

TURKISH EMPLOYMENT AGENCY · DEPARTMENT OF ACTIVE LABOUR SERVICES

ON-THE-JOB TRAINING PROGRAM IMPACT EVALUATION



What is the On-the-Job Training Program (OJTP)?

Active labor force services are activities carried out to preserve and increase employment, improve the vocational qualifications of unemployed persons, and integrate groups requiring special policies into the labor market. Among these programs, İEP (OJTP) aims to enable unemployed persons registered with İŞKUR to gain vocational experience and increase their employability.



It brings theory and practice together

Practical implementation and adaptation to the work environment are ensured.



Support for the participant

Payment is made based on the days actually attended; GSS and occupational accident and disease premiums are covered by İŞKUR.

PROGRAM LOGIC

Unemployed person registered with the Institution →
workplace-based practical training →
experience and employment

QUOTA

30%

Employers may request participants up to 30% of the number of insured employees they employ under the same province and the same tax number.

Eligibility conditions for participants

1 Being an unemployed person registered with İŞKUR

2 Being at least 15 years old

3 Not being a first-/second-degree blood relative or spouse of the employer

4 Not being retired

5 Not having been insured by the same employer within the last 1 year

6 Not having completed a course/program in the same occupation

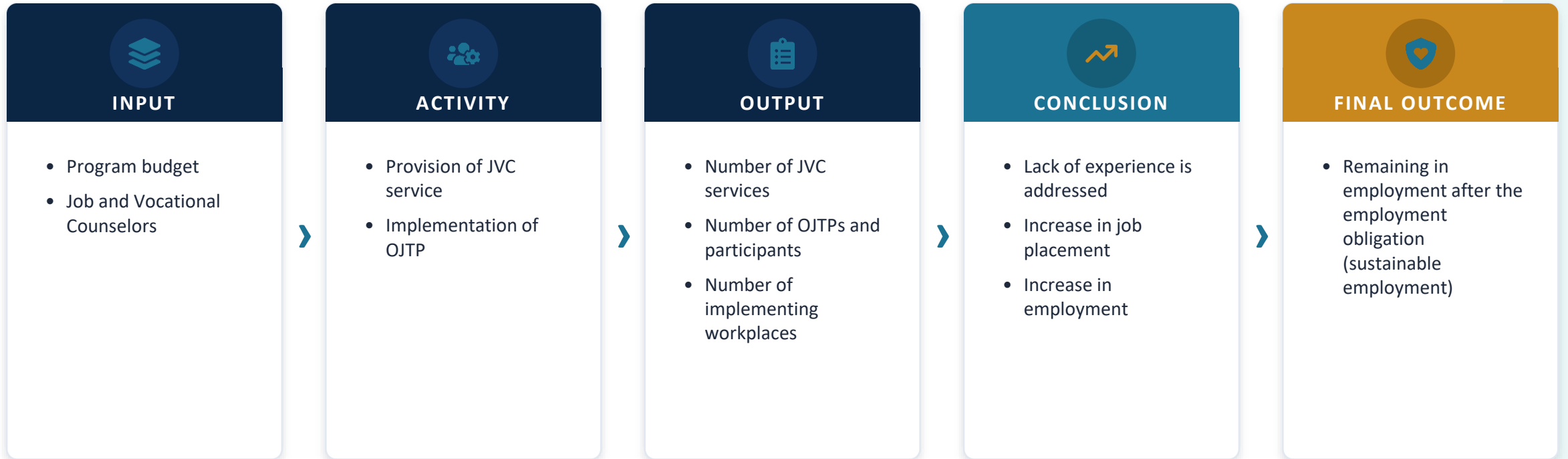
7 Not being subject to a sanction preventing participation

8 Having benefited from job and vocational counseling services



Payment and insurance: Payment is made to the participant based on the days actually attended; general health insurance and occupational accident and disease premiums are covered by İŞKUR throughout the program.

IEP results chain: how does the program become effective?



Expectation: OJTP is expected to generate an effect on participants' job entry and employment in the short term, and on remaining in employment after the employment obligation in the long term. Because the person may also be employed at another workplace, the effect should be measured independently of the workplace.

Expected effects: Three models



01

SHORT TERM

Job Entry

Increase in job entry within 3 months after the program/iMD.



02

MEDIUM TERM

Employment

Increase in the number of days employed within 6 months after the program/iMD.



03

LONG TERM

Sustainable Employment

Sustaining remaining in employment after the employment obligation.

Design principle: In all three models, the effect is evaluated through the individual's labor market outcomes, without being limited to the workplace where the program is implemented—even if the person is employed at a different workplace.

Why counterfactual impact analysis?



Core question

“What would have happened to participants if the program had not existed?”

Counterfactual Impact Evaluation (CIE) measures the direct effect generated by the program by comparing participants’ current situation with the hypothetical (counterfactual) scenario in the absence of the program.

Why is “Before / After” alone insufficient?

External factors may play a role in participants’ change over time. If these are not controlled for, the program may appear successful even if it is ineffective.



Economic growth

Improvement in the overall economic cycle



Seasonality

Periodic employment fluctuations



Personal motivation

Participant’s willingness to search for work

CIE controls for these external factors and reveals the program’s pure (true) effect.

Difference-in-Differences (DiD) method

The change trends over time of the group benefiting from the program and a similar non-beneficiary group are compared; the difference between the two changes gives the program's net effect.



A. Intervention

There is a program / support / policy → Treatment group



B. Time

Before and after the intervention — at least two periods



C. Control group

A similar group not affected by the intervention

DiD REGRESSION MODEL

$$Y_{it} = \beta_0 + \beta_1 \cdot \text{Treat} + \beta_2 \cdot \text{Post} \\ + \beta_3 \cdot (\text{Treat} \times \text{Post}) + X \cdot \gamma + \varepsilon$$

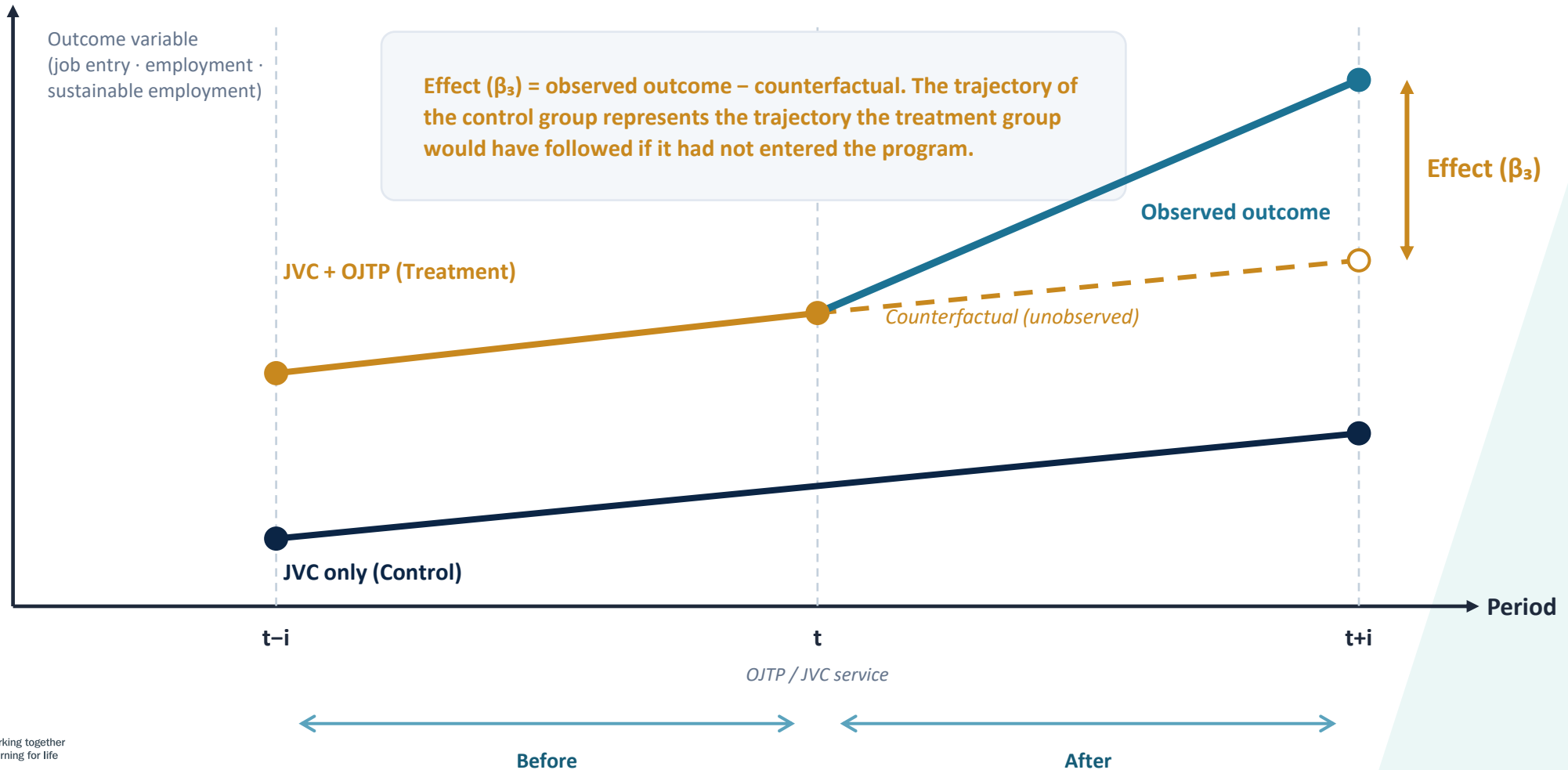
β_3 = Program's net effect

Treat = 1 intervention received / 0 control

Post = 1 after intervention / 0 before

Robustness checks: parallel trend test

How does Difference-in-Differences work?



Propensity score matching (PSM)



Problem: Selection Bias

Those who voluntarily participate in the program (more educated/motivated) may already have a higher chance of finding a job. If not controlled for, the effect appears higher than it actually is.



Solution: Propensity Score Matching

The “probability of participating in the program” (propensity score) is estimated based on observable characteristics; participants and non-participants with similar scores are matched like twins.

ALGORITHM

Nearest Neighbor

nearest neighbor, 1:1

DISTANCE

GLM-Based

distance = glm

CALIPER

0.20

caliper threshold

MATCHING

Without replacement

replace = FALSE



Post-matching balance

Standardized mean differences (SMD) are below the 0.10 threshold for all variables except the province variable; exact matching was applied for age group and education level.

Method selection and hypotheses



Why a non-experimental method?

Every participant and employer meeting the conditions may benefit from the program. Since the Institution cannot direct individuals not to participate, random assignment (RCT) is not possible.

CONCLUSION

Considering how the program is implemented, the Difference-in-Differences (DiD) method is the most appropriate approach.

Hypotheses



1

OJTP increases job entry within 3 months after the program.



2

OJTP increases the number of days employed within 6 months after the program.



3

OJTP increases sustainable employment after the employment obligation.

Design of the treatment and control groups

TREATMENT GROUP (TREATED)

JVC + OJTP

Individuals who received job and vocational counseling services and participated in the on-the-job training program.

CONTROL GROUP

JVC only

Individuals who received job and vocational counseling in the same period but did not participate in IEP.



Why the “JVC only” control group? The two groups are similar in terms of the unobservable willingness to search for work; OJTP participants also received JVC before the program. Thus, the only difference is whether they participated in JVC.

Matching (observable) variables

Gender

Age group

Education level

Province target group

Premium day counts (2022–24)

Premium change rate

Sample and matching result

Sample construction (2025)

-  Programs starting in 2025 and ending no later than 31.12.2025; participants whose status has ended
-  Only individuals who completed the program and graduated
-  Working-age population: 15–64 years
-  Missing/outlier observations (age, gender, education) were removed
-  Control: received JVC in 2025; excluding retirees and previous ALMP participants

After matching, there are 3,417 persons in each group; each treatment member was matched with a single control member without replacement.

MATCHING (PSM) RESULT

Treatment group (Treated)

16,069 persons → 3,417

before matching → after matching

Control group

320,296 persons → 3,417

before matching → after matching

Research model and outcome variables

$$Y_i = \beta_0 + \beta_1 \cdot \text{Period} + \beta_2 \cdot \text{IEP_status} + \beta_3 \cdot (\text{Period} \times \text{IEP_status}) + \varepsilon$$

β_3 = effect



JOB PLACEMENT

Y = job entry (1 / 0)

Period: ±3 months

1 if job entry exists, 0 otherwise. Three-month periods before and after the program/IMD.



EMPLOYMENT

Y = total number of premium days

Period: ±6 months

Number of premium days (capped at 180). Six-month periods before and after.



SUSTAINABLE EMPLOYMENT

Y = threshold premium (1 / 0)

Threshold: $0.55 * \text{Number of Days}$

Derived from the unemployment benefit condition: For example; 600 days in 3 years ≈ 100 days in 6 months (≈0.55 days/day).

Matching balance and parallel trend

Variable	Treatment	Control	SMD
Propensity score (distance)	0.177	0.173	0.010
2022 total premium days	105.2	112.5	-0.070
2023 total premium days	113.0	121.2	-0.073
2024 total premium days	99.4	108.3	-0.084
Premium change 22–23	7.80	8.76	-0.012
Province target group	3.95	3.48	0.219
Age group / Education (exact)	—	—	0.000

Means Treated / Control and standardized mean difference (SMD). Through exact matching by age group and education level, SMD = 0.000.



SMD < 0.10

Below the balance threshold for all variables.
(!Province target group)



Exact matching

One-to-one by age group and education level.



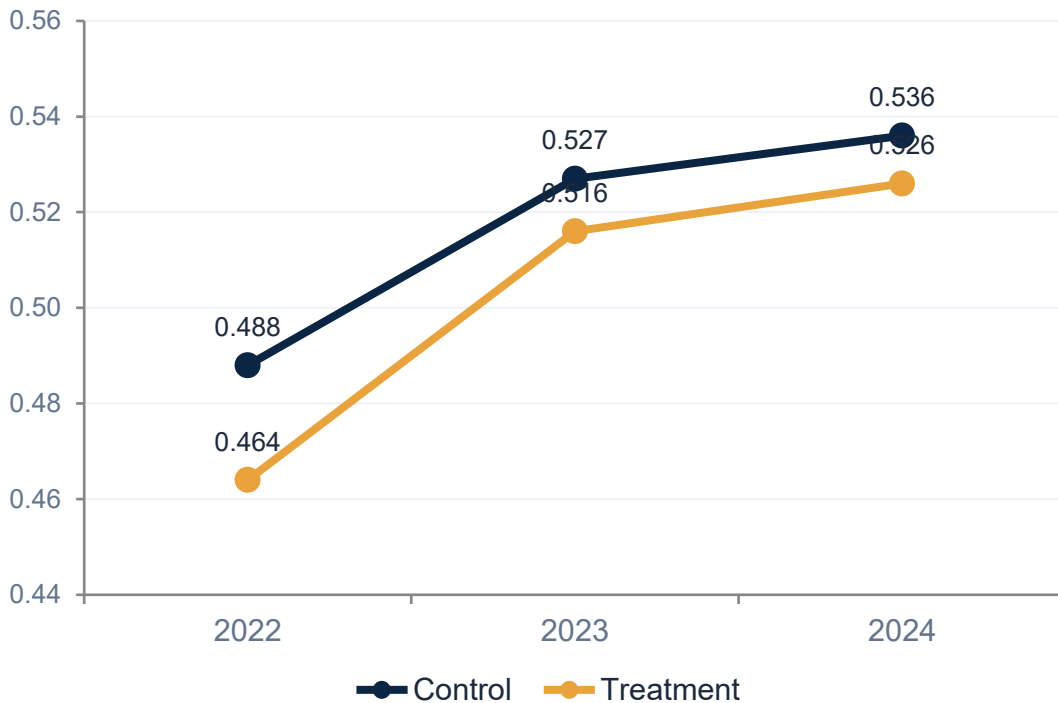
Parallel trend

Pre-period series for 2022–24 move in parallel.

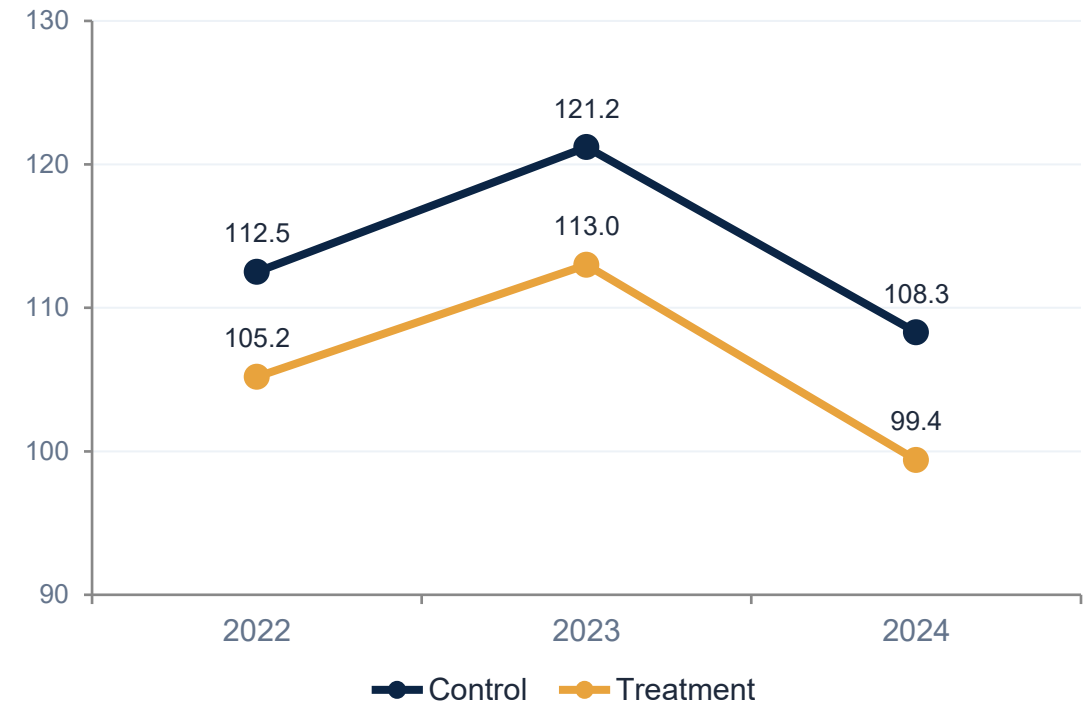
Parallel trend validation (2022–2024)

In the three years before the intervention (2022–2024), the series move in the same direction and with similar slopes. Employment participation: control 0.488→0.527→0.536; treatment 0.464→0.516→0.526. Premium days: control 112.5→121.2→108.3; treatment 105.2→113.0→99.4. The level difference between them is constant; the slopes are nearly identical.

Employment participation status (group average)



Total premium days (group average)



OJTP net effect: positive and significant in all three models



JOB ENTRY

+64.4%

increase in the probability of job entry within 3 months

DiD effect · 3-month period



EMPLOYMENT

+63.8

days — increase in days employed over 6 months

DiD effect · 6-month period



SUSTAINABLE

+64.3%

increase in remaining in employment sustainably

DiD effect · post-obligation

In all models, the model parameters and the model as a whole are statistically significant.

Model results: DiD estimates

In all three models, the interaction term ($iEP_status \times Period$) is positive and significant at the $p < 0.001$ level.

Model	Outcome variable	Period	β_3 (DiD)	Std. Error	t	p	Adj. R ²
Job Placement	Job entry (0/1)	± 3 months	0.644	0.012	53.03	< 0.001 ***	0.412
Employment	Premium days	± 6 months	63.78	1.95	32.67	< 0.001 ***	0.126
Sustainable Employment	By threshold (0/1)	Post-obligation	0.643	0.022	29.26	< 0.001 ***	0.235

Interpretation: β_3 coefficients correspond to a net effect of +64.4% in job entry, +63.8 days in employment, and +64.3% in sustainable employment.

Subgroup analysis: who benefits most?

Control variables: age group, education level, province target group — all three models. Significant at $p < 0.001$.

Job Placement Model

$\beta_3 = +64.4\% \cdot \pm 3 \text{ months}$

Education

Significant positive effect at all levels (primary through bachelor's). Strongest for upper secondary, associate degree, and bachelor's graduates.

Age

Most age groups not statistically significant. Exception: **50–54 group: significant negative effect** — older workers face greater re-entry barriers.

Region

Province target group: significant negative coefficient. Job placement probability is lower in more disadvantaged provinces.

Employment Model

$\beta_3 = +63.8 \text{ days} \cdot \pm 6 \text{ months}$

Age

Significant positive effects from 25–29 upward. **60–64 group stands out: ~51 days above reference group** — highest employment days of any group.

Education

Pattern mirrors job placement model: higher education is associated with more employment days. Effect increases with each level.

Region

Province target group: significant negative coefficient. More disadvantaged provinces show fewer employment days, consistent with the job placement model.

Sustainable Employment Model

$\beta_3 = +64.3\% \cdot \text{Post-obligation}$

Age

Significant positive effects from **25–29 through 50–54**. Broadest age range with confirmed effects across all three models.

Education

No significant effect at any education level. Staying in employment after the obligation does not appear to depend on education — this differs from the other two models.

Key contrast vs. other models

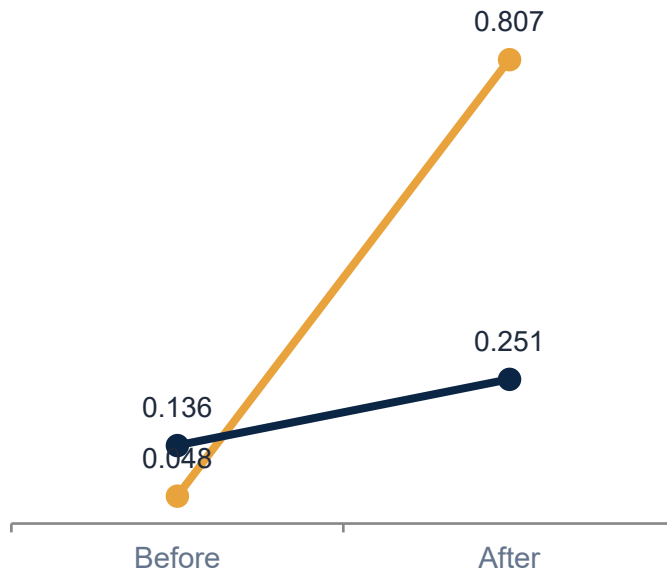
The 50–54 penalty seen in job placement disappears here: this group shows positive effects on staying employed, suggesting they keep jobs once placed.

Cross-model pattern: higher education → more job entry and employment days; 50–54 age group is the key exception for placement; education does not predict retention.

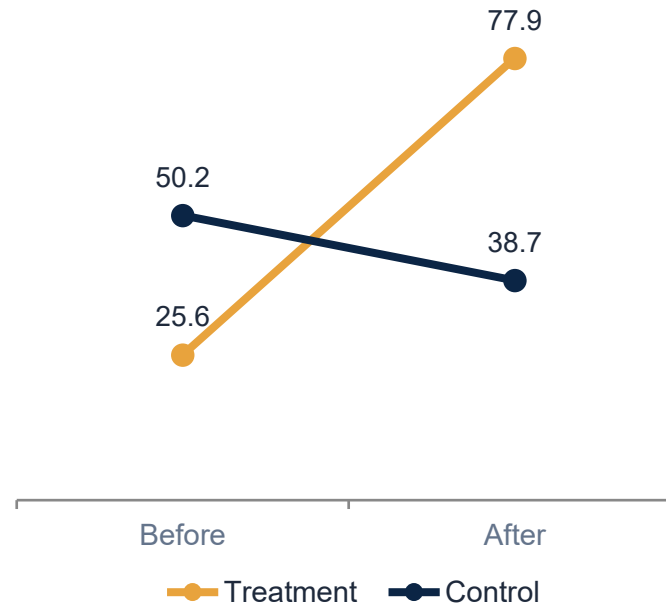
DiD visualization: before → after

While the treatment group rises markedly after the program, the control group is flat/declining. DiD = (Treatment difference) – (Control difference). Job placement: $(0.807 - 0.048) - (0.251 - 0.136) = +0.644$. Employment: $(77.94 - 25.62) - (38.74 - 50.21) = +63.78$ days. Sustainable: $(0.698 - 0.126) - (0.194 - 0.264) = +0.643$.

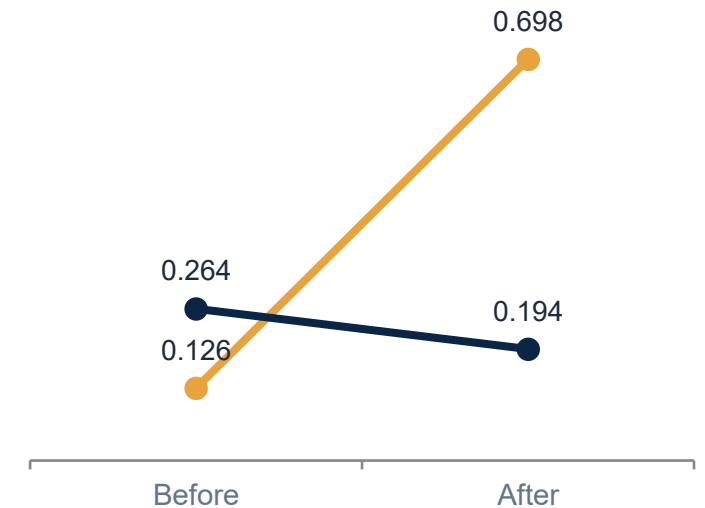
Job Placement (rate)



Employment (premium days)



Sustainable (rate)



Limitations of the study



Unobservable characteristics

DiD and PSM balance only observable variables; residual effects from unobserved differences such as willingness to search for work cannot be fully ruled out.



Nature of the control group

The control group also received a service (iMD); therefore, the estimates should be interpreted cautiously as the program's effect.



Short observation window

The outputs are limited to 3–6-month periods and single-year (2025) data; long-term effects independent of the economic cycle could not be observed.



Definition and transformation assumptions

The sustainable employment threshold is based on proportioning. Due to the logic of proportioning, the number of days required for the threshold may vary from person to person. Alternative threshold definitions may affect the magnitude of the results.

Policy recommendations



Continuation of the program

1

The positive and significant effect across all three outputs supports maintaining and scaling OJTP as an effective instrument.



Use of model outputs in counseling and referral services

2

Use of the overall effect together with subgroup findings to support other implementation processes such as referral and counseling



Managing the lock-in effect

3

By maintaining job-search support during the program, the short-term lock-in effect should be reduced and long-term gains should be targeted.



Strengthening the administrative data infrastructure

4

Ensuring data integration with relevant other institutions that can provide data during the impact analysis process, such as the SGK-İŞKUR web service

07 CONCLUSION

Conclusion

The analysis conducted using administrative data and the Difference-in-Differences method shows that the on-the-job training program significantly increases job entry, employment, and sustainable employment. Matching and parallel trend validations strengthen the attribution of the effect to the program.

Turkish Employment Agency · Department of Active Labour Services



European Training Foundation

Thank you