2.9 LABOUR MARKET SITUATION FOLLOWING EXIT FROM PUBLIC WORKS

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This sub-chapter examines the individual and environmental factors related to exit from public works, relying on administrative data. The composition and characteristics of exiting participants have a major impact on exit prospects. We look into which factors are related to exit to the open labour market and which ones hinder it. Exogenous events and factors are not included in the analyses; therefore it will not establish causal links. The correlations presented may serve as a basis for further research.

The sub-chapter applies the same analytical framework as sub-chapter 2.3, the two major episode types of the public employment system: non public works and public works episodes. At the end of non public works episodes participants make a decision (albeit often with limited room for manoeuvre) on the direction in which to proceed. They may remain registered unemployed or search for jobs without registration but it is also possible that they find employment on the open labour market. Immediate entry to public works is excluded by the definitions used herein and neither does it happen in actual practice.[1] The result of this decision is measured, based on the monitoring system of the National Labour Office (NLO), on day 180 after exiting.

The public works section of the episode-based micro-database used in sub-chapters 2.3 and 2.6 is also used here. 517,730 public works episodes of the years 2011 and 2012 are analysed, which is less than the total 931,817 episodes started during 2011–2013. The reason for the constraint is that it is not only the monitoring variable of the NLO which is applied: it is corrected and information from the database is added to it (see Annex 2.9 for the method and the results). Since examining day 180 after exit was only possible by limiting the period to 2011–2012 in order not to misleadingly distort the sample,[2] this period was used throughout the study.

In addition to the employment on the open labour market and in public works included in the monitoring data of the NLO, registered job seeker as well as "unregistered and not in (declared) employment outside the system" statuses are also considered and the original monitoring data are adjusted. The four statuses – 1) in employment on the open labour market, 2) in public works, 3) registered unemployed, 4) unregistered, not in work – defined together as "day 180 after exit status" or briefly "day 180 status", already cover all major events relevant to movement in the public employment system.

The most important indicator of the various statuses is the *exit rate*. It is calculated by considering the size (number of participants) of a cohort at a

1 As presented in *Subchapter 2.3,* some overlapping and directly contiguous public works episodes have been merged. Only a small part of clients receive such an offer.

2 The constraint also takes into account other, technical considerations. Public works episodes longer than 365 days are excluded as well as those who died in the meantime and those who had spent more than 2200 days (about six years) in the public employment system at the beginning of the period. Two per cent of the 529,744 episodes constrained by the time limit, i.e. 11,403 episodes are excluded in this way.

particular time, then counting how many of them belong to a certain "day 180" status and finally dividing the latter by the former.

As for the total public works participant population of 2011 and 2012, nearly half of these have "registered unemployed" as a day 180 status (see *Table 2.9.1*). Slightly more than one-tenth of them work on the open labour market in a declared job. One-third of them are in public works again and one-twentieth of them are not in declared employment but are not registered unemployed either. On the whole, 80 per cent of participants appear in the public employment system within six months after leaving public works.

Table 2.9.1: Distribution of statuses on day 180 after leaving public works

Status on day 180	Number of cases	Percentage
Works on the open labour market	68,921	13.3
Public works participant	176,837	34.2
Registered unemployed	237,097	45.8
Unregistered; does not work	34,875	6.7
Total	517,730	100.0

Source: Authors' calculations based on the reduced Employment and Public Works Database (EPWD).

In the case of rapid calculations, the most suitable way of grouping exiting participants is to treat participants starting a public works episode approximately at the same time together.

> It is because day 180 measuring involves lots of compromises that it may be best tackled in this way. In the case of unlimited data collection, it is not a specific day after leaving public works but after entering which should be designated for the examination of statuses, or rather a day after entering a related episode of the public employment system. In that way (and by statistically controlling other factors), the comparison of the results would be more realistic. Since it was not feasible in this study, the best choice is (without using multivariate methods) to compare participants starting out at the same time.

Day 180 statuses are broken down according to the month of start in *Figure 2.9.1*. During the two years examined the likelihood of entering the open labour market diverged very little from the average of 13.3 per cent. The better employment prospects of those starting public works at the beginning of the year deteriorates in the case of participants starting later (in accordance with the seasonal characteristics of entrants). The likelihood of entering public works increased strongly in winter and spring, mirrored by a decrease in registering as unemployed.

As presented in sub-chapter 2.6, the time spent in the public employment system is strongly related to entry to public works and the same holds for exiting it. *Figure 2.9.2* shows the occurrence of day 180 statuses as a function of four types.

Figure 2.9.1: Status of public works participants on day 180 after exiting, broken down by the months of entering public works
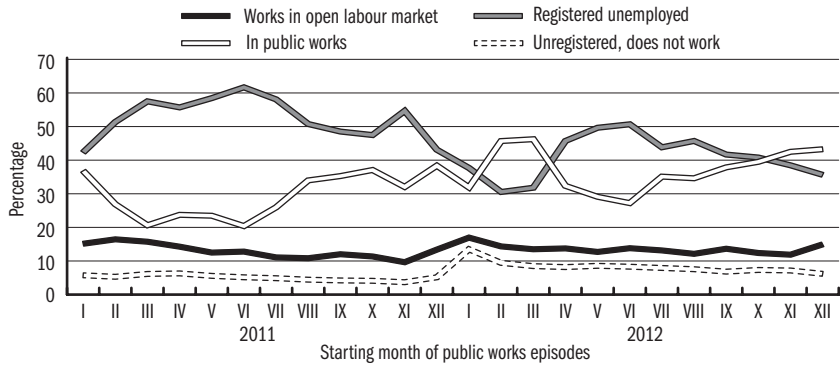
Source: Authors' calculations based on the reduced EPWD.

Figure 2.9.2: The raw rates of day 180 statuses after exiting public works as a function of the length of various episodes, non-parametric estimation, 2011–2012
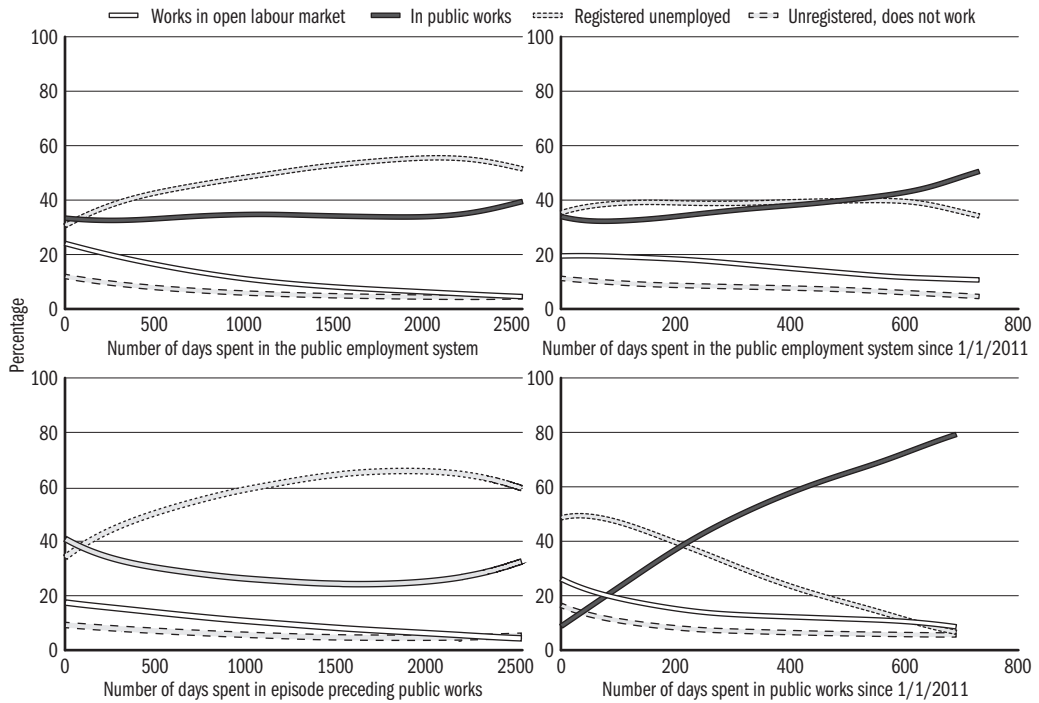
Source: Authors' calculations.

The rate of *employment on the open labour market* decreases with a longer history, whichever indicator is used. That is, the longer the time spent either in the public employment system or in public works, the lower the rate of em-

ployment on the open labour market. The *likelihood of public works participation* increases with time spent in both the public employment system and public works. In the case of the long-term unemployed, it is mainly *re-entry to registered unemployment* that increases with a longer history, but it decreases with time spent in public works. The status *unregistered, not in work* is rare in itself and decreases with time spent in both the public employment system and public works.

Just as in the case of entry to public works, we now examine which characteristics of individuals and the work undertaken are related to the likelihood of day 180 statuses. In the interest of clarity, findings for 2011 and 2012 are merged in *Table 2.9.2*.

Table 2.9.2: The raw rates of day 180 statuses

Factor	Share in population	Works in open labour market	In public works	Registered unemployed	Unregistered, does not work
Total public works episodes	100.0	13.3	34.2	45.8	6.7
Demographic characteristics					
Female	40.5	14.7	29.2	50.7	5.4
Male	59.5	12.4	37.5	42.4	7.7
Age					
Below 25	19.9	16.8	29.0	45.8	8.4
Aged 25–44	52.0	13.6	33.6	46.3	6.5
Over 44	28.1	10.3	38.8	44.9	6.1
Schooling					
Max. eight years of schooling	57.6	8.9	33.6	51.0	6.4
Vocational school	30.4	14.9	37.4	40.7	7.0
Min. secondary school leaving examination (Matura)	12.0	25.6	30.4	36.6	7.4
Fresh graduate	9.1	16.0	27.9	47.3	8.9
Not fresh graduate	90.9	13.0	34.8	45.7	6.5
History of participants in the preceding non public works episode					
Max. 3 months	25.3	16.9	46.6	27.8	8.7
4–9 months	25.1	14.4	36.4	41.8	7.4
Over 12 months	42.4	10.8	26.2	57.9	5.2
Received unemployment benefit	28.0	16.9	39.2	37.8	6.1
Received employment substitute allowance	79.7	11.9	31.5	50.8	5.8
Participated in training	1.2	19.8	35.2	38.2	6.8
Participated in other programmes	1.0	17.8	42.1	34.1	6.0
Characteristics of public works episodes					
Number of work hours					
4 hours	34.5	11.8	19.3	64.3	4.6
6 hours	19.5	15.3	27.6	50.4	6.7
8 hours	46.1	13.7	48.1	29.9	8.3
Undertook undemanding work	51.4	8.7	34.7	50.2	6.3
Undertook demanding work	48.6	18.1	33.6	41.1	7.2

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Factor ➡	Share in population	Works in open labour market	In public works	Registered unemployed	Unregistered, does not work
Sub-programme					
Short	34.8	11.7	19.3	64.3	4.7
Long	45.6	14.8	38.3	39.5	7.4
Countrywide	18.4	12.4	51.7	27.7	8.2
Other	1.4	15.7	36.2	31.6	16.4
Employer					
Municipality	71.5	13.2	31.4	49.3	6.1
Other	28.5	13.6	41.1	36.9	8.4
Participated in training	2.8	8.0	81.5	6.2	4.3
Year of starting episode					
2011	50.1	13.1	28.3	53.4	5.2
2012	49.9	13.6	40.1	38.1	8.3
Exit					
Contract expired	19.4	10.6	37.2	47.1	5.1
Other	12.4	25.9	16.0	43.9	14.2
Unknown	68.2	11.8	36.6	45.8	5.8

Source: Authors' calculations based on the reduced EPWD.

The *likelihood of entering the open labour market* is stronger, while the *likelihood of entering public works* is lower in the case of women, younger participants, those with a higher level of schooling and fresh graduates. It is skilled workers (with a vocational school qualification) that re-enter public works in the highest proportion. *In registered unemployment* there are higher rates of women and the unqualified. The fresh graduate status has little, while age has no, correlation with entry to registered unemployment. In the *unregistered, not in work status* there are relatively more men, young people and those with at least an upper-secondary qualification (Matura).

There is a higher than average chance of entering the open labour market for those who spent a short time in registration, received unemployment benefits and are among the few who participated in an active labour market programme other than public works in the preceding non public works episode. The likelihood of entering public works is surprisingly similar: it only decreases with more than 12 months spent in registered unemployment. It is those in registered unemployment for over 12 months and who received employment substitute that return to registered unemployment in higher than average proportions. Participants spending a very short time – maximum of three months – in registered unemployment have the highest chances of getting into the *unregistered and not in work* group.

As for the characteristics of public works, it is mainly the number of work hours, the complexity of work undertaken, participation in training and the circumstances of exit that have an impact on the likelihood of entering the open labour market. Participants of six-hour public works are in the highest proportion in the open labour market; however, nearly half of people working eight hours a day in public works re-enter public works. While 64 per cent of participants working four hours a day in public works

become registered unemployed, this is the case for only 30 per cent of those working eight hours a day. The correlation is the opposite for those unregistered and not in work.

A similar proportion of participants undertaking simple, undemanding and more complex, demanding work enter public works. A higher proportion of the latter exit to the open labour market, while the former tend to return to registered unemployment. As for entering the open labour market, there is a smaller share of participants from short-term and countrywide programmes and a larger share of participants from long-term programmes. As for entry to public works, the situation is just the opposite. It is especially worth noting that three quarters of the few public work participants that also participated in training re-enter public works.[3] There is no significant difference according to the start of programmes. However, participants terminating their public works contract by mutual agreement before its expiry are extremely likely to find employment on the open labour market.

The raw effects presented earlier do not take into consideration the possible correlation between individual factors. For example there are more participants with an upper-secondary qualification among women than among men (17 per cent and 8 per cent respectively) and twice as many among those under 25 (20 per cent) as among the ones over 44. As seen earlier, women and young people have higher than average chances of finding employment on the open labour market soon after leaving public works and be there at the time of monitoring. Nevertheless, because of the above correlation it is possible that the good employment prospects are only applicable to the qualified participants and women and young people only perform well because of the *composition effect*.

In order to exclude this effect, a multivariate discrete choice model may be used and correlate the four different statuses of day 180 with the above characteristics. As the possibilities examined include all possible outcomes, but there being no information available on them concerning choices, a multinomial logit model was used for the sake of simplicity in order to calculate average marginal effects comparable to raw differences in likelihood.

Comparison of *Table 2.9.3* and *Table 2.9.2* reveals that the effects of many factors examined previously are similar to the earlier findings. These include individual characteristics such as gender, age and educational attainment (the latter is in interaction with the "Fresh graduate" status in the estimation). There is a strikingly strong likelihood of finding the younger participants, the more qualified ones and women in employment on the open labour market on day 180. It is remarkable that the raw advantage of fresh graduates becomes a disadvantage here – the apparent impact is due to age and better schooling.

3 In the two years of the research, the extensive training campaign characteristic of the winters of 2013–2114 and 2014–2015 had not yet started (see *Subchapter 2.8*).

Table 2.9.3.: Average marginal effects gained from multinomial logit estimation.
Outcome variable: day 180 status

	Works in open labour market	In public works	Registered unemployed	Unregistered, does not work
Demographic characteristics				
Male	–0.0200***	0.0511***	–0.0432***	0.0121***
Age: 25–44	–0.00939***	0.0281***	–0.0163***	–0.00242**
Age: 44–	–0.0340***	0.0495***	–0.0106***	–0.00492***
Schooling: vocational	0.0300***	0.0148***	–0.0416***	–0.00315***
Schooling: min. upper-secondary qualification	0.0836***	–0.0114***	–0.0709***	–0.00126
Fresh graduate	–0.0116***	–0.0163***	0.0234***	0.00447***
History of participants in the preceding registration				
Registered for 4–11 months	0.0648***	–0.0784***	–0.0167	0.0304***
Registered for 12+ months	–0.198***	0.144***	0.178***	–0.125***
Number of days spent in the public employment system	–3.03e-05***	–2.47e-05***	5.90e-05***	–4.09e-06***
Number of days spent in public works	0.000188***	0.000569***	–0.000795***	0.0000377***
Participated in training	0.0462***	–0.00306	–0.0493***	0.00614*
Participated in other programmes	0.0183***	0.0848***	–0.0976***	–0.00553
Number of unsuccessful placements	0.00374***	–0.0191***	0.0106***	0.00480***
Received unemployment benefits	0.0372***	0.0442***	–0.0721***	–0.00936***
Received employment substitute allowance	–0.0139***	–0.0317***	0.0571***	–0.0114***
Characteristics of public works episodes				
Undertook undemanding work	–0.0360***	0.0148***	0.0211***	6.28e-05
Work hours: 6	0.00231	–0.00658***	–0.0117***	0.0159***
Work hours: 8	–0.0113***	0.0473***	–0.0587***	0.0227***
Length of episode, week	–0.00193***	0.00334***	0.000983***	–0.00239***
Employer: municipality	0.00456***	0.0177***	–0.0226***	0.000324
Attended training in public works	0.0258***	0.198***	–0.230***	0.00589**
Exit: other	0.0812***	–0.104***	–0.0110***	0.0340***
Exit: unknown	0.00994***	–0.00811***	–0.00603***	0.00420***

Heteroskedasticity-robust and clustered standard errors.

The multinomial logit coefficients were calculated using the complete sample, while average marginal effects were calculated using a 5-per-cent sample due to being highly resource-intensive.

The month of measurement and the number of participants exiting at the same time are included as control variables in the regression but are not presented in the table. Variables describing the client group of the registering employment centres at the time of the measurement in terms of educational attainment, long-term unemployment, and rate of cash benefits are also included.

Significant at a level of ***1 per cent, **5 per cent, *10 per cent.

Source: Authors' calculations based on the reduced EPWD.

As for the history of participants, the 4–11-month registration period has a positive correlation with the probability of finding employment in the open labour market and a negative correlation with entering public works – as opposed to longer and shorter registration periods. Logically, this implies that the only way of significantly increasing the probability of finding employment

in the open labour market and at the same time not increasing the probability of entering public works is not to increase the time spent in public works and to fix the time spent in the public employment system (as well as all other factors). If the time spent in public works does not change, longer episodes spent in the public employment system have a positive correlation with the probability of returning to registered unemployment, while the length of public works episodes has a negative correlation with entry to registered unemployment and a positive correlation with the other outcomes. Attending training has a positive correlation with leaving the public employment system and especially with employment on the open labour market, while participation in other programmes positively correlates with the probability of entering public works. It is the first time we are able to see that unsuccessful[4] job placements have a positive correlation with employment on the open labour market and negative correlation with public works. The length of the public works episode negatively correlates with the likelihood of finding employment in the open labour market and positively correlates with the likelihood of public works. When controlled for other factors, the effect of training received in public works is not selective: it only reduces the probability of registered unemployment but increases the probability of all other statuses. The rate of participants exiting before the expiry of their contract, for "other" reasons, in employment in the open labour market is significantly above the average and only a very small part of them re-enter public works. The month of measurement and the number of participants exiting at the same time are included in the regression but are not presented in the table. The former indicates a clear employment advantage in summer and a peak of entry to public works at the end of winter and in spring, partly at the expense of registered unemployment.

After leaving public works, participants have to make a decision on either trying their luck on the open labour market or returning to one of the branches of the public employment system, including public works.

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Having observed the significant and slightly increasing rate of entry to public works, this sub-chapter has examined which individual and program-level factors correlate with the various statuses seen half a year after exiting.

The first observation has been that experience in the system is multiply related to the direction of exit. The likelihood of entry to public works correlates differently with times spent in the public employment system and in public works. In the case of participants who have been registered unemployed or within the employment system for years, the probability of entering public works decreases with the length of both experiences. However, similar experience gained between 2011 and 2013 clearly increases the probability of en-

4 Successful job placements also include public works participation, which has a positive effect on public works by definition, therefore they are excluded here.

try to public works and slightly reduces the probability of entry to the open labour market. Therefore it seems that *public works retains fresh entrants but does not retain the long-term registered unemployed.* At the same time, an active relationship with other (not public works related) sections of the public employment system (related to training and cash benefits) seem beneficial to entering the open labour market, while a passive relationship (which only increases the time spent in the system) only results in re-entering registered unemployment.

The second observation is that *certain individual factors have a strong positive impact on re-entering public works.* These include the lack of a higher-level qualification and age. The latter cannot be "improved" but schooling can be. However, this has a remarkable effect. In the current regime, some of the participants with vocational qualifications have better prospects not only in the open labour market but also in public works – the reasons for this are unclear. Although training programmes not necessarily raising educational attainment clearly encourage exit from registered unemployment, training provided during public works episodes is more closely related to entry to public works than to entry to the open labour market – the same holds true for other programmes except for apparently more efficient training unrelated to public works.

The third observation is that *the conditions of public works* have a considerable impact on the day 180 status. Participating in *public works for long hours and for a long time obviously have a negative impact on the probability of entry to the open labour market and a positive impact on the probability of return to public works.* Although work undertaken at municipalities correlates positively with both employment on the open labour market and with public works, its relationship with the latter is an order of magnitude stronger. On the whole, if someone enters public works, the weaker the attachment to it, the higher the chances of exit are. However trivial this observation seems, it is of significance because of the contradiction between the aim of public works and the way of its implementation.

As mentioned before, the findings herein are descriptive. They do not reveal cause and effect relationships and do not make suggestions on which currently implemented Hungarian active labour market programme would be able to more efficiently perform the social welfare, activating and developing tasks of public works. However, it is possible to conclude that, granting financial benefits to the unemployed, allowing them to search for jobs for nine months and providing training for them in the meanwhile as well as limiting the daily hours of work in and the length of public works have positive correlations with finding employment in the open labour market. And that is the stated aim of public works. Exploring the exact mechanism of the correlations may be a topic of future research.

Annex 2.9

In order to adjust and expand the day 180 status, the daily database described above has been used. It contains the status (within the public employment system) of all persons, who have at one time participated in a branch of the system. It enables identifying if someone was in public works or registered unemployment on a given day. Aligning this information with the end of the public works episode, it may be verified whether it corresponds to the result of the monitoring. There is complete correspondence in 2012, which proves that the monitoring procedure is reliable. For the whole of 2011, the day 180 statuses "works in the open labour market" and "in public works" were determined on the basis of the new information. The starting point was the latter, since it is completely reliable: if someone is in public works in the database, it supersedes the data contained in the monitoring system. Persons found in employment according to the monitoring and indicated as not in public works according to our data are classified as "works in the open labour market". Works mistakenly registered as employment in the open labour market are corrected as public works.

According to the rule and as seen in *Table A2.9.1*, only 2011 figures are adjusted: public works figures to a greater extent, while open labour market figures to a lesser extent. This is due to the nature of registration and adjustment. The differences in figures before 1 September 2011 are explained by the lack of public works status registered at the National Tax and Customs Administration – it was not registered as a separate piece of information whether or not someone was in public works. The reason for the errors occurring until the end of 2011 is unclear; however, sources of errors and uncertainties disappeared after 2012.

However, it does not hold true for work on the open labour market; its adjustment raises further questions. Apparently the increase in the number of public works participants is bigger than the decrease in the number of persons on the labour market. It is only possible if in the case of some public works participants the Tax and Customs Administration did not even register the fact that they were working. It draws attention to the fact that while public works figures may be completely adjusted (accepting the data of the National Labour Office and now the Central Office for Administrative and Electronic Public Services as reference data), it is not possible in the case of open labour market figures. As a result, the number of persons working on the open labour market is probably underestimated by the monitoring system (and our analysis).
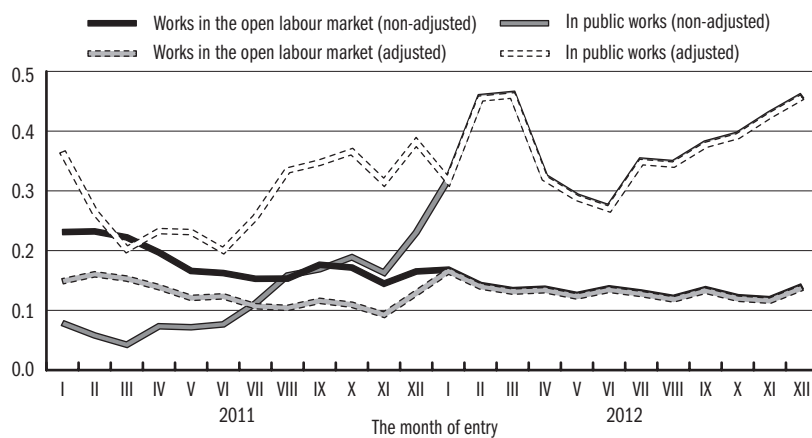
The impact of adjustment on relative indicators (exit rates) in the time series of the starting months of episodes is shown in *Figure A2.9.1*. It is conspicuous, that the trend and seasonal changes of earlier (erroneous) day 180 statuses of 2011 become realistic, similarly to 2012 (the adjusted data series are shown by a dashed line).

Table A2.9.1: Exit from public works and finding employment
in the open labour market or in public works within 180 days after exiting
– original and adjusted headcounts (persons)

Year/starting month	Number of exiting participants	On day 180 after exit				
		Works	In public works		In open labour market	
			original	adjusted	original	adjusted
2011						
I	14,928	4,624	1,175	5,490	3,449	2,257
II	21,011	6,097	1,219	5,621	4,878	3,422
III	26,130	6,914	1,109	5,345	5,805	4,068
IV	32,555	8,800	2,389	7,657	6,411	4,601
V	32,914	7,821	2,360	7,687	5,461	4,060
VI	24,413	5,834	1,868	4,947	3,966	3,076
VII	20,890	5,527	2,334	5,393	3,193	2,287
VIII	23,224	7,237	3,680	7,819	3,557	2,477
IX	23,242	8,022	3,924	8,137	4,098	2,753
X	20,604	7,429	3,893	7,593	3,536	2,306
XI	10,705	3,294	1,745	3,391	1,549	1,019
XII	15,197	6,008	3,499	5,841	2,509	1,997
2012						
I	1,969	960	629	629	331	331
II	66,924	40,113	30,585	30,585	9,528	9,528
III	50,394	30,032	23,290	23,290	6,742	6,742
IV	21,916	10,075	7,090	7,090	2,985	2,985
V	16,013	6,666	4,653	4,653	2,013	2,013
VI	13,876	5,676	3,777	3,777	1,899	1,899
VII	19,862	9,544	6,965	6,965	2,579	2,579
VIII	14,840	6,933	5,141	5,141	1,792	1,792
IX	17,501	9,009	6,640	6,640	2,369	2,369
X	15,998	8,257	6,305	6,305	1,952	1,952
XI	11,529	6,310	4,942	4,942	1,368	1,368
XII	13,109	7,859	6,021	6,021	1,838	1,838

Source: Authors' calculations based on the complete EPWD.

Figure A2.9.1: The difference between the adjusted and non-adjusted day 180 public works and open labour market statuses

Source: Authors' calculations based on the complete EPWD.