period of nine months, but it is recognized in the individual workbook as a period of work experience equal to 12 months. It grants beneficiaries a certificate of completion.
- The programme envisages the signing of a contract between the young beneficiary and the employer (which does not constitute an employment relation), which specifies the job tasks to be performed, the duration, compensation levels, and termination rules. Employers are obliged to issue monthly progress reports.
- The young beneficiary is entitled to monthly financial compensation equal to the net amount of 50 per cent of the average net wage in the year preceding the conclusion of the contract, financed by the state budget.
- No taxes or contributions are payable, but the beneficiary is entitled to the health insurance granted to the registered unemployed. General labour law provisions apply during implementation of the programme and their enforcement is within the mandate of the labour inspectorate.

⁴ Law on professional training of persons with acquired higher education (no. 38/2012) and Rulebook on the manner on announcing the Public Call, procedure and criteria for professional training (no.46/2012).

- Applications are submitted by both public and private employers between 15 September and 15 October, and by beneficiaries between 15 October and 15 November.
- Referral of beneficiaries to professional training with employers is carried out on the basis of an electronic ranking list, generated automatically based on the average grades achieved by beneficiaries during their studies and the beneficiary's expressed preferences (up to five). Beneficiaries are notified of the outcome by 15 December and the contract is signed by 15 January of the following year. According to the Report on the implementation of the first wave of the programme (GOM, 2014), all potential trainees were able to be matched with appropriate employers, which remained the case in the subsequent PTG waves.

The PTG programme of Montenegro differs substantially from the measures implemented in European Union countries aimed at providing young people with the work experience employers require. First, it combines the features of two different measures, namely: (i) the traineeships organized as part of academic curricula, aimed at providing access to regulated occupations in the public sector; and (ii) the traineeships organized as part of the active labour market policy portfolio, aimed at easing the entry of young unemployed people into the labour market.⁵ Second, its duration (nine months) is above the benchmark established by the EU Council Recommendation on a quality framework for traineeship (six months).⁶ Third, the PTG commands considerable financial resources for its implementation (an annual 7.5 to 8 million euros (€) for intern allowances alone, or some 0.2 per cent of GDP, more than all other active labour market measures combined).⁷

Against this backdrop, at the request of the Ministry of Economic Development and under the aegis of the Social Council, the International Labour Organization (ILO) commissioned research on the impact of the PTG programme to inform decision-making for the next public policy programming cycle.

This research takes place within the context of the project "*Mitigating the impacts of Covid-19 in the world of work in Montenegro*". The project is funded by the UK's Good Governance Fund, a unit of the FCDO. It supports labour market institutions in Montenegro to elaborate adequate responses to the crisis engendered by the Covid-19 pandemic. One of the recommendations in the ILO/EBRD Assessment of the Impacts of the Crisis was to restructure the existing PTG programme into a universal and open-ended internship programme (for the duration of the crisis), aligned with similar EU practices and geared towards the school-to-work transition of all young people under the age of 30. However, there have been no full-fledged evaluations of this programme thus far, nor are simple retention rates and direct transition rates from practice to outside jobs known. This research aims to generate some scientifically sound evidence on which to base policy decisions aimed at improving young people's labour market outcomes, taking into account the limited resources available to counter the impacts of the crisis.

⁵ See ILO: *Developing quality traineeship for young people* (ILO, Geneva, 2017)

⁶ EU Council Recommendation 2014/C 88/01. Available at: [https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014H0327\(01\)&from=EN](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014H0327(01)&from=EN)

⁷ In 2013, the first year of programme implementation, the total number of participants was around 4,000, comprising many registered unemployed who had graduated before 2012. Consequently, in 2013 the total intern allowance costs were higher, at around €10 million or 0.3 per cent of GDP.

The research, assigned to a team of three evaluation experts, aims at measuring whether participation in the PTG programme increases participants' probability of achieving gainful employment and higher earnings compared with non-participants. This work includes the following services:

- A) Research services: designing and overseeing all aspects of the implementation of the impact evaluation, including technical support for the survey organization/firm on data quality assurance related to the design and implementation of the impact evaluation; and
- B) Learning, knowledge management and dissemination services: helping to translate lessons from the impact evaluation to the benefit of Montenegro's employment policy and practice.

1.3 Structure of the report

After this introduction, Section 2 explains in greater detail the survey design and methodology. This includes selection of the control group, and definition of the main outcome variables used to analyse individuals' and cohorts' employment history in the relevant (first) three-year period. Additionally, the impact evaluation econometric methodology is briefly presented at the end of Section 2. In Section 3, we conduct an in-depth descriptive analysis, comparing the labour market outcomes of all the programme participants who participated in the survey with the outcomes of the control group members. We also conduct descriptive analysis and **statistical tests** that include the breakdown of these main indicators specifically for 2013 and 2016 programme participants, as well as comparison of participants (taken jointly or separately for 2013 and 2016) with non-participants (control group of 2011 graduates).

Advanced econometric methods used to mimic natural experiments are applied in Section 4, so that we can be certain that the results obtained in Section 3 are robust enough to isolate the statistically independent (net) effects of the programme on the main outcome variables. In Section 5, we summarize findings concerning the PTG programme's effects on main labour market outcomes for the two treatment groups. Descriptive analysis on current labour market status, job characteristics, opinions and aspirations at the time of the survey (hence, some 10, 9 and 6 years after graduation) is presented in Section 6 for each generation of graduates. Section 7 provides self-reported information on the implementation and effectiveness of the PTG programme. This is followed by conclusions and recommendations, presented in Section 8.

2 Impact evaluation methodology and survey design

The primary objective of this report is to evaluate the PTG programme's effectiveness and efficiency with the information available. For this purpose, we seek to compare the main labour market outcomes or activity history of PTG participants (employment during the first, second and third year after completing the programme, and we also monitor wages per employed person and per cohort member in the same period). We also present additional details, including a more detailed section on trainees' satisfaction with the PTG programme.

To benchmark the performance of programme participants, we monitor labour market outcomes not only for the programme participants of "generation" 2013 and "generation" 2016 – the so-called treatment group – but also the labour market outcomes of the control group. The control group consists of the university graduates who graduated during 2011, the year before the programme started, but who presumably have essentially the same set of basic characteristics as programme participants. Further on, for a more precise estimate of the programme effects, it is important and often necessary to ensure that we "compare the comparable" (Heckman et al., 1999). This means that we need to compare the programme participants from generations 2013 and 2016 only to those non-participants, individuals from generation 2011 with "as similar as possible" characteristics, who did not have the opportunity to participate in the PTG programme. For that purpose, only part of the control group is selected, by the means of difference-in-difference and matching approaches (see Section 2.3 below for details), to be a comparison group for the most precise evaluation of the programme's impact.

In what follows, we describe the main features of the sample and potential methodological problems to construct the treatment and control groups in the context of the PTG programme, and the practical solutions we have chosen.

2.1 Sample and design issues

Ex ante considerations relevant for the evaluation design

In 2012, the PTG programme was offered to practically all recent graduates throughout Montenegro, and the vast majority of them decided to participate. The eligibility criteria for participants has remained the same ever since, as has the coverage rate of around 90 per cent of annual graduate exit cohorts, effectively depriving evaluators of the ability to construct a control group out of contemporaneous graduates who did not participate in the programme. Those few individuals who did not participate were probably systematically different from participants; for example, they had already secured excellent jobs before graduation, were pursuing further education, or perhaps had no interest in joining the labour force at that time. Thus, the best chance of constructing a comparable control group was to turn to the entire last graduate generation before the introduction of the PTG programme.

The macroeconomic and business environment did not change much over the period under consideration (2012–2019). There were stable growth rates, but the economy was far from booming; there was gradual improvement of overall labour market conditions and few institutional developments. All that creates an acceptable proxy for a situation in which other relevant aspects of the environment were equal, which of course is unattainable in a pure form.

The team of evaluation experts, after discussions with the ILO and national counterparts, developed an impact evaluation design aimed at isolating the causal impact of the PTG programme

on the probability of participants obtaining employment and higher earnings compared with non-participants. Key outcome indicators and other variables to be measured as part of the impact evaluation were identified in that phase.

Although the experts would have preferred using both an ad hoc survey and administrative (tax) data – the latter ideally covering the entire population of the treatment group (alongside a control group comprising members of the exit graduate generation), the competent authorities did not grant access to the relevant tax data. Thus, an ad hoc survey commissioned from a survey firm served as the only source of data for the evaluation.

The exercise required a very careful questionnaire design, especially taking into account that interviewees had to be induced to recollect their labour market history, going back at least several years, including always sensitive questions on wages. The ad hoc survey was conceived as a tracer survey, using a number of available ILO templates, but adjusted to fit the programme's specific circumstances, attempting to reconstruct the labour market trajectories of members of the control group and the treatment group, and, in a separate module, participant group members' experience of and satisfaction with the PTG programme.

After the questionnaire was designed in the course of several interactions between the experts, the ILO, the stakeholders and the survey company, it was pre-tested separately with participants and non-participants. Based on this, the questionnaire was finalized in two versions – for treatment and control groups – and a detailed research protocol was developed in cooperation with the survey organization. The experts collaborated with the survey organization to identify and fulfil all requirements concerning ethical clearance of the impact evaluation activities. This included an overview of methodology, data collection and analysis plan, as well as measures to ensure informed consent and respondent confidentiality.

The database on programme participants obtained from the survey firm consisted of 317 and 376 participants from the 2013 and 2016 programme generations, respectively, corresponding to 2012 and 2015 exit graduate cohorts. The response rate achieved is roughly around 10 per cent of the programme participants. This percentage is lower for the control group – we received answers from 232 individuals in the 2011 exit generation of university graduates, comprising some 6 per cent of the total number of graduates in that year.

Because the impact evaluation literature suggests that the matching of the treatment and the control group is better as the number of people in the control group increases (see, for example, Smith, 1997), the size of the control group might be considered a potential disadvantage. Nevertheless, as our findings show that the control group of 2011 graduates is very similar to the participant exit generations of 2012 and 2015, our attempt to apply sophisticated econometric comparison techniques in order to make “other things equal” in principle should not be necessary. In other words, as expected, our analysis can be considered a randomized experiment, resembling randomized controlled medical trials. We can thus consider the change in the causal variable of interest (participation in the PTG programme) to be the random assignment. Random manipulation means that, on average, “other things were equal” across the groups that did and those that did not participate in the programme, so that “on average” it is usually good enough.

Nevertheless, we had some reservations because of the partial overlap of graduate cohorts

2011 and 2012; some 2011 graduates could be found among the participants in the programme in 2013 – they were excluded from the analysis. This may raise concerns that the sample representing the 2011 graduate cohort is “better” than the completely random 2012 sample because some of the 2011 graduates who had not been able to find a job by the time of registration for the programme (October 2012) took part in the programme in 2013 and thus were excluded from the control group sample, while they were also, in accordance with our design, ineligible to enter the treatment sample because they did not graduate in 2012. If this anomaly had a systematic impact, then the results obtained for the control group could have overestimated the performance of the 2011 graduate exit cohort.

Thus, the quasi-experimental random assignment techniques were used not only for the robustness check purposes, but also to make sure that the potential effect of this “creaming off” of the 2011 sample was controlled for.

In addition to comparing programme participants with the control group, the basic labour market outcomes will be compared between two generations of PTG programme participants (2013 and 2016), in order to take into account possible differences in programme implementation over the years (especially a slight shift from public toward private sector employers during traineeship), as well as the changes in the macroeconomic environment during and after its completion. But most of all, the comparison was envisaged as a part of the basic design of the evaluation, with the aim of testing the hypothesis that the potential positive effects of such a massive programme would be exhausted after a couple of years.

To sum up, the evaluation was designed in order to test two main hypotheses:

H1: Programme participation causes significantly better labour market outcomes (employment rate, average wage level and a derived composite outcome “wage fund per person”) than non-participation.

H2: The programme design and coverage is such that its effects diminish over time.

Survey processing

In total, data for 317 and 376 individuals (collected by DeFacto Consultancy) represented a sample of programme participants in 2013 and 2016, respectively. The sample of the control (non-participants) group includes 232 individuals out of over 3,000 university graduates in the year 2011. Most often, the reason no interview was conducted was the lack of a telephone number (interviewers could not reach the respondent on their mobile phone; the number was wrong, and so on).

Questionnaire and the outcome variables

The data for the evaluation were collected from a specially designed survey conducted by the survey agency from May to September 2021. The questionnaire for the 2013 and 2016 participant groups includes *questions on the month-by-month employment history* from the time of programme completion during the three-year period (36 months), as well as *control questions*: motivation for seeking a job, availability for work, financial situation, and socio-demographic characteristics in that period. Programme participants were asked to answer the specific set of *questions concerning their programme participation experience*, alongside *questions about their subjective assessment* of the programme's usefulness for their future employment.

Besides the selection question (“Have you participated in the *Professional training for graduates (PTG)* programme?”), the questionnaire for the control group includes *questions on their month-by-month based employment history* from the time of university graduation during the first four-year period (48 months). Non-participants were asked to provide information for one more year because in that way we were able to exclude the first 12 months of their labour market history from our basic comparison design, to make them more comparable with the participants whose performance we followed immediately after programme completion. This evaluation design feature mimicked – with an inevitable one-year lag – the hypothetical “true” experimental situation in which the treatment group would be assigned to the PTG programme, while the control group members would be left to their own devices, and then after completion of the programme their simultaneous labour market performances would be compared over a period of time. By excluding the first 12 months of the control group’s outcomes from comparison, we in a way restored a one-year difference between the exit cohorts of 2011 (control) and 2012 (participants). In that way, we improved their comparability in terms of age and work experience. Of course, while participants’ work experience was, by definition, sheltered, over the course of the first year after graduation the control group members acquired their own highly individualized labour market experience.

Nevertheless, with the extension of the observation period for the control group members, we were also able to compare the immediate 36 months after graduation for the control group with the 36 months after graduation for the treatment group of programme participants. Having this option is also useful as a way of conducting an additional robustness check. Thus, we also report some main month-by-month labour market outcomes by generations in such a way that we exclude (truncate) the last 12 months for the control group (period from 37 to 48 month).

Outcome variables

All outcome variables in this report are based on the survey questions on the *employment history of participants and non-participants over a three-year period of interest*. The main outcome variables used for the purpose of impact evaluation are:

1. *Employment rate at the end of the period*: the share of employed people in the total number of respondents at the end of the first, second and third year of analysis (12th, 24th, and 36th month).
2. *Average employment during the period in months*: average number of months that a person was employed during the first, second and third year after the programme ended (for participants) and corresponding period for control, during the corresponding period.
3. *Monthly wages per employed person at the end of the period*: average non-zero wage reported by employed individuals at the end of the first, second and third year of analysis (12th, 24th, and 36th month).
4. *Average monthly wages per employed person during the period*: average wage of employed persons during the first, second and third year after the programme ended (for participants) and corresponding period for control, during the corresponding period.
5. *Average monthly wages per cohort during the period*: average wage in the cohort (generation) calculated as the sum of all wages, divided by the total number of persons, during the corresponding period.

Beside these main indicators, we use additional indicators related to the **employment history** of interest, which are also taken from the survey. These indicators supply more details about the labour market characteristics **of three- (four-) year period** for the treatment (control) group. They include:

- a) *employment status*: a more detailed distinction between employed, unemployed and inactive.
- b) *share of informal employment in total employment*: the informally employed are people working without a contract, whether permanent or temporary.
- c) *ownership type*: public or other types of firm.
- d) *reasons for suspending / losing / leaving previous job*.
- e) *reasons for being inactive or unemployed or for not seeking employment*.
- f) *sector of activity*: (1) agriculture; (2) manufacturing; (3) services.

In addition to the analysis of the three- (four-) year employment history, which is at the very core of our analysis, we also report current work characteristics, opinions and aspirations at the time of the survey for three generations of university graduates in Montenegro.

The main indicators are analysed in both the descriptive analysis and tests of the differences in main outcomes in Section 3 and in the econometric analysis in Section 4, while the additional indicators are used only in Section 3. The descriptive analysis and statistical tests in Section 3 additionally include the breakdown of these indicators specifically for 2013 and 2016 programme participants, as well as comparison of the treatment group (taken jointly or separately for 2013 and 2016) with non-participants (control group of 2011 graduates). We summarize the previous findings on PTG programme effects on main labour market outcomes for the treatment group in the relevant three-year period in Section 5.

Impact evaluation econometric methodology

Any evaluation generally has to deal with the fundamental problem of counterfactual reality. This problem naturally arises because it is impossible directly to observe the same person in two different states (participation and non-participation) at the same time. Therefore, it is the principal task of an evaluation study to find a credible estimate for the counterfactual state.

There are two main methods for estimating the counterfactual situation: randomized experiments and non-experimental (also called quasi-experimental) methods. In principle, randomized experiments provide the easiest solution to recover the desired counterfactual. In randomized experiments, individuals eligible for participation are randomly assigned to a treatment and a control group. Because these groups do not differ from each other (on average) either in observable or in unobservable characteristics – and therefore the control group can be considered “identical” to the treatment group – the average difference in outcomes between the two groups provides a simple answer to the counterfactual question. However, often randomized experiments are not politically or socially feasible, and may be considered unethical. Moreover, in practice they may not be entirely free of complications (see Heckman et al. [1995] and Angrist and Pischke [2015] for a discussion of the advantages and disadvantages of the randomization approach).

In any case, it would be a realistic assumption to treat the introduction of the PTG programme as a randomized experiment. This would substantially increase the chances of generating *ex post* a control group with the same average characteristics as the treatment group. In that case, a simple comparison of mean outcomes in the two groups would be sufficient. However, if they are statistically different to start with, we would still be able *ex post*, using established econometric techniques, to manipulate the “raw” control group to eliminate systematic differences between the control and the treatment group and thus in principle to identify “pure” treatment effects on the outcomes of the experimental group. Furthermore, comparison of the treatment group with the control group members (the year before programme implementation started) allows us to evaluate whether certain personal characteristics did play a role in determining people’s likelihood of participating or propensity to participate in the programme, or whether we can consider the treatment and control groups as “identical”, as in a randomized experiment.

To assess whether programme participation can be regarded as quasi-random in our data, we need to compare the characteristics of participants and non-participants. Initially, we perform statistical tests of the hypothesis of random assignment to participation, that is, random differences between the treatment and the control group. In particular, we test statistically whether the means of important socio-demographic characteristics and labour market outcomes are significantly different between treatment and control group. If the hypothesis of random assignment is rejected, it may be imprecise and actually misleading to compute net effects of the programme as the difference in the average outcomes between participants and non-participants. Nowadays the most common techniques for solving the evaluation problem when participants and non-participants are not randomly assigned to a labour market programme are the difference-in-difference and the matching approach.

Difference-in-Difference Approach

Difference-in-difference (DiD) approaches are applied in situations in which certain groups are exposed to treatment and others are not. The logic of DiD is best explained with an example based on two groups and two periods. In the first period, neither group is exposed to treatment. In the second period, only one of the groups is exposed to treatment. DiD estimation can then be used to estimate the effect of treatment (participation in the programme) on variables of interest, for example labour market outcomes.

DiD is implemented by taking two differences between group means in a specific way. The first difference is the difference in the mean of the outcome variable between the two periods for each of the groups. The second difference is the difference between the differences calculated for the two groups in the first stage (which is why the DiD method is sometimes also labelled the “double differencing” strategy).⁸ This second difference measures how the change in outcome differs between the two groups, which is interpreted as the causal effect of the causing variable.

The idea behind the DiD identification strategy is simple. The two groups might be observationally different. That is, the group-specific means might differ in the absence of treatment. However, as long as this difference is constant over time (in the absence of treatment), it can

⁸ See Card and Krueger (1994); Angrist and Pischke (2015) for more details.

be differenced out by deducting group-specific means of the outcome of interest. The remaining difference between these group-specific differences must then reflect the causal effect of interest. The DiD approach is particularly well suited to estimating the causal effect of sharp changes in education/labour market policies or practices, providing policymakers with vital information even in the absence of controlled or natural experiments.

Matching Approach

The matching approach mimics a randomized experiment *ex post* by constructing a comparison control group that resembles the treatment group as much as possible. In particular, after matching, the members of the control group, given their observable characteristics, have a probability of being selected for participation in the programme comparable to that of the members of the treatment group.

We observe in our data many variables that presumably influence both selection for the programme and labour market outcomes. Hence, it appears reasonable to assume that selection for the programme and labour market outcomes are independent, conditional on these observables.⁹ Under this assumption we apply *one-to-one nearest-neighbour matching with replacement*.¹⁰ This method consists of two steps: (1) an estimation of individual probabilities of participating in the programme or not, depending on a set of observable characteristics; (2) matching of participants and non-participants on the basis of these estimated probabilities. One-to-one matching implies that each member of the treatment group is matched with a single member from the control group. Furthermore, nearest-neighbour matching implies that the pairs are matched according to the minimum distance of the predicted probabilities of programme participation. Finally, matching with replacement means that the data on individuals in the control group may be used more than once, provided that they are the nearest neighbour of an individual in the treatment group. Similar to the DiD approach, the matching procedure is particularly useful for mimicking controlled or natural experiments when it is not possible to carry them out.

⁹ This is the so-called conditional independence assumption, which ensures that the matching approach indeed mimics a randomized experiment *ex post*.

¹⁰ Besides different ways of matching the propensity for score-based estimates (for example, *two-to-one* or *three-to-one nearest-neighbour matching with replacement*), there are also various radius or kernel weight matching procedures in the econometric literature. We apply various procedures in order to confirm robustness.

3 Descriptive analysis and comparison of means of outcome indicators

In this section we present a descriptive comparison of treatment and control groups’ mean employment (and other) outcomes. Although this type of comparison might include some bias – because of the differences in outcome-relevant characteristics between the groups¹¹ – its advantage is that it enables assessment of the programmes’ raw impact. It provides a first direct answer to the question: *What is the labour market position of the young graduates in the treatment and in the control group before and after programme participation (cut-off point)?* Additionally, if there are no systematic differences between treatment and control group, we can consider the PTG programme as a randomized (natural) experiment and consider those findings not to be merely preliminary (in other words, we can directly treat them as average net outcomes).

Furthermore, in order to describe their labour market position in more detail, it is possible to analyse a large number of labour market indicators of employment history in the three-year period of interest for the treatment and the control group. We further extend the descriptive analysis to comparison between structures within the following differences in outcomes: (1) treatment group as a whole (2013+2016) compared with 2011 control group; (2) treatment group in 2013 compared with 2011 control group; and (3) treatment group in 2016 compared with 2011; but also differences in outcomes between (4) participants in the 2013 and 2016 programmes.

Main indicators

Overall, the striking finding is that the programme participants (generations 2013 and 2016, that is, those who graduated in 2012 and 2105) generally have very similar labour market histories (outcomes) to those of the group of non-participants in PTG programme (graduates in 2011) in the three-year period in which we are interested. The only statistically significant differences we find are in the average number of working months during the first and second year, as well as in average monthly wages per cohort (sum of wages in the period divided by all generations, not just the employed) in the first and second year (Table 3.1).

These differences indicate that, in the first two years, a young person from the control group was more likely to work than a PTG participant (measured as average number of months spent in employment). The difference is about 1.2 months in the first and second years, but it disappears when we consider the whole three-year period. Similarly, we find higher wages per cohort for non-participants (on average the difference is about 50 euros during the first, and about 30 euros during the second year, but we find no difference in the three-year period).

Table 3.1: Main labour market outcomes of treatment (2013 and 2016 PTG participants) and control (2011) group (comparison of means)

LM outcomes	Treatment group (2013 and 2016)		Potential control group (2011)		Difference significant?		
	obs.	mean	obs.	mean	t-test statistic	p-value	sig.
employed during first years (in months, average)	693	6,9625	232	8,1595	-2,9944	0,003	***
monthly wage during first year per cohort (in eur, average)	693	261,6931	232	311,1257	-2,6342	0,009	***
employment status at the end of 1st year (in 12th M)	693	0,6768	232	0,6940	-0,4860	0,627	
average wage at the end of 1st year (in 12th M) per cohort	693	306,0606	232	321,3793	-0,7642	0,445	
monthly wage during first year per employed (in eur, average)	491	445,5307	170	454,5516	-0,5374	0,591	
employed during two years (in months, average)	693	15,3694	232	16,5733	-1,6300	0,103	*
monthly wage during two years per cohort (in eur, average)	693	290,8023	232	323,2787	1,7780	0,076	*
employment status at the end of 2st year (in 24th M)	693	0,7215	232	0,7069	0,4274	0,669	
average wage at the end of 2st year (in 24th M) per cohort	693	330,6810	232	344,1552	-0,6682	0,504	
monthly wage during two years per employed (in eur, average)	558	446,2436	180	459,0881	-0,8195	0,413	
employed during three years (in months, average)	693	24,1558	232	24,9871	-0,7867	0,432	
monthly wage during three years per cohort (in eur, average)	693	307,9065	232	329,7488	-1,2120	0,226	
employment status at the end of 3rd year (in 36th M)	693	0,7186	232	0,6940	0,7174	0,473	
average wage at the end of 3rd year per cohort(in 36th M)	693	336,7388	232	338,9914	-0,1092	0,913	
monthly wage during three years per employed (in eur, average)	583	449,3106	189	464,7522		0,913	

Notes: For the control group, as three-year referent period we use period from 13-48 months after graduation; For treated we use three-year period after finishing PTG programme.

Difference statistically significant at the 99 percent level: ***

Difference statistically significant at the 95 percent level: **

Difference statistically significant at the 90 percent level: *

Additionally, we disaggregate the treatment group and analyse separately differences between generations of 2013 and 2016 PTG programme participants with a group of non-participants. Comparing participant cohort 2013 with exit cohort 2011, we find (Table 3.2) a higher average number of months of employment among the controls in the first year (the difference is about the 1.4 months in the first year, but we find no differences when we consider the entire two or three-year period. Similarly, we find higher wages for the 2011 cohort, but during the first year exclusively (on average the difference is about 60 euros). On the other hand, we find that 2013 participants have a significantly higher employment rate at the end of the second and the third years, as the difference in employment rates is about 9 (12) percentage points in the twenty-fourth (thirty-sixth) month.

11 The bias mentioned above is tackled in Section 4, where we use econometric methods to control for the outcome-relevant differences and reach a more precise estimate of the impact of the programme.

Table 3.2: Main labour market outcomes of treatment (2013 PTG participants) and control (2011) group (comparison of means)

LM outcomes	Treatment group (2013)		Potential control group (2011)		Difference significant?		
	obs.	mean	obs.	mean	t-test statistic	p value	sig.
employed during first years (in months, average)	317	6,8013	232	8,1595	-3,0088	0,003	***
monthly wage during first year per cohort (in eur, average)	317	252,3764	232	311,1257	-2,7634	0,006	***
employment status at the end of 1st year (in 12th M)	317	0,7129	232	0,6940	0,4806	0,631	
average wage at the end of 1st year (in 12th M) per cohort	317	315,2050	232	321,3793	-0,2767	0,782	
monthly wage during first year per employed (in eur, average)	229	438,2703	170	454,5516	-0,8652	0,3874	
employed during two years (in months, average)	317	16,1010	232	16,5733	-0,5730	0,567	
monthly wage during two years per cohort (in eur, average)	317	298,5547	232	323,2787	-1,2045	0,229	
employment status at the end of 2st year (in 24th M)	317	0,7981	232	0,7069	2,4796	0,014	**
average wage at the end of 2st year (in 24th M) per cohort	317	354,7697	232	344,1552	0,4764	0,634	
monthly wage during two years per employed (in eur, average)	261	440,3350	180	459,0881	-1,0685	0,286	
employed during three years (in months, average)	317	25,9464	232	24,9871	0,8237	0,411	
monthly wage during three years per cohort (in eur, average)	317	323,4027	232	329,7488	-0,3153	-0,753	
employment status at the end of 3rd year (in 36th M)	317	0,8107	232	0,6940	3,1941	0,002	**
average wage at the end of 3rd year per cohort(in 36th M)	317	369,3375	232	338,9914	1,3390	0,181	
monthly wage during three years per employed (in eur, average)	273	442,9573	189	464,7522	-1,2594	0,209	

Notes: For the control group, as three-year reference period we use period from 13-48 months after graduation; For treated we use three-year period after finishing PTG programme.

Difference statistically significant at the 99 percent level: ***

Difference statistically significant at the 95 percent level: **

Difference statistically significant at the 90 percent level: *

Comparing the participant cohort 2016 with the control group 2011 of non-participants (Table 3.3), we find the generation of 2011 graduates to be in a significantly better position in terms of higher average number of months of employment (the difference is about 1 month in the first, 1.8 months in the second, and about 2.3 months in the third period). We also find that those in the control group have higher wages per cohort (on average the difference remains between 30 and 40 euros during the whole three-year period). We also find that controls have a higher employment rate at the end of second year (their employment rate is about 5 percentage points higher).

Table 3.3: Main labour market outcomes of treatment (2013 PTG participants) and control (2011) group (comparison of means)

LM outcomes	Treatment group (2016)		Potential control group (2011)		Difference significant?		
	obs.	mean	obs.	mean	t-test statistic	p-value	sig.
employed during first years (in months, average)	376	7,0984	232	8,1595	-2,3898	0,017	**
monthly wage during first year per cohort (in eur, average)	376	269,5479	232	311,1257	-1,9816	0,048	**
employment status at the end of 1st year (in 12th M)	376	0,6463	232	0,6940	-1,2092	0,227	
average wage at the end of 1st year (in 12th M) per cohort	376	298,3511	232	321,3793	-1,0204	0,308	
monthly wage during first year per employed (in eur, average)	262	451,8766	170	454,5516	-0,1409	0,888	
employed during two years (in months, average)	376	14,7527	232	16,5733	-2,1741	0,030	**
monthly wage during two years per cohort (in eur, average)	376	284,2664	232	323,2787	-1,8820	0,060	*
employment status at the end of 2st year (in 24th M)	376	0,6569	232	0,7069	-1,2788	0,201	**
average wage at the end of 2st year (in 24th M) per cohort	376	310,3723	232	344,1552	-1,4631	0,144	
monthly wage during two years per employed (in eur, average)	297	451,4361	172	459,0881	-0,4362	0,663	
employed during three years (in months, average)	376	22,6463	232	24,9871	-1,9396	0,053	*
monthly wage during three years per cohort (in eur, average)	376	294,8419	232	329,7488	-1,7029	0,089	*
employment status at the end of 3rd year (in 36th M)	376	0,6410	232	0,6940	-1,3413	0,180	
average wage at the end of 3rd year per cohort(in 36th M)	376	309,2553	232	338,9914	-1,2600	0,208	
monthly wage during three years per employed (in eur, average)	310	454,9055	189	464,7522	-0,5707	0,569	

Notes: For the control group, as three-year referent period we use period from 13-48 months after graduation; For treated we use three-year period after finishing PTG programme.

Difference statistically significant at the 99 percent level: ***

Difference statistically significant at the 95 percent level: **

Difference statistically significant at the 90 percent level: *

Finally, in order to control for the abovementioned programme specifics in 2013 and 2016, we compare the 2013 PTG programme participants (treatment group) with the participants in 2016 (purely for technical reasons, we consider them as controls). From Table 3.4 we find that the 2013 generation of participants have significantly higher employment outcomes than the 2016 group. Their employment rate is 17 percentage points higher than the employment rate for the control group at the end of third year (81.1 versus 64.1 per cent). The 2013 participants also experienced higher average monthly wages per cohort during the three-year period, as well as at the end of third year (the differences are about 30 and 60 euros, respectively). We also find 2013 participants to be more employed on average during the entire period of interest (26 months on average, compared with 23 months for 2016 generation).

Table 3.4: Main labour market outcomes of treatment (2013 PTG participants) and control (2016 PTG participants) group (comparison of means)

LM outcomes	Treatment group (2013)		Potential control group (2016)		Difference significant?		
	obs.	mean	obs.	mean	t-test statistic	p-value	sig.
employed during first years (in months, average)	317	6,8013	376	7,0984	-0,7399	0,460	
monthly wage during first year per cohort (in eur, average)	317	252,3764	376	269,5479	-0,9190	0,358	
employment status at the end of 1st year (in 12th M)	317	0,7129	376	0,6463	1,8711	0,062	*
average wage at the end of 1st year (in 12th M) per cohort	317	315,2050	376	298,3511	0,8382	0,402	
monthly wage during first year per employed (in eur, average)	229	438,2703	262	451,8766	-0,8032	0,422	
employed during two years (in months, average)	317	16,1010	376	14,7527	1,8427	0,066	*
monthly wage during two years per cohort (in eur, average)	317	298,5547	376	284,2664	0,7914	0,429	
employment status at the end of 2st year (in 24th M)	317	0,7981	376	0,6569	4,1766	0,000	***
average wage at the end of 2st year (in 24th M) per cohort	317	354,7697	376	310,3723	2,2309	0,026	**
monthly wage during two years per employed (in eur, average)	261	440,3350	297	451,4361	-0,7194	0,472	
employed during three years (in months, average)	317	25,9464	376	22,6463	3,1750	0,002	**
monthly wage during three years per cohort (in eur, average)	317	323,4027	376	294,8419	1,6340	0,090	*
employment status at the end of 3rd year (in 36th M)	317	0,8107	376	0,6410	5,0339	0,000	***
average wage at the end of 3rd year per cohort(in 36th M)	317	369,3375	376	309,2553	2,9540	0,003	***
monthly wage during three years per employed (in eur, average)	273	442,9573	310	454,9055	-0,7944	0,427	

Notes: For both groups we use three-year period after finishing PTG programme.

Difference statistically significant at the 99 percent level: ***

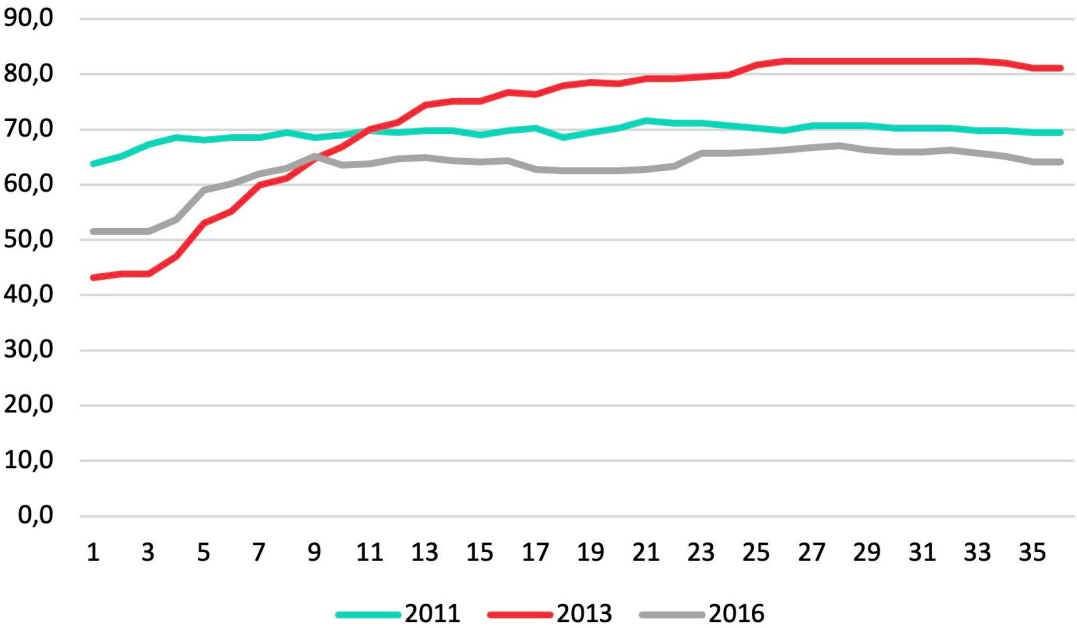
Difference statistically significant at the 95 percent level: **

Difference statistically significant at the 90 percent level: *

Additional indicators

In order to analyse differences in the main labour market outcomes on a month-to-month basis we present employment rates, as well as the wages per employed and per cohort, for 2011, 2013 and 2016 generations. For the 2011 control group, we conducted the analyses in two alternative ways, first by excluding the first 12 months, and then by excluding the last 12-month period out of the 48-month period following graduation.

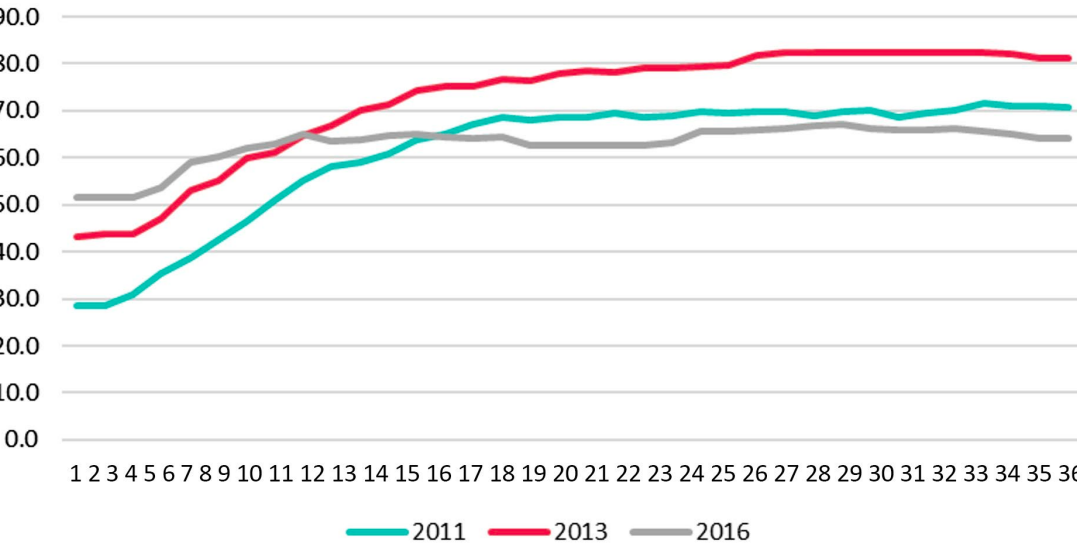
Graph 3.1a: Employment rates by months for three cohorts (first 12 months for 2011 generation are excluded)



Source: Authors’ calculation based on survey data.

Figure 3.1a shows that approximately half of the 2013 and 2016 graduates found employment very soon after completing the PTG programme; this is still significantly less than for the control group. However, the employment rate stabilizes after around a year from the initial take-off. While it remained rather flat for 2011 and 2016, the initial treatment group continued to gain employment and achieved an employment rate of around 80 per cent by the end of the third year.

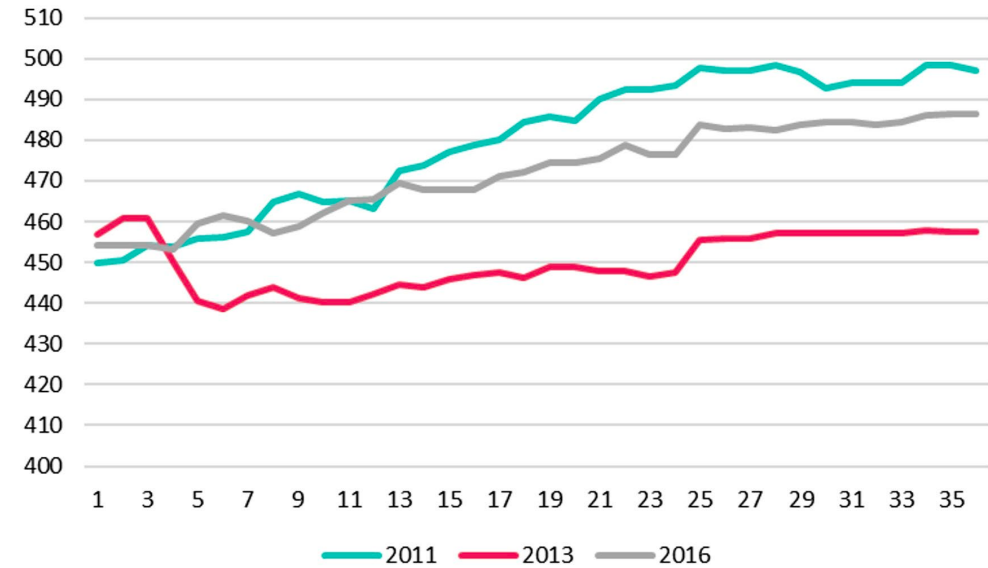
Graph 3.1b: Employment rates by months for three cohorts (last 12 months for 2011 generation are excluded)



Source: Authors’ calculation based on survey data.

Looking at the employment rate trajectory of the control group when the last 12 months are truncated and first 12 months included (Figure 3.1b), we come to different conclusions than for the previous figure. Instead of having an initial advantage, and then gradually lagging behind the 2013 treatment cohort, the 2011 control group employment rate starts very low, and then gradually catches up, overturning the 2016 cohort at around the fourteenth month after graduation. This suggests that PTG participation increases initial chances of obtaining employment (including compared with staying with the initial firm), but probably does not have a lasting effect. We will be able to support that conclusion further by looking at these outcomes at the time the survey was conducted for all three cohorts.

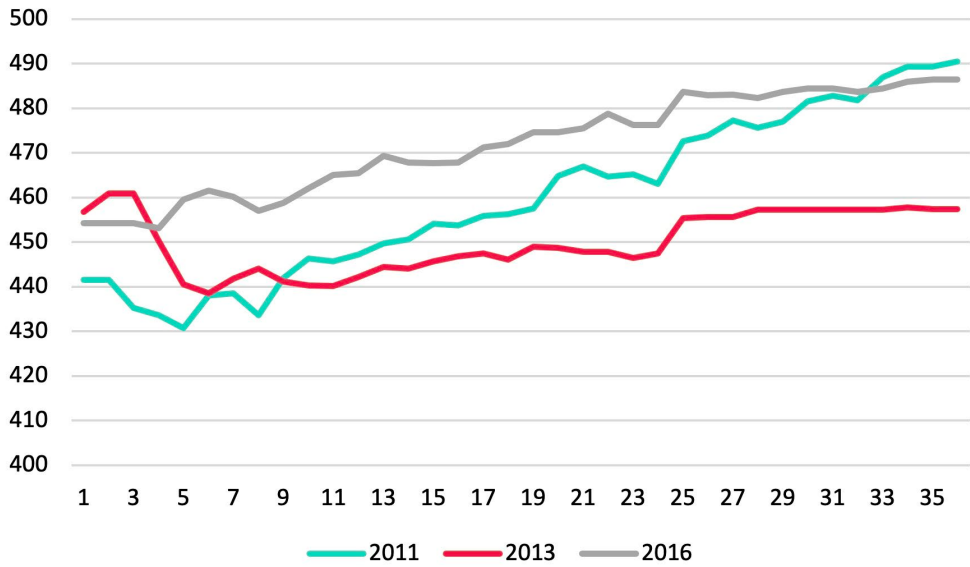
Graph 3.2a: Average monthly wages per employed by months for three cohorts (first 12 months for 2011 generation are excluded)



Source: Authors' calculation based on survey data.

Figure 3.2a presents the dynamics of average wages, again excluding the first 12 months for the 2011 exit generation. Here the 2013 generation not only has the worst outcomes but also exhibits a fairly strong dip around half a year after the completion of the programme.

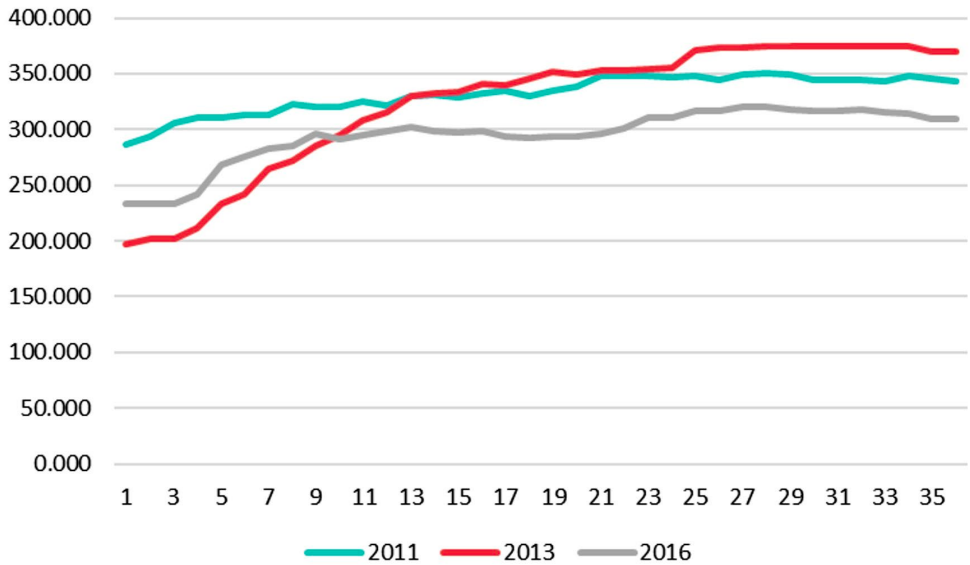
Graph 3.2b: Average monthly wages per employed by months for three cohorts (last 12 months for 2011 generation are excluded)



Source: Authors' calculation based on survey data.

Figure 3.2b does not provide much new information, only emphasizing the steeper average wage trajectory of the control group compared with both treatment cohorts.

Graph 3.3a: Average monthly wages per cohort by months for three cohorts (first 12 months for 2011 generation are excluded)

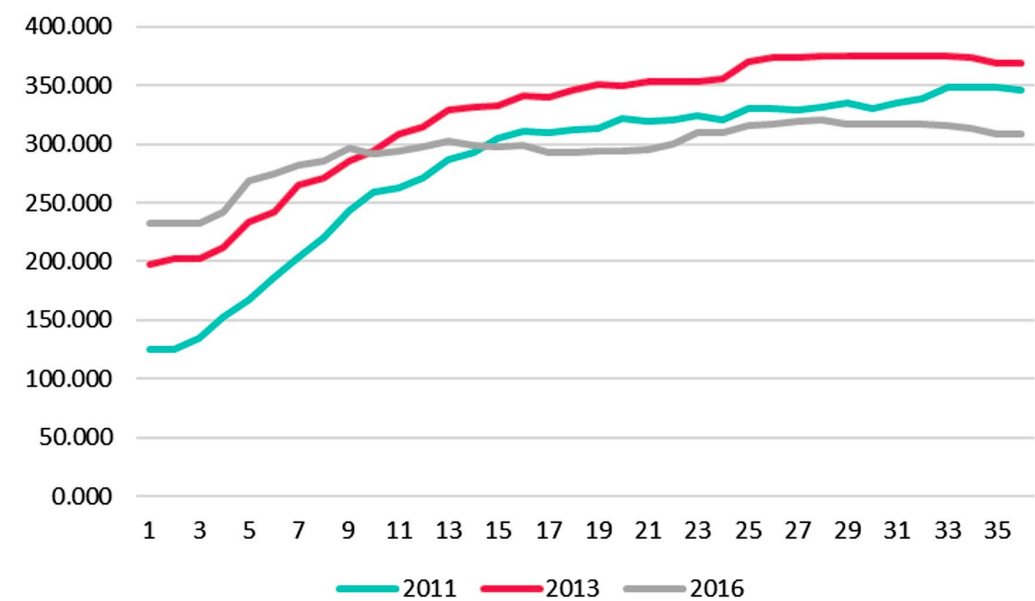


Source: Authors' calculation based on survey data.

Figure 3.3a uses the measure of wage fund per capita (dividing the wage fund – that is, the sum of all wages in the cohort – by cohort size, combining in one indicator both wage and employment rates. Thanks to higher average wages in the 2011 and 2016 cohorts, the differences between the cohorts are now compressed in comparison with employment outcomes

only. Basically, here we see a compression of employment and average wage differences and no significant differences are detected.

Graph 3.3b: Average monthly wages per cohort by months for three cohorts (last 12 months for 2011 generation are excluded)



Source: Authors’ calculation based on survey data.

Figure 3.3b presents the trajectory of the control group when the last 12 months are removed and first 12 months are included. It does not show any substantial difference compared with Figure 3.3a.

Our month-by-month analysis of main labour market outcomes indicates that the 2013 generation is in a somewhat better position than generations 2011 and 2016. However, when the employment rate and average wage effects are combined, the cohort outcomes are not significantly different.

Additionally, we compared average wage per cohort with the national average net wage (Table 3.5a and 3.5b). Again, the average wage was around, or less than 10 per cent below, the average wage for all cohorts, with the non-participant cohort showing slightly better outcomes than the other two.

Table 3.5a: Wages per cohort per year as a percentage of annual average net wage in Montenegro (first 12 months for 2011 generation are excluded)

Average wage per cohort as a percentage of state average net wage			
year	2011	2013	2016
1st	94,158	93,204	91,948
2nd	101,002	93,675	92,683
3rd	104,053	95,185	94,777

Source: Authors’ calculation based on survey and National Statistics data.

Table 3.5b: Wages per cohort per year as a percentage of annual average net wage in Montenegro (last 12 months for 2011 generation are excluded)

year	Average wage per cohort as a percentage of state average net wage		
	2011	2013	2016
1st	90,244	93,204	91,948
2nd	95,731	93,675	92,683
3rd	100,957	95,185	94,777

Source: Authors’ calculation based on survey and National Statistics data.

In order to analyse the employment history of the three cohorts of graduates in more detail, we compared wages in state versus those in the private sector by the end of a specific month.

Table 3.6a: Wages per sector of employment at end of period (first 12 months for 2011 generation are excluded)

end of month	state			private			total		
	2011	2013	2016	2011	2013	2016	2011	2013	2016
1m	381,00	508,62	446,97	546,67	422,56	462,33	449,73	456,79	454,30
12m	428,96	490,54	467,57	495,63	414,93	472,65	463,11	442,12	465,48
24m	462,06	493,90	469,41	522,33	416,82	489,04	493,50	447,46	476,33
36m	470,88	494,25	463,64	518,31	424,24	508,37	497,13	457,34	486,53

Source: Authors’ calculation based on survey data.

Table 3.6b: Wages per sector of employment at the end of period (last 12 months for 2011 generation are excluded)

end of month	state			private			total		
	2011	2013	2016	2011	2013	2016	2011	2013	2016
1m	367,62	508,62	446,97	495,50	422,56	462,33	441,52	456,79	454,30
12m	412,63	490,54	467,57	480,53	414,93	472,65	447,23	442,12	465,48
24m	428,96	493,90	469,41	495,63	416,82	489,04	463,11	447,46	476,33
36m	462,06	494,25	463,64	522,33	424,24	508,37	490,49	457,34	486,53

Source: Authors’ calculation based on survey data.

A very interesting pattern is revealed by looking at wages per sector of employment. The control group apparently had a bumpier start in the public sector, unable to reach 400 euros until well into the second year, while the treatment cohorts immediately started from much higher points (around 500 euros for 2013 and around 450 euros for 2016), but their wages remained flat thereafter. On the other hand, the control group showed the strongest performance in the private sector, while the 2013 participants showed the worst performance in that regard, with average private sector wages of around 420 euros. Thus, while both 2011 and 2016 groups had significantly higher wages in the private sector, the opposite is true for the 2013 participants. This would suggest that the introduction of the PTG programme, opening up more possibilities for employment in the public sector, reallocated some talents from the private to the public sector. Thanks to the possibility of passing the state exam, they were able, unlike their less fortunate (in that regard) 2011 counterparts, to obtain positions corresponding to their skills. However, as already hypothesized, this effect had apparently weakened by the time the 2016 trainees entered the labour market, because not only had employment possibilities diminished in the public sector, but also the public sector wages of 2016 PTG participants were lower than for the 2013 group.

Table 3.7, with variants a (first 12 months for the 2011 generation are excluded) and b (last 12 months for the 2011 generation are excluded) describing the cumulative percentage of persons obtaining a “relevant” job (lasting more than six months and paying more than 200 euros, so as to exclude low-paid part-time jobs), is interesting because it clearly shows the opportunity cost of prolonged training. Left to their own devices, 26.3 per cent of the control group were able to find a relevant job in the first year after graduation (see Table 3.7b), which is less than the proportion of treatment group members after they had completed training (32.2 and 38.3 per cent, respectively). However, if we look at where the control and treatment groups stand in the second year after graduation (which corresponds to Table 3.7a) then the control group has the clear advantage: 46.1 per cent of its members had obtained a relevant job, compared with 32.2 per cent and 38.3 per cent for treatment cohorts.

Table 3.7a: Proportion of employed who found their first “relevant” job by year and by cohort (first 12 months for 2011 generation are excluded)

	2011	2013	2016
in first 12 m	46,12	32,18	38,30
in first 24 m	49,57	46,37	45,74
in first 36 m	53,45	50,16	50,80

Source: Authors’ calculation based on survey data.

Note: A “relevant” job is defined as a job that lasted longer than six months and paid a wage of over 200 euros.

Table 3.7b: Proportion of employed who found their first “relevant” job by year and by cohort (last 12 months for 2011 generation are excluded)

	2011	2013	2016
in first 12 m	26,2931	32,17666	38,29787
in first 24 m	46,55172	46,37224	45,74468
in first 36 m	49,56897	50,15773	50,79787

Source: Authors’ calculation based on survey data.

Note: A “relevant” job is defined in this context as a job that lasted longer than 6 months and offered a wage above 200 euros.

Characteristics of the respondents

Part of the differences in labour market outcomes between the programme participants and the control group might be explained by the differences in their demographic characteristics. A similar explanation could be offered for the differences in outcomes of the 2013 and 2016 generations of programme participants (apart from the differences stemming from programme characteristics and intensity, as well as the macroeconomic situation). Thus, if the groups differ systematically in terms of these characteristics, the differences in employment outcomes may not be the effects of the programmes. To reiterate, in this section we present only raw differences between the treatment and the control groups, while in the next section, if confirmed, the differences in characteristics will be included in our econometric analysis and their impact on the outcomes themselves will be examined and perhaps neutralised.

Table 3.8: Gender characteristics by cohorts, in %

Cohort	Female	Male	Total
2011	59,05	40,95	100
2013	63,09	36,91	100
2016	63,30	36,70	100
Total	62,16	37,84	100

Source: Authors’ calculation based on survey data.

Table 3.9: Age at the graduation (2011) or at the start of programme (2013 and 2016), in %

Cohort	Less than 25	25-30	30-35	35-40	Over 40	Total
2011	50,00	25,43	5,17	3,45	15,95	100
2013	35,02	49,84	8,2	3,47	3,47	100
2016	59,04	29,52	7,71	1,60	2,13	100
Total	48,54	35,46	7,24	2,70	6,05	100

Source: Authors’ calculation based on survey data.

Table 3.10: University graduation by cohort (%)

University Cohort	Montenegro		Abroad		Total
	State	Private	State	Private	
2011	76,29	18,53	3,88	1,29	100
2013	71,61	17,03	8,52	2,84	100
2016	72,87	15,16	7,45	4,52	100
Total	73,30	16,65	6,92	3,14	100

Source: Authors’ calculation based on survey data.

Table 3.11: Type of study programme by cohort (%)

Cohort	3- year	4-year	Total
2011	22,41	77,59	100
2013	26,18	73,82	100
2016	22,34	77,66	100

Source: Authors’ calculation based on survey data.

Table 3.12: Graduates by type of academic discipline, by cohort (%)

Cohort	Others	Art	Science and medicine	Engineering	Social sciences	Total
2011	4,74	2,16	6,90	15,52	70,69	100,00
2013	4,73	1,58	2,84	19,87	70,98	100,00
2016	3,19	1,06	6,38	15,69	73,67	100,00
Total	4,11	1,51	5,30	17,08	72,00	100,00

As expected, we find all three cohorts of university graduates to be basically identical in terms of gender structure (about 60 per cent female respondents), average age at graduation (although less likely to be younger than 25 for the 2013 generation¹²), mostly graduated from the state University of Montenegro (about 72 to 76 per cent in each generation). For all cohorts there is a similar share of graduates completing four-year study programmes (about three-quarters) and most of them earned a degree in social sciences (over 70 per cent).

Because of the lack of complete documentation and contact details of the PTG participants, and particularly the control group, the survey firm conducted their interviews by email and calling those for whom such information existed based on the documentation made available by the Ministry of Public Administration. This at least contained the complete list of university graduates for our years of interest (2012, 2015 and 2011). Once this avenue was exhausted, as was mostly the case with the 2011 cohort, phone numbers of people with relatively rare last names were retrieved and these persons were called. Although far from an ideal experimental design, in a small and historically relatively class-homogenous country¹³ like Montenegro this strategy was not expected to cause major sample distortions.

12 The relatively large share of people over 40 years of age in the 2011 cohort is probably a result of interviewees mistakenly reporting their age at the time of the interview. It is of minor interest so we did not pursue this issue further.

13 In some countries, such as Hungary or Russia, rare last names or last names with different orthography in some instances indicate historical nobility. However, this is not the case with Montenegro.

Still, to formally assess whether programme participation can be regarded as quasi-random in our data, we need to compare a set of relevant characteristics of participants and non-participants. Initially, we perform statistical tests of the hypothesis of random assignment to participation; that is, we test differences between the treatment and control groups. In particular, we test statistically whether the means of important socio-demographic characteristics are significantly different between the treatment and the control group. If the hypothesis of random assignment is rejected, it may be misleading to compute net effects of the programme as the difference in the average outcomes between participants and non-participants. Otherwise, we can consider the PTG programme as a randomized (natural) experiment and consider the findings in Tables 3.1 to 3.4 as appropriate measures of average net outcomes.

We further extend the descriptive analysis to test differences in important socio-demographic characteristics between the treatment (programme participants 2013 and 2016) and control groups (non-participant exit graduates 2011).¹⁴ Table 3.16 shows the *t*-test results¹⁵ which test random differences between the treatment and control groups.¹⁶ The test indicates that means of important characteristics of the treatment and the control group are not significantly different. Both groups are equal in terms of gender structure, age at graduation, average period of study, original place of residence, family size, proportion of people who continued to live where they grew up while studying, faculty of graduation (ratio of social sciences, engineering, and so on).

Table 3.16: Socio-demographic characteristics of treatment (2013 and 2016) and control groups (2011) (comparison of means)

Socio-demographic characteristics	Treatment group (2013 and 2016)		Potential control group (2011)		Difference significant?		
	obs.	mean	obs.	mean	t-test statistic	p-value	sig.
gender (female=1)	693	0,6320	232	0,5905	1,1282	0,260	
age at graduation	683	25,5637	200	25,5250	0,1186	0,906	
average period of studying (in years)	677	4,6027	226	4,7345	0,8379	0,402	
ratio of 3Y undergraduate students	693	0,2410	232	0,2241	0,5219	0,602	
average number of people in the household during 36m	693	3,5714	232	3,5819	-0,1036	0,918	
ratio of persons that live in the place of growing up	693	0,7114	232	0,7026	0,2556	0,798	
original place of residence	693		232		3,3796	0.337+	
faculty	693		232		3,1570	0.532+	
group of science and medicin graduates	693	0,0476	232	0,0690	1,2562	0,209	

Notes: For the control group, as three-year referent period we use period from 13-48 months after graduation; For treated we use three-year period after finishing PTG programme.

+ χ^2 – test

Difference statistically significant at the 99 percent level: ***

Difference statistically significant at the 95 percent level: **

Difference statistically significant at the 90 percent level: *

Additionally, in the same manner we test differences in important socio-demographic charac-

14 The sample size of the treatment and control groups vary because of missing observations on one of the covariates.

15 Where appropriate, we report the χ^2 -test.

16 The sample size of the treatment and control groups vary because of missing observations on one of the covariates.

teristics between the treatment (programme participants in 2013) and control groups (programme participants in 2016).

Table 3.17: Socio-demographic characteristics of treatment (2013 PTG participants) and control groups (2016 PTG participants) (comparison of means)

Socio-demographic characteristics	Treatment group (2013,00)		Potential control group (2016)		Difference significant?		
	obs.	mean	obs.	mean	t-test statistic	p-value	sig.
gender (female=1)	317	0,6309	376	0,6330	-0,0560	0,955	
age at graduation	311	26,2251	372	25,0108	4,0579	0,000	***
average period of studying (in years)	308	4,7045	369	4,5176	0,2556	0,798	
ratio of 3Y undergraduate students	317	0,2618	376	0,2234	1,1778	0,239	
average number of people in the household during 36m	317	3,550532	376	3,596215	-0,4424	0,6584	
ratio of persons that live in the place of growing up	317	0,7382	376	0,6888	1,4281	0,154	
original place of residence	317		376		3,7147	0,294+	
faculty	317		376		7,8138	0,099+	
group of science and medicin graduates	317	0,0284	376	0,0638	2,1868	0,029	**

Notes: For both groups we use three-year period after finishing PTG programme.

+ χ^2 – test

Difference statistically significant at the 99 percent level: ***

Difference statistically significant at the 95 percent level: **

Difference statistically significant at the 90 percent level: *

Table 3.17 shows results on testing random differences between the treatment (2013) and control groups (2016). Similarly, as in above testing results, we find the treatment and the control group basically identical in terms of important socio-demographic characteristics. The only differences tested to be significant are that 2016 generation graduated at the slightly younger age (25 compared to 26) and the share of individuals graduated at science and medicine is higher (about 6% compared to 3% in 2013 generation).

Table 3.17 shows results on testing random differences between the treatment (2013) and control groups (2016). Similarly, as in the testing results presented above, we find the treatment and the control group to be basically identical in terms of important socio-demographic characteristics. The only significant differences as tested are that the 2016 generation graduated at a slightly younger age (25 compared with 26) and the share of people who graduated in science and medicine is higher (about 6 per cent compared with 3 per cent in the 2013 generation).

Based on these findings we conclude that the hypothesis of random (rather than systematic) differences between the treatment and the control group cannot be rejected. Therefore, in Section 4 we apply a non-experimental method accounting for the individual probabilities of programme participation, entirely for the purpose of checking the robustness of the above findings. In the following part of the analysis, we attempt ex post to construct an even “better” control group and again calculate the impacts of participation in the programme (related to H1) or differences in net impact between the 2013 and 2016 generations (related to H2).

4 Quasi-experimental econometric impact evaluation analysis

4.1. Testing H1: Programme participation causes significantly better labour market outcomes than non-participation

The primary objective of this section is to evaluate the effectiveness of the PTG programme on participants (2013 and 2016 generation) against a counterfactual reality in which these programmes did not exist (2011 generation). For this purpose, we seek to compare labour market outcomes over the three-year period of interest following participation in the programme (*employment rate at the end of the period, average employment during the period in months, monthly wages per employed person at the end of the period, monthly wages per employed person at the end of the period, average monthly wages per employed person and per cohort during the period*). As already explained, we need to compare the programme participants – the so-called *treatment group* – only with those non-participants who could have participated in the programme as well, that is, who had the same equal chance of being selected for participation in the programme as those who were actually in the treatment group. A comparison group designed in this way is referred to as a *control group* in the evaluation literature (for more details on methodology see Section 2.3 above). The members of the “unrefined” control group were chosen following precisely that rule – they would all have been eligible to participate had the programme existed in 2011.

In order to mimic a full-blown randomized experiment *ex post* we construct a control group that resembles the treatment group as close as possible and for that purpose apply two common econometric procedures: difference-in-difference and matching. Both suggested procedures are particularly useful for mimicking controlled designed or natural experiments. In our descriptive analysis we find the treatment and control groups to be almost identical, so the primary purpose of conducting this type of econometric analysis is the robustness check. If the results differ significantly from those obtained through direct comparison, further analysis would be required.

Table 4.1 summarizes the estimated difference-in-difference for the main labour market outcomes. The findings obtained by direct comparison (Table 3.1) are only slightly different after this process of “additional randomization”, and here we find no significant differences between participants (2013 and 2016) and controls (2011) in any of the outcomes.

In Table 4.2 we use another standard method, calculating the *average treatment effects on the treated* (ATT)¹⁷ that measures the average effect of the intervention on the group of individuals who participated in the programme. For example, in the present context the ATT represents the difference between the actual employment rate of participants after the programme and the counterfactual employment rate of participants, supposing they have not received the treatment. The ATT captures the causal effects of the programme on the outcome analysed. However, we again find only slight differences (in average employment in months during the first and second year periods, but indicating a slightly better position on the part of the controls).

17 It is important to stress that, as expected, values of R^2 in the difference-in-difference approach (pseudo R^2 in the first stage of probit estimation in the matching procedure) are very poor (between 0.02 and 0.06), so there **was not too much work** (or indeed sense) involved in making this experiment “even more random”.

Table 4.1: Programme impacts for treatment (2013 and 2016) and control groups (2011), difference-in-difference approach

LM outcomes (Dif-in-Dif)	Treatment group (2013 and 2016)		Potential control group (2011)		Difference significant?			
	obs.	Before Diff (T-C)	obs.	After Diff (T-C)	Dif-in-Dif	t-test statistic	p value	sig.
employed during first years (in months, average)	693	-1,2960	232	-0,9360	0,3600	0,3300	0,741	
monthly wage during first year per cohort (in eur, average)	693	-49,3430	232	-64,2500	-14,9070	0,3000	0,768	
monthly wage during first year per employed (in eur, average)	693	-17,7680	232	-28,1990	-10,4310	0,2000	0,844	
employed during two years (in months, average)	693	-0,6960	232	-0,3360	0,3600	0,3700	0,715	
monthly wage during two years per cohort (in eur, average)	693	-32,5490	232	-46,6440	-14,0940	0,2900	0,774	
monthly wage during two years per employed (in eur, average)	693	5,7270	232	-23,1710	-28,8980	0,5800	0,563	
employed during three years (in months, average)	693	-0,3600	232	-0,0720	0,2880	0,3100	0,758	
monthly wage during three years per cohort (in eur, average)	693	-22,7830	232	-30,6480	-7,8650	0,1600	0,871	
monthly wage during three years per employed (in eur, average)	693	-7,8190	232	-53,1830	-45,3640	1,1500	0,251	

Notes: For the control group, as three-year referent period we use period from 13-48 months after graduation; For treated we use three-year period after finishing PTG programme.

Difference statistically significant at the 99 percent level: ***

Difference statistically significant at the 95 percent level: **

Difference statistically significant at the 90 percent level: *

Table 4.2: Programme impacts for treatment (2013 and 2016) and control groups (2011), matching approach

LM outcomes (matching)	Treatment group (2013 and 2016)		Potential control group (2011)		Difference significant?		
	obs.	mean	obs.	mean	ATT	t-test statistic	sig.
employed during first years (in months, average)	677	7,0148	226	8,6292	-1,6145	-2,27	**
monthly wage during first year per cohort (in eur, average)	677	264,0867	226	306,4323	-42,3456	-1,21	
monthly wage during first year per employed (in eur, average)	677	318,8413	226	337,7518	-18,9106	-0,53	
employed during two years (in months, average)	677	7,7482	226	8,9394	-1,6145	-1,76	*
monthly wage during two years per cohort (in eur, average)	677	293,6376	226	319,7387	-26,1011	-0,77	
monthly wage during two years per employed (in eur, average)	677	363,5213	226	356,4000	7,1213	0,21	
employed during three years (in months, average)	677	8,1201	232	9,0123	-1,6145	-1,38	
monthly wage during three years per cohort (in eur, average)	677	310,9984	226	327,8324	-16,8341	-0,51	
monthly wage during three years per employed (in eur, average)	677	449,67054	226	432,1491	17,5214	0,69	

Notes: For the control group, as three-year referent period we use period from 13-48 months after graduation; For treated we use three-year period after finishing PTG programme.

Difference statistically significant at the 99 percent level: ***

Difference statistically significant at the 95 percent level: **

Difference statistically significant at the 90 percent level: *

To conclude, based on both approaches, we reject the hypothesis that the PTG programme had positive quantitative effects on key labour market outcomes.

4.2. Testing H2: The impact of the PTG programme diminishes over time

In what follows, we use the same econometric procedures to compare the 2013 generation (labelled “treatment”) and the 2016 generation (labelled “control”). Tables 4.3 and 4.4 summarize the estimated difference-in-difference and ATT for our chosen main labour market outcomes. These findings are very similar to the results of direct comparison (Table 3.4). In Table 4.4 we focus on the ATT results that indicate that the 2013 generation are employed more months during the second and third years (on average, two and three months, respectively). We also find that the 2013 generation performs better in terms of monthly average wage per cohort during the second and third years (on average the difference is from 20 to 110 euros, respectively). From these results, we can conclude that H2 is largely confirmed.

Table 4.3: Programme impacts for treatment (2013) and control (2016) groups, difference-in-difference approach

LM outcomes (Dif-in-Dif)	Treatment group (2013)		Potential control group (2016)		Difference significant?			
	obs.	Before Diff (T-C)	obs.	After Diff (T-C)	Dif-in-Dif	t-test statistic	p value	sig.
employed during first years (in months, average)	376	-6,6240	317	5,3280	11,9520	0,9600	0,340	
monthly wage during first year per cohort (in eur, average)	376	-31,4790	317	23,6130	55,0930	1,1400	0,254	
monthly wage during first year per employed (in eur, average)	376	-13,9350	317	51,9500	65,8860	1,3000	0,195	
employed during two years (in months, average)	376	5,1840	317	15,9840	10,8000	0,9500	0,343	
monthly wage during two years per cohort (in eur, average)	376	-1,0720	317	60,0650	61,1370	1,3100	0,190	
monthly wage during two years per employed (in eur, average)	376	-12,6830	317	71,0720	83,7550	1,7600	0,079	*
employed during three years (in months, average)	376	10,3680	317	21,1680	10,6560	0,9900	0,323	
monthly wage during three years per cohort (in eur, average)	376	12,4880	317	78,9910	66,5030	1,4500	0,149	
monthly wage during three years per employed (in eur, average)	376	-11,2760	317	69,1790	80,4550	1,7400	0,082	*

Notes: For both groups we use three-year period after finishing PTG programme.

Difference statistically significant at the 99 percent level: ***

Difference statistically significant at the 95 percent level: **

Difference statistically significant at the 90 percent level: *

Table 4.4: Programme impacts for treatment (2013) and control groups (2016), matching approach

LM outcomes (matching)	Treatment group (2013)		Potential control group (2016)		Difference significant?		
	obs.	mean	obs.	mean	ATT	t-test statistic	sig.
employed during first years (in months, average)	369	6,8571	308	6,0097	0,8474	1,07	***
monthly wage during first year per cohort (in eur, average)	369	254,4481	308	212,2403	42,2078	1,23	
monthly wage during first year per employed (in eur, average)	369	320,0126	308	281,9102	38,1025	1,05	
employed during two years (in months, average)	369	8,1364	308	5,9562	2,1802	3,08	***
monthly wage during two years per cohort (in eur, average)	369	301,7051	308	212,8084	88,8966	2,71	***
monthly wage during two years per employed (in eur, average)	369	367,2968	308	330,3937	36,9031	1,14	
employed during three years (in months, average)	369	8,7370	308	5,8203	2,9167	4,37	
monthly wage during three years per cohort (in eur, average)	369	326,6840	308	210,3517	116,3323	3,56	***
monthly wage during three years per employed (in eur, average)	369	385,19433	308	345,4892	39,7051	1,27	

Notes: For both groups we use three-year period after finishing PTG programme.

Difference statistically significant at the 99 percent level: ***

Difference statistically significant at the 95 percent level: **

Difference statistically significant at the 90 percent level: *

To conclude, we accept the hypothesis H2 that the impact of the PTG programme diminishes over time.

5 Impact evaluation analysis summary

Labour Market Outcomes

Our main outcome variables are based on employment status and wages in the relevant three-year period for university graduates (after the programme – for generations 2013 and 2016, or one year after graduation for generation 2011). In what follows, we compare the main labour market outcomes for PTG programme participants (treated) with a generation of graduates from 2011 (non-participants or controls) in the relevant three-year period.

Our main findings on the programme effects on labour market outcomes for participants are as follows:

- 1) There is no significant effect of the PTG programme on the main labour market out-comes after a three-year period.
- 2) We find that non-participants spent more months employed in the first two years (the difference is about 1.2 months in the first and second years, but it disappears when we consider the whole three-year period.
- 3) Similarly, we find higher wages per cohort for controls (on average the difference is about 50 euros during the first, and about 30 euros during the second year, but we find no difference over the whole three-year period).

A similar analysis is conducted for the comparison of the effects of the programmes in 2013 and 2016. In what follows, we focus on the main outcome indicators in the three-year period for 2013 participants (treated group) and 2016 participants (for this purpose, we will consider them controls). Our main findings on labour market effects indicate the advantages for 2013 participants:

- 1) We find the employment rate to be 17 percentage points higher for the 2013 genera-tion at the end of the third year (81.1 versus 64.1 per cent).
- 2) The 2013 participants also experienced higher average monthly wages per cohort during the three-year period, as well as at the end of third year (the differences are about 30 and 60 euros, respectively).
- 3) We also find that the 2013 participants remained in employment longer during the period of interest (26 months on average, compared with 23 months for the 2016 gen-eration).

6 Characteristics of the respondents at the time of survey

Meta studies of the impact of training programmes report that, typically, the full positive effects of training programmes become manifest only after a certain time lag (Card et al. 2018). Although our period of observation is comparatively long (three years after the programme ends), it is still worth looking at the current situation of participants and non-participants. It is especially useful to compare exit graduate cohorts 2011 and 2012, because by 2021 the one- or two-year differences in work experience should have lost most of their initial relative importance. The two nearest graduate exit cohorts – 2011 and 2012 (that is, participant cohort 2013) have both reached the points of stability in their career trajectories, and thus comparing them gives a very good glimpse into the long-term impact of exposure to the PTG programme.

Even the disturbance caused by the Covid-19 pandemic in 2020 and the rapid worsening of labour market conditions can be considered external shocks equally affecting both cohorts (but potentially having a somewhat larger relative impact on the presumably professionally less settled 2015 graduate cohort).

Apart from the main labour market outcomes for the three cohorts as they looked at the time of the survey, in this section we present a descriptive comparison of treatment and control groups in terms of current job characteristics, opinions and aspirations, as well as some additional demographic characteristics at the time of the survey. It is still important to stress that this type of comparison is for illustrative purposes only, because of the different points in their professional and private lives at which we find (observe) the cohorts in the present moment.

Overall, we find the three generations of university graduates to be fairly similar in terms of current job characteristics (from Table 6.1 to Table 6.7). Employment rates vary between 78 and 86 per cent (for the 2016 and 2011 generations, respectively). The majority of employed people have a permanent contract (least expected for the 2016 generation, 54 per cent, and most expected the 2011 generation, 78 per cent), while only between 3.5 and 5.5 per cent of them do not have any contract at all. The largest number of employed have net monthly wages ranging from 400 to 600 euros (between 44 and 59 per cent in each cohort), while over 15 per cent in the 2011 and 2013 generations earn over 800 euros a month (for the 2016 generation about 8 per cent of them). Additionally, we see that between 38 and 48 per cent of university graduates work in the public sector in the 2016 and 2011 cohorts, respectively. This appears to be the direct opposite of the employment rate in the private sector, which varies between 48 to 35 per cent for 2016 and 2011, respectively. This is an additional argument in support of our previous findings on graduates’ preference for the state sector (see Section 3.2).

The vast majority of both participants and non-participants are satisfied with their main job, about 95 per cent in every cohort. While most of them work a regular 40 hours per week (between 68 per cent for 2016 and 83 per cent for 2011), about 7 to 12 per cent of them have a second job, in all generations. Similar to the findings on net wages from the primary job for 2016 generation (Table 6.3), we find a higher proportion with total income between 400 and 600 euros, and a lower proportion in higher ranges of total income. It appears that existing differences in current job situation between cohorts could be explained simply by generational differences. Additionally, we find no indicative differences in opinions and attitudes between generations (such as: important goal in life, type of preferred work, and so on).

Table 6.1 Employment status

Cohort	Currently employed	Not employed	Total
2011	86,21	13,79	100
2013	85,17	14,83	100
2016	77,93	22,07	100
Total	82,49	17,51	100

Source: Authors’ calculation based on survey data.

Table 6.2 Type of employment contract

Cohort	Do not have	Limited duration	Permanent	Total
2011	3,48	18,41	78,11	100
2013	5,56	29,63	64,81	100
2016	3,75	41,98	54,27	100
Total	4,32	31,41	64,27	100

Source: Authors’ calculation based on survey data.

Table 6.3 Net salary/wage per month (primary/main job)

Cohort	Less than 200 e	200-400€	400-600€	600-800€	over 800€	Total
2011	0,5	10,45	45,27	26,37	17,41	100
2013	2,59	15,56	44,07	22,59	15,19	100
2016	1,02	15,02	59,04	16,72	8,19	100
Total	1,44	14,01	50,13	21,34	13,09	100

Source: Authors’ calculation based on survey data.

Table 6.4 Type of enterprise/business

Cohort	Family	Government	Public	Foreign enterprise /company	Private	Joint vent.	Non-profit organization	Other	Total
2011	8,96	40,30	7,96	4,98	35,32	0,5	1	1	100
2013	2,96	27,04	15,56	3,7	47,04	0	1,11	2,59	100
2016	5,46	31,40	6,48	3,07	48,46	0	2,73	2,39	100
Total	5,5	32,2	10,08	3,8	44,5	0,13	1,7	2,09	100

Source: Authors’ calculation based on survey data.

Table 6.5 Level of satisfaction with your main job

Cohort	Mostly yes	Mostly no	Total
2011	95,02	4,98	100
2013	94,07	5,93	100
2016	95,22	4,78	100
Total	94,76	5,24	100

Source: Authors’ calculation based on survey data.

Table 6.6 Second job of the employed

Cohort	Yes	No	Total
2011	9,95	90,05	100
2013	7,41	92,59	100
2016	12,29	87,71	100
Total	9,95	90,05	100

Source: Authors’ calculation based on survey data.

Table 6.7: Total income from work per month

Cohort	Less than 200 e	200-400€	400-600€	600-800€	over 800€	Total
2011	0,5	9,45	43,78	26,87	19,4	100
2013	2,22	15,93	42,59	23,33	15,93	100
2016	0,68	15,36	56,31	18,43	9,22	100
Total	1,18	14,01	48,17	22,38	14,27	100

Source: Authors’ calculation based on survey data.

Summing up this set of results we can conclude that, as expected, work experience appears to be the key explanation for different outcomes across three exit graduate cohorts (2011, 2012 and 2013). No separate effect of the PTG programme can be identified.

In what follows, we focus on some additional personal, family and household information on the respondents (from Table 6.8 to Table 6.10). About half the graduates from generations 2011 and 2013 live in small towns, and the other half in cities (this proportion is slightly different for generation 2016, at about 40 and 60 per cent, respectively). About 70 per cent of them live or work at the same place they grew up in. But of those who have moved away, across the generations, over half the members of generations 2011 and 2016 mention education as the main reason, while from generation 2013 over half mention work.

Table 6.8: Current place of residence

Cohort	Rural	Small town	Large city	Total
2011	0,00	47,84	52,16	100
2013	2,52	47,32	50,16	100
2016	2,13	39,63	58,24	100
Total	1,73	44,32	53,95	100

Source: Authors’ calculation based on survey data.

Table 6.9: People living and/or working in the area they grew up in

Cohort	Yes	No	Total
2011	70,26	29,74	100
2013	73,82	26,18	100
2016	68,88	31,12	100
Total	70,92	29,08	100

Source: Authors’ calculation based on survey data.

6.10: Main reason for moving to current place of residence

Cohort	Family	Education	Work	Other	Total
2011	20,29	53,62	24,64	1,45	100
2013	13,25	19,28	50,60	16,87	100
2016	12,82	51,28	32,48	3,42	100

Source: Authors’ calculation based on survey data.

The only pronounced differences between cohorts, as expected, are in terms of marital status (Table 6.11), and having children and their number (Table 6.12 and Table 6.13). As expected, among the older generations of respondents a higher proportion are married with children (and have more children).

6.11: Current marital status

Cohort	Not married	Engaged	Married	Divorced	Total
2011	36,64	2,59	57,33	3,45	100,00
2013	43,22	2,21	51,10	3,47	100,00
2016	60,64	2,66	35,37	1,33	100,00
Total	48,65	2,49	46,27	2,59	100,00

Source: Authors’ calculation based on survey data.

6.12: Respondents with children

Cohort	Yes	No	Total
2011	55,17	44,83	100
2013	44,16	55,84	100
2016	30,32	69,68	100
Total	41,30	58,70	100

Source: Authors’ calculation based on survey data

6.13: Number of children

Cohort	One	Two	Three or more	Total
2011	31,25	53,91	14,84	100
2013	38,57	54,29	7,14	100
2016	54,39	36,84	8,77	100
Total	40,84	48,95	10,21	100

7 Participants’ assessment of the effectiveness of programme features

In this part, we present the main characteristics of treatment groups regarding respondents’ experience with the programme, such as characteristics of the firm in which university graduates were employed, employment details, graduates’ opinions on benefits gained from occupational training, and overall level of satisfaction with the programme.

All respondents participated in the Professional Training for Graduates (PTG) programme, starting in January. It can be concluded that university respondents from both the 2013 and the 2016 programmes were concentrated mainly in the central region of Montenegro (55.2 and 59.3 per cent, respectively), with companies predominantly concentrated in the same region (57.8 and 63.1 per cent, respectively). The main reasons for applying for the programme were to acquire knowledge and skills (from 46.7% to 55.3% in both cohorts) and the possibility of long-term employment within the organization providing the occupational training (on average, 36.6 per cent). More details are provided in Tables A.1 to A.3.

Table A.1: Permanent residence after graduation and during the programme

Cohort	North	Centre	South	Total
2013	20.00	55.20	24.80	100
2016	20.00	59.31	20.74	100
Total	19.97	57.45	22.58	100

Source: Authors’ calculation based on survey data.

Table A.2: Regions in which organizations involved in the programme were situated

Cohort	North	Centre	South	Total
2013	17.25	57.83	24.92	100
2016	17.65	63.10	19.25	100
Total	17.47	60.70	21.83	100

Source: Authors’ calculation based on survey data

Table A.3: The main reason to apply for the programme

Cohort	Possibility of long-term employment with the employer in charge of your professional training	Acquiring knowledge, skills, and contacts that will be used for future employment	Financial compensation	To build on working habits and get used to working obligations	Not to stay idle at home	Other	Total
2013	39.75	46.69	0.32	4.1	1.26	7.89	100
2016	34.04	55.32	2.39	2.39	0.27	5.59	100
Total	36.65	51.37	1.44	3.17	0.72	6.64	100

Source: Authors’ calculation based on survey data

Regarding the characteristics of the firms at which university graduates were employed, results showed a negligible difference between the two cohorts (Tables A.4 to A.7). When it comes to company size, it may be concluded that respondents (almost one-third) worked mainly in firms that employ 10 to 49 employees and approximately one-fourth in companies with 50–249 employees. The proportion of graduates working in companies with more than 250 employees in both generations was not negligible, amounting on average to 16.74 per cent. The majority of graduates (74.5 per cent in 2013 and 84.3 per cent in 2016, respectively) also stated that the organizations that employed them were their first choice when applying for the PTG. Those firms were almost evenly concentrated across sectors: in the public sector, these numbers vary from 52.37 to 55 per cent, and in the private sector from 47.63 to 45 per cent. Additionally, the three most present sectors of activity in the programme were Finance/Insurance, Community/Social/Personal services, and Education. The result from the control group, which was assessed in 2011, were not similar to the two treatment groups; respondents were employed predominantly in the private sector in the first year after graduation (63.5 per cent).

Table A.4: Size of the firm

Cohort	Less than 4	From 4 to 9	From 10 to 49	From 50 to 249	More than 250	Total
2013	8.20	17.67	29.65	26.18	18.30	100
2016	5.59	19.95	33.24	25.80	15.43	100
Total	6.78	18.90	31.60	25.97	16.74	100

Source: Authors’ calculation based on survey data

Table A.5: Assigned enterprise as first choice

Cohort	Yes	No	Total
2013	74.45	25.55	100
2016	84.31	15.69	100
Total	79.80	20.20	100

Source: Authors’ calculation based on survey data

Table A.6: Type of enterprise/business

Cohort	Family business	Government/public sector enterprise	Branch of a foreign enterprise/company	Private company	Joint venture	Non-profit organization	Other	Total
2013	2.84	25.87	21.77	3.79	38.80	5.04	1.89	100
2016	1.33	33.51	11.44	2.66	41.49	5.32	4.26	100
Total	2.02	30.01	16.16	3.17	40.26	5.19	3.17	100

Source: Authors’ calculation based on survey data

Table A.6a: Type of enterprise/business (control group)

Cohort	Family business	Government/public sector enterprise	Branch of a foreign enterprise/company	Private company	Joint venture	Non-profit organization	Other	Total
2011	4.14	36.55	5.52	6.21	44.14	0.69	2.76	100

Source: Authors’ calculation based on survey data

Table A.7: Sector of activity in which enterprise/organization operates

Sector of activity	Cohort		
	2013	2016	Total
Agriculture, hunting, forestry, and fishing	2.84	1.86	2.31
Mining	2.21	-	1.01
Manufacturing	3.47	1.33	2.31
Electricity, gas, and water supply	5.68	3.72	4.62
Construction	4.73	4.26	4.47
Wholesale and retail trade, repair	5.05	3.72	4.33
Hotels and restaurants	5.99	7.18	6.64
Transport, storage, and communications	5.05	1.6	3.17
Finance/insurance	12.3	11.17	11.69
Real estate, renting, and business activities	0.95	0.27	0.58
Public administration and defense	9.15	12.77	11.11
Education	10.73	14.89	12.99
Health and social work	4.73	5.05	4.91
Other community, social and personal services	9.78	18.88	14.72
Other	17.35	13.30	15.15
Total	100	100	100

Source: Authors’ calculation based on survey data

In total, we found **fairly similar results** regarding graduates’ involvement details in the programme in both cohorts (Tables A.8 to A.11). Almost all participants worked regularly and had an obligation to work every day, with almost equal actual and effective working time (approximately seven or eight hours). Over 90 per cent of them were mentored during the programme (Table A.12 and Table A.13), and considered their mentors’ ability to improve their knowledge and skills to be very good (61.7 per cent in 2013 and 75 per cent in 2016).

A.8: Going to work regularly/every day during the participation in the programme

Cohort	Yes	No	Total
2013	94.32	5.68	100
2016	97.07	2.93	100
Total	95.82	4.18	100

Source: Authors’ calculation based on survey data

A.9: Actual working time in hours

Cohort	Mean	Min	Max
2013	7.63	4.00	9.00
2016	7.70	2.00	10.00
Total	7.67	2.00	10.00

Source: Authors’ calculation based on survey data

A.10: Effective working time in hours

Cohort	Mean	Min	Max
2013	7.14	2.00	9.00
2016	6.97	1.00	10.00
Total	7.05	1.00	10.00

Source: Authors’ calculation based on survey data

A.11: Obligation to go to work every day

Cohort	Yes	No	Total
2013	93.69	6.31	100
2016	94.95	5.05	100
Total	94.37	5.63	100

Source: Authors’ calculation based on survey data

A.12: Assigned mentor/person during the programme

Cohort	Yes	No	Total
2013	90.22	9.78	100
2016	93.88	6.12	100
Total	92.21	7.79	100

Source: Authors’ calculation based on survey data

A.13: Ability of the mentor to improve knowledge and skills

Cohort	Very good	Good	Not god nor bad	Bad	Very bad	I don’t know	Total
2013	61.72	27.24	7.59	3.1	0.35	-	100
2016	75.07	21.25	2.83	0.57	-	0.28	100
Total	69.05	23.95	4.98	1.71	0.16	0.16	100

Source: Authors’ calculation based on survey data

The majority of employees were awarded the **certificate of successful programme completion** (around 90 per cent). This stands in contrast to the awarding of the occupational certificate: 55.2 per cent of cohort 2013 and 49.2 per cent of cohort 2016 obtained this certificate. It should be noted that less than half of the graduates were proactive in seeking another job during the programme (40 and 46.3 per cent in 2013 and 2016, respectively). More details can be found in Tables A.14 to A.16).

A.14: Seeking another job during enrolment in the programme

Cohort	Yes	No	Total
2013	40.06	59.94	100
2016	46.28	53.72	100
Total	43.43	56.57	100

Source: Authors’ calculation based on survey data

A.15: Certificate obtained after the completion of the programme

Cohort	Yes	No	Total
2013	90.22	9.78	100
2016	89.10	10.90	100
Total	89.61	10.39	100

Source: Authors’ calculation based on survey data

A.16: Obtaining an occupational certificate

Cohort	Yes	No	Total
2013	55.21	44.79	100
2016	49.2	50.8	100
Total	51.95	48.05	100

Source: Authors’ calculation based on survey data

In general, **there are no differences in respondents’ opinions** on the programme’s effectiveness. In total, 86.6 per cent in both cohorts assessed the programme as very good or good in improving their occupational skills. Establishing useful contacts through the programme was also evaluated positively, as very good or good (82.3 and 87.8 per cent in the 2013 and 2016 cohorts, respectively). Participation in the programme was mainly considered very good in both cohorts, being more pronounced in 2016 (60.1 per cent compared with 48 per cent in 2013). When it comes to skills gained from the programme that are most useful in finding a good job, respondents from both cohorts chose as most important communication skills, teamwork skills, and knowledge of the business world. More details can be found in Tables A.17 to A.20).

A.17: Effectiveness of the programme in terms of improving occupational skills

Cohort	Very good	Good	Not god nor bad	Bad	Very bad	I don't know	Total
2013	46.69	37.54	9.46	3.15	3.16	-	100
2016	53.19	35.37	6.65	3.99	0.53	0.27	100
Total	50.22	36.36	7.94	3.61	1.73	0.14	100

Source: Authors’ calculation based on survey data

A.18: Effectiveness of the programme in terms of establishing useful contacts

Cohort	Very good	Good	Not good nor bad	Bad	Very bad	I don't know	Total
2013	42.59	39.75	10.41	4.42	2.52	0.31	100
2016	50.53	37.23	7.18	4.52	0.54	-	100
Total	46.90	38.38	8.66	4.47	1.44	0.14	100

Source: Authors’ calculation based on survey data

A.19: Assessment of participation in the programme

Cohort	Very good	Good	Not good nor bad	Bad	Very bad	Total
2013	47.95	38.8	8.52	2.84	1.89	100
2016	60.11	31.38	6.91	1.6	-	100
Total	54.55	34.78	7.65	2.16	0.87	100

Source: Authors’ calculation based on survey data

A.20: Qualities gained from the programme that were most useful in finding a good job

Qualities	Cohorts					
	2013		2016		Total	
	% of responses	% of cases	% of responses	% of cases	% of responses	% of cases
Information technology skills	7.89	20.50	6.72	16.49	7.27	18.33
Scientific or technical qualifications	7.89	20.5	6.29	15.43	7.04	17.75
Command of languages	5.34	13.88	5.42	13.30	5.38	13.56
Knowledge of the busi-ness world	19.3	50.16	17.35	42.55	18.27	46.03
Communication skills	25.12	65.3	20.93	51.33	22.91	57.72
Teamwork skills	15.53	40.38	21.04	51.60	18.44	46.46
Good general education	5.34	13.88	13.12	32.18	9.45	23.81
Good appearance	1.94	5.05	2.28	5.59	2.12	5.34
Ambition	8.13	21.14	4.01	9.84	5.96	15.01
Having completed an apprenticeship or an ap-propriate training course	1.33	3.47	2.06	5.05	1.72	4.33
Other	2.19	5.68	0.78	1.86	1.44	3.61
Total	100	259.94	100	245.22	100	251.95

Source: Authors’ calculation based on survey data

Overall, participants were very satisfied with the programme (even though it was objectively inefficient). This is not really surprising. The PTG programme features were such that they provided job security and a modest income to all participants. The training part and work intensity was probably not overly demanding, given that most employers were not experienced in handling trainees before the programme.

Finally, the large majority of graduates did not continue to work for the employer who provided the programme (66.3 per cent in 2013 and 76.3 per cent in 2016). Job duration for those who did continue to work for the same employer was higher in 2013, being on average 57 months compared with 39 months in 2016. Those who continued to work for the same employer until the time of the Survey were more present in the 2016 generation (74.4 per cent) than in the 2013 generation (46.7 per cent). More details can be found in Tables A.21 to A.23).

A.21: Continued working for the employer who provided the programme

Cohort	Yes	No	Total
2013	33.75	66.25	100
2016	23.67	76.33	100
Total	28.28	71.72	100

Source: Authors’ calculation based on survey data

A.22: Work duration for the same employer in months

Cohort	Mean	Min	Max
2013	56.89	2.00	96.00
2016	38.76	2.00	60.00
Total	48.65	2.00	96.00

Source: Authors’ calculation based on survey data

A.23: Still working at the same employer

Cohort	Yes	No	Total
2013	46.73	53.27	100
2016	74.44	25.56	100
Total	59.39	40.61	100

Source: Authors’ calculation based on survey data

8 Conclusions and recommendations

The Professional Training for Graduates (PTG) programme has been operating for almost 10 years, funded by substantial financial resources (0.2–0.3 per cent of GDP), providing work experience and on-the-job training to the vast majority of university graduates in Montenegro, while at the same time delaying their entry into the unsheltered labour market for another year.

Our evaluation has clearly shown, using three different net impact evaluation approaches, that there have been no direct gains from PTG in terms of major labour market outcomes. In other words, any improvements in university graduates’ labour market situations during the period under observation should be ascribed to factors other than participation in the PTG programme. We did not calculate returns to education (as if PTG were considered an additional year of education), but we know from this evaluation that they would be close to zero.

Despite this objective assessment, the PTG participants show a high level of satisfaction with it and consider its many aspects useful for their occupational advancement. This paradox, which is not unique to this programme, deserves further exploration. Our hypothesis is that it provides fair and equitable income support, as well as a sense of security and societal attention important for young people at the sensitive start of their working careers in a difficult labour market.

However, these same non-financial effects could be achieved much more efficiently and effectively with more intensive mentoring and counselling and a more targeted PTG-type programme expanded to high-school graduates within the Youth Guarantee programme. Thus, assisting people much more intensively but tailoring intervention to their specific needs instead of extending the same programme to everyone would be superior to the current design. This requires a thorough reform and investment in the capacities of the Public Employment Service.

It is our recommendation that 2022 should be the last year of the programme in its current form. It will serve the useful purpose of cushioning the effects of the Covid-19 crisis on a hard-hit youth population. In 2023, it should be thoroughly redesigned, downsized and integrated into the Youth Guarantee.

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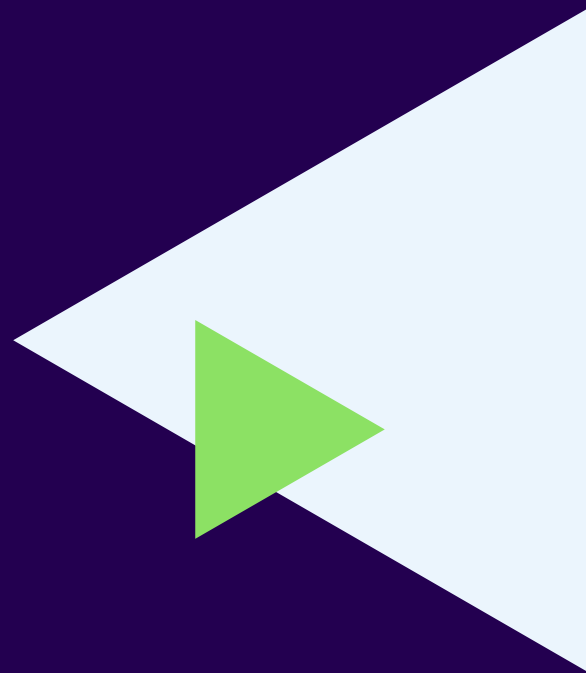
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