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The IAB Research Reports (IAB-Forschungsberichte) series publishes larger-scale empirical analyses and project reports, often with heavily data- and method-related content.

In brief

- In the absence of formal credentials, employers and Public Employment Service (PES) caseworkers face uncertainty about an applicant's true skills. A standardized skill assessment test, utilized between 2018 and 2022, provides an observable "signal" of ability, enabling caseworkers to match individuals more accurately to vacancies and ALMPs.
- After accounting for selection bias, test-takers experienced substantial benefits: by the fourth year following the assessment, participants' monthly probability of being in regular contributory employment was up to 6 percentage points higher than that of non-participants—equivalent to roughly 20 extra days of employment in that year.
- The observed employment gains are less due to direct transitions into employment soon after being tested, but primarily attributable to better matching of jobseekers with Active Labour Market Programmes first, even long before entering a new job. By aligning participants with the most suitable training and support measures, the assessment amplifies the effectiveness of ALMP offerings.
- Making the assessment results—and the underlying skill information—more widely accessible during job referrals and ALMP assignments may increase both program participation rates and the overall impact of these interventions.

Contents

Summary

This study examines the long-term effects of a standardized skills assessment test—MySkills—on the employment outcomes of jobseekers without formal vocational qualifications in Germany. In a labour market where certified qualifications are the key currency for access to stable jobs, individuals lacking such credentials face persistent structural disadvantages. This includes a large share of refugees, migrants, and native low-skilled workers who may possess substantial work experience but lack documented proof of their competencies. Public Employment Service (PES) caseworkers and employers often struggle to evaluate these jobseekers' true abilities, leading to mismatches in job referrals and limited access to Active Labour Market Programmes (ALMPs). To address these challenges, the German Federal Employment Agency introduced MySkills—a standardised, computer-based assessment tool designed to make informally acquired skills visible. After a test phase, MySkills was fully active 2019 -2022, when low participation rates and high costs led to dropping the test. Unlike formal qualifications, MySkills does not confer certification but provides structured feedback across 30 occupational fields. The expectation was that this tool can improve the alignment between jobseekers and available training or employment measures, particularly for those outside the traditional education and training systems. Using rich administrative data from the German social security system spanning 2019 to 2022, we compare individuals who took the MySkills test to those who were referred but ultimately did not participate. To address selection bias, we apply inverse probability weighting based on a propensity score model, complemented by robustness checks and sensitivity analyses. Our results show that test participation does not lead to immediate improvements in employment – which confirms expectations from qualitative findings published earlier (Promberger and Kawalec 2024). In fact, a short-term decline in employment compared to the control group is observed, likely due to an increased enrolment in ALMPs. However, this pattern reverses over time. By the fourth year following the test referral, participants are up to six percentage points more likely to be in regular contributory employment than non-participants—equivalent to about 20 additional days of employment per year. The strongest positive effects are observed in vocational training and short-term skill-building programmes. The evidence suggests that the MySkills test enhances not the direct job transitions but the effectiveness of caseworker recommendations by offering objective signals of ability, thus improving programme targeting. However, the tool's limited uptake, long duration, and weak signalling value for employers curtailed its full potential. Qualitative insights indicate that, where applied, its greatest utility lay in aiding caseworkers rather than directly empowering jobseekers. In sum, MySkills functioned less as a standalone intervention and more as an institutional support mechanism within the Public Employment Services. When integrated properly, such tools can help reduce bias, improve matching quality, and promote long-term labour market integration for disadvantaged groups. To enhance impact, future initiatives should prioritise ease of use, broader recognition, and active integration into counselling routines.

Zusammenfassung

Diese Studie untersucht die mittel- und langfristigen Beschäftigungseffekte eines standardisierten Kompetenztests – MySkills – für Arbeitsuchende ohne formalen Berufsabschluss in Deutschland. In einem stark formalisierten Arbeitsmarkt, in dem Zertifikate als zentrale Signale für berufliche Eignung fungieren, haben Personen ohne anerkannte Abschlüsse erhebliche Schwierigkeiten beim Zugang zu regulärer Beschäftigung und arbeitsmarktpolitischen Maßnahmen. Dazu zählen Geflüchtete, Migrant*innen sowie einheimische Geringqualifizierte mit informell erworbenen Fähigkeiten. Der von der Bundesagentur für Arbeit entwickelte MySkills-Test zielt darauf ab, diese Kompetenzen sichtbar zu machen und so eine bessere Zuordnung zu Maßnahmen der aktiven Arbeitsmarktpolitik (AAMP) zu ermöglichen. Der Test liefert eine standardisierte, strukturierte Rückmeldung zu berufsbezogenen Fertigkeiten in 30 Berufsfeldern, ersetzt jedoch keinen formalen Abschluss. Unsere Analyse beruht auf administrativen Daten des deutschen Sozialversicherungssystems für den Zeitraum von 2019 bis 2022. Verglichen werden Personen, die den Test abgelegt haben, mit solchen, die zwar zugewiesen wurden, jedoch nicht teilgenommen haben. Die Ergebnisse zeigen ein differenziertes Bild: Kurzfristig sinkt bei Testteilnehmenden zunächst die Wahrscheinlichkeit regulärer Beschäftigung – vermutlich aufgrund verstärkter Teilnahme an Weiterbildungsmaßnahmen. Mittel- und langfristig kehrt sich dieser Trend jedoch um. Vier Jahre nach der Testzuweisung liegt die Beschäftigungswahrscheinlichkeit bei Testteilnehmenden um bis zu 6 Prozentpunkte höher als bei Nichtteilnehmenden – was etwa 20 zusätzlichen Tagen regulärer Beschäftigung pro Jahr entspricht. Der größte Effekt zeigt sich bei der Teilnahme an beruflicher Weiterbildung und kurzfristigen Qualifizierungsmaßnahmen. Dies deutet darauf hin, dass der Test vor allem die Fallsteuerung durch Vermittlungsfachkräfte verbessert, indem er objektive Informationen über die Fähigkeiten der Arbeitsuchenden bereitstellt. Die direkte Signalwirkung gegenüber Arbeitgebern bleibt hingegen begrenzt – nicht zuletzt wegen der fehlenden formalen Anerkennung des Tests. Insgesamt fungierte MySkills weniger als eigenständige Maßnahme, sondern eher als unterstützendes Instrument im Vermittlungsprozess. Wenn kompetenzbasierte Testverfahren systematisch in die Abläufe der Arbeitsvermittlung integriert werden, können sie helfen, Zugangsbarrieren abzubauen, Fehlentscheidungen zu reduzieren und die Integration benachteiligter Gruppen in den Arbeitsmarkt langfristig zu verbessern. Für eine breitere Wirkung sollten zukünftige Verfahren besser kommuniziert, praxisnäher gestaltet und stärker institutionell verankert werden.

Acknowledgements

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1 Introduction

In advanced economies like EU countries, formal qualifications serve as a primary gateway to employment. Thus, many job seekers without formal credentials face significant barriers, and have far fewer opportunities to find work (Abrassart 2015; Klein 2015; Nickell/Bell 1995; Pompei/Selezneva 2021). In Germany, as of 2024, the unemployment rate for individuals without a professional qualification stood at 20,9 percent compared to 3,4 percent for those with in-company or school-based training. University graduates had the lowest unemployment rate at 2. 9 percent, reflecting the strong association between educational attainment and labour market stability (Federal Employment Agency 2024). This pattern extends beyond Germany and is evident across OECD countries, where educational attainment remains a key determinant of employment outcomes. On average, the unemployment rate for 25-64-year-olds without upper secondary education is 9,4 percent , nearly three times as high as the 3,5 percent observed among those with tertiary education (OECD 2023). These figures highlight the persistent disadvantages faced by individuals lacking formal qualifications and the structural barriers they encounter in accessing stable employment.

Research consistently demonstrates the critical role institutions play in shaping employment outcomes for disadvantaged groups, such as low-skilled and informally qualified jobseekers (Abrassart 2015; Bonoli 2010; Chung/van Oorschot 2011; Escudero 2018). Effective integration into the labour market often hinges on structured access to vocational training (Lindsay/Canduela/Raeside 2013), active labour market policies (Ingold/Stuart 2015), and personalized activation measures (Fuertes/McQuaid 2016).

Reintegrating low-skilled or informally trained workers into the German labour market remains a persistent challenge, in part due to the lack of formal qualification certificates, which hinders caseworkers of the Public Employment Services (PES) and employers to accurately assess their competencies. PES typically rely on caseworkers to match jobseekers with appropriate active labour market programmes (ALMPs) or employment opportunities (Behncke/Frölich/Lechner 2010). However, traditional profiling methods used by caseworkers tend to prioritise observable credentials such as formal education or past job titles over practical competencies, leading to mismatches in vacancy referrals and ALMP placements (van Landeghem/Desiere/Struyven 2021). Employers frequently use degrees and certificates as proxies for skills, leading to the perception that individuals without formal qualifications are “not work-ready” (Dehmel 2013; Di Stasio 2014). Consequently, many skilled but uncertified workers may be overlooked for suitable job vacancies or excluded from targeted training measures. This challenge is particularly acute for migrants, older workers, individuals with fragmented employment histories, and those who have acquired skills informally (Callan et al. 2021; Flake et al. 2017). Addressing these disparities is essential not only for reducing unemployment but also for mitigating skills shortages and strengthening economic resilience at household and at societal level.

Given the high proportion of low-skilled unemployed workers, policymakers have sought mechanisms to bridge qualification gaps and enhance employability. Since the 2012 European Council Recommendation on the Validation of Non-Formal and Informal Learning, skills validation and competency-based assessments have gained increasing attention (Casano 2016;

European Commission, 2020), as tools to improve labour market integration for this group. Skills recognition processes are crucial for overcoming employment barriers, as they formally validate a person's existing skills, whether through recognition of prior learning or competency assessments, allowing individuals to demonstrate their capabilities despite lacking traditional credentials. This recognition not only enhances employability by making informal learning visible to employers (Villalba-García 2021) but also fosters better alignment between worker skills and job requirements (Pouliakas 2012).

To address these challenges, the Federal Employment Agency (FEA) of Germany introduced MySkills, a standardised competency assessment of skills. Launched in 2018, MySkills evaluates competencies across 30 occupational fields and is available in multiple languages, improving access for workers with diverse backgrounds (Promberger et al., 2023). The primary objective of MySkills is to provide structured, objective evidence of a jobseeker's competencies, thereby enhancing caseworker recommendations and improving job matching.

Similar validation procedures have been implemented across Europe (Otero et al., 2024). While existing research highlights the potential benefits of skills validation for employment outcomes (Leita 2020; Leushuis/Van den Brande 2020), it also identifies key challenges such as uptake rates, administrative burdens, stakeholder engagement, and quality assurance (Andersson/Osman 2008).

While previous research has examined skills validation broadly (Villalba-García 2021), there is limited evidence on its causal impact at the individual level. Unlike recognition schemes leading to formal credentials, MySkills provides an assessment without certification. This raises key questions: Does the test itself alter employment trajectories, or does it merely confirm existing job prospects? Our study provides the first causal evidence on this issue using a quasi-experimental design.

From a theoretical standpoint, the benefits of recognizing informal skills can be understood through both psychological and economic lenses. Self-efficacy theory explains the internal confidence gains for jobseekers, while signalling theory captures the external market effects of making skills visible. Together, these perspectives shed light on how non-formal skill recognition improves employment prospects for individuals without formal qualifications.

Self-efficacy refers to one's belief in their ability to perform tasks and achieve goals (Shirom/Vinokur/Price 2008). In the context of unemployment, validating a jobseeker's informal competencies can serve as a powerful experience that boosts confidence and reinforces self-worth (Kis/ Windischp 2018). Research suggests that jobseekers with stronger self-efficacy beliefs are more likely to persist in job searching (da Motta Veiga/Turban 2018) and engage in upskilling (Sousa-Ribeiro et al. 2018). By providing structured feedback, MySkills may enhance individuals' confidence, making them more proactive in seeking employment.

From an economic perspective, skills recognition functions as a signal to employers and caseworkers in a context of information asymmetry (Spence 1973). Where formal qualifications are lacking, validated test results serve as a proxy for productivity, helping jobseekers distinguish themselves from others. Recognizing informal or non-formal competencies – even if it does not yield a full certificate – provides an observable signal of the worker's abilities.

While MySkills may directly influence jobseekers' confidence and labour market outcomes, its impact on caseworker behaviour is equally important. Insights from behavioural economics suggest that structured tools like MySkills can help reduce biases in decision-making within PES.

Research indicates that even trained professionals frequently use mental shortcuts (heuristics) when making complex decisions under pressure or with limited information (Gigerenzer 2008; Gigerenzer/Gaissmaier 2011; Tversky/Kahneman 1974). For example, caseworkers might overly rely on formal qualifications, causing them to overlook informally acquired skills, especially among disadvantaged groups. MySkills provides structured information about these hidden competencies, helping reduce such biases and inconsistencies (Kahneman 2011). By clearly highlighting jobseekers' informal skills, the test promotes fairer and more accurate referrals to vacancies and ALMPs. Thus, MySkills acts not only as a direct support for jobseekers but also as a behavioural intervention that guides caseworkers toward more balanced and evidence-based decisions, improving service delivery.

To examine the labour market effects of skills validation, we utilise anonymized administrative data on individuals referred to the test, obtained from the German social security database (Schmucker/Seth/vom Berge 2023), matched with test referrals and take-up information from the VERBIS database used by the caseworkers in the FEA. Unfortunately, the data do not include information on the specific occupations for which the test was conducted or the test results themselves. Nevertheless, the dataset enables us to track how participation in MySkills affects short-term job placements and longer-term employment trajectories. To establish causal effects, we compare test participants to individuals who were referred to, but did not take the test. As a simple comparison could be misleading if test takers differ systematically from non-takers, we address selection bias by employing propensity score reweighting techniques and extensive robustness checks to ensure comparability between both groups.

Our findings suggest that, after accounting for selection bias, MySkills participation significantly increases the likelihood of engaging in ALMPs. However, test participants initially experience a reduction in employment rates in the twelve months following the test. In the long term, however, the effects reverse: four years after taking MySkills, participants have a monthly probability of regular employment that is up to six percentage points higher than non-participants. This corresponds to an average of 20 additional days in regular employment in the fourth year following the test. The initial decline in employment suggests that test takers may have prioritized ALMPs engagement over immediate job entry. This aligns with prior research indicating that participation in ALMPs often delay workforce re-entry in the short term (Card/Kluve/Weber 2018).

The remainder of this paper is structured as follows: Section 2 outlines the institutional setting of the test. Sections 3 and 4 describe the data and empirical methodology. Section 5 presents the results. Section 6 offers discussion and limitations, and Section 7 concludes.

2 Background

In Germany, the labour market is characterized by a high degree of formalization, placing significant emphasis on standardized qualifications and certifications (Eichhorst et al. 2015). This system helps ensure that individuals possess the necessary skills and knowledge for their professions, and it facilitates efficient hiring by using certificates as clear, widely recognised proxies for complex skill sets. However, this reliance on formal credentials creates challenges for those without recognized qualifications. Such individuals are often perceived as less qualified, steered into lower segments of the labour market, and face a higher risk of unemployment (Holtmann et al. 2021). Yet, the absence of a certificate does not necessarily imply a lack of the skills required to perform a job.

The recognition of non-formal competencies became a major policy focus for two key reasons. First, to address the ageing population, Germany is relying on attracting talents from abroad (Kosyakova/Brücker, 2021). Second, the refugee crisis of 2015 led to a large influx of migrants (refugees) from non-EU countries often possessing either no formal proof of competencies or certification not directly recognized in Germany (Brücker et al., 2020). To respond to these challenges significant efforts were made to streamline the processes of recognizing foreign qualifications leading to a better labour market outcomes of skilled professionals from other countries (Anger/Bassetto/Sandner 2024; Brücker et al. 2021).

Until recently, comparatively little was done in the process of validation of non-formal and informal of competencies received in Germany. While, recognising such competencies is important for migrants lacking formal educational degrees, it is equally important for low-educated natives that have acquired their skills on the job and seek to validate them in case of falling in unemployment.

MySkills emerged as an ambitious attempt to address these long-standing challenges. Developed by the FEA in collaboration with the Bertelsmann Foundation, Leibniz Institute for Research and Information in Education and Research Institute for Vocational Education and Training (f-bb), MySkills sought to offer a structured and standardised means of recognising non-formal and informal learning, thereby improving labour market access for migrants, career changers, and individuals with unrecognised credentials. The test was designed as a standardised computer-based assessment, available in 12 languages and covering 30 vocational professions. The test lasted approximately four hours and was conducted under controlled conditions in employment agencies, supervised by the psychological back-office services in the FEA. It aimed to measure practical, occupation-specific competencies against the official German vocational training framework, providing a means for job seekers to demonstrate their skills in the absence of formal certificates.

Among its primary target groups were those who had gained substantial work experience but never obtained an official vocational certificate. Career changers also constituted a key target group, particularly those whose existing qualifications were in unrelated fields and who sought to transition into a new profession. Additionally, the test was intended for individuals who had not worked in their trained profession for over four years, helping to assess whether their skills remained relevant in the evolving job market. A significant focus was placed on migrants and

refugees whose foreign vocational qualifications were not officially acknowledged in Germany, providing them with an opportunity to validate their expertise in line with German occupational standards. The test was intended as a non-obligatory supportive tool. Placement officers could recommend taking the test if they believed it would help assess a candidate's competencies and improve their job prospects. However, test participation was contingent on the job seekers' willingness.

Although the test was made available in all employment agencies and job centres nationwide, its utilisation during counselling and job placement processes remained limited. The number of test referrals did not exceed 5,500 per year (Promberger et al. 2023). From the perspective of test-takers, several barriers hindered participation. The four-hour duration of the test was perceived as too long and demanding, particularly for individuals with low digital literacy or language barriers. Additionally, many caseworkers reported that the results fell short of their clients' expectations, which often led to frustration and demotivation. Job placement officers noted that only a small proportion of participants achieved results exceeding "public professional knowledge," making it difficult to present the test as a valuable qualification. Combined, these factors resulted in a sizable share of referred individuals deciding not to take the test (Promberger et al. 2023).

The COVID-19 pandemic also affected MySkills implementation. During the early months of 2020, testing activity was severely limited due to contact restrictions in job centres. Even after restrictions were lifted, the test did not see a significant increase in usage. Many of the job placement officers originally trained in administering MySkills had moved to different positions, and newly hired staff were not trained to use the test effectively (Promberger et al. 2023). By the end of 2022, the FEA officially stopped offering MySkills due to its limited use and perceived lack of added value in the job placement process.

3 Data and Methods

The core empirical analysis is based on data obtained from the German social security database – Integrated Employment Biographies. The IEB includes comprehensive data on all registrations within the German social insurance system, covering all individuals who have been registered since 1975. It encompasses periods of contributory and marginal employment, unemployment, welfare benefit receipt, and participation in ALMPs. This rich dataset allows for day-by-day analyses of complete labour market biographies, enabling detailed reconstruction of individual employment trajectories.

We supplement the discussion of our results with extensive qualitative evidence gathered through interviews with managers and caseworkers from the FEA and social partners. In total, 41 interviews were conducted between June 2021 and December 2022 (Promberger et al. 2023).

3.1 Analytical sample

Our focus is on individuals who were referred to take the test in 2019. We exclude those who, at the time of referral, were in contributory employment or already participating in ALMPs, as this

may have influenced their subsequent probability of employment and participation in ALMPs. Additionally, we exclude individuals who were not registered as jobseekers on the test date. Furthermore, due to incomplete reporting of test referrals we exclude information coming from Jobcentres that are operated by municipalities (Zugelassene kommunale Träger). Finally, referrals with inconsistent or insufficient information on key explanatory variables and outcomes are omitted. Our final sample consists of 3398 individuals. Of which 29,6 percent (1006 individuals) were referred to but did not take the test. This group will serve as a control group. In total, the sample consists mainly of male job-seekers (79 percent), most are refugees (63 percent), with an average age of 36 years, and a large majority (71 percent) lack any formal vocational qualification (Table 1A).

3.2 Dependent Variables

Our primary outcome variables are the probability of employment and participation in ALMPs. We track these outcomes on a monthly basis from the date of test referral until four years later, allowing us to examine both short-term and long-term effects of test participation.

We define employment as regular contributory employment, referring to employment periods not subsidised by labour market promotion schemes and liable to social insurance contributions. For ALMP participation, we distinguish between three categories: (1) vocational training and retraining, (2) short-term training programmes, and (3) employment subsidies. In the case of vocational training, we also consider regular, unsubsidised apprenticeship training alongside ALMP participation. Additionally, we measure the cumulative number of days spent in each state during the first four years following the test referral.

3.3 Estimation Approach

We are interested in the effect of test referrals on people that actually taken the test. In other words, we estimate the Average Treatment Effect on the Treated (ATET). To estimate the ATET we apply the inverse probability weighting (IPW) procedure that addresses potential selectivity issues (Gangl 2010; Imbens/Wooldridge 2009). IPW is a propensity-score-based method that creates a “pseudo-population” in which covariate distributions are balanced between treatment (test takers) and control groups (test non-takers). Each observation is weighted by the inverse of the probability of receiving the treatment that it actually received (its propensity score). This effectively up-weights underrepresented groups and down-weights overrepresented groups, correcting for selection bias due to non-random decision to take the test. Weights are calculated based on a logistic regression model that estimates the probability of taking the MySkills test.

The application of the IPW approach rests on several important assumptions. First, every individual should have a nonzero probability of taking the test. Second, treatment quality should be the same for every individual. Third, there should be sufficient overlap in the propensity to take the test between treatment and control groups. And fourth, the Conditional Independence Assumption (CIA) – there should not be unobserved confounders affecting both treatment and outcomes (Rosenbaum/Rubin 1983). While assumptions one and two are clearly satisfied for the population that was referred to the standardized test, assumptions three will be assessed empirically by plotting probabilities of control and treatment groups.

The assumption four – CIA assumption is inherently untestable and its validity depends critically on the quality and richness of the data used. To ensure that CIA holds, we control for a broad set of socio-demographic characteristics, employment and unemployment history, and periods of participation in the ALMPs. While administrative records present a valuable source of information, they lack important information on individual's motivation, abilities and personality. In the context of evaluation of various ALMPs the research shows that omission of this variables does not meaningfully alert the results if information on labour market history is included (Caliendo/Mahlstedt/Mitnik 2017; Tübbicke 2023). Nevertheless, in the empirical analysis we assess the sensitivity of the results towards violation of the CIA.

4 Descriptive statistics on the dependent and independent variables

Table A1 presents the descriptive statistics for the full sample and the two subgroups: the control group (test non-takers) and the treatment group (test takers). The analysis highlights notable differences in socio-demographic characteristics, educational background, employment history, and regional distribution between the two groups, providing insight into the selection patterns for test participation.

The total sample consists of individuals who were referred to take the skills assessment test, of whom a portion participated while others did not. The average age of all referred individuals is 36 years, and women constitute 21 percent of the total sample, indicating a male-dominated participant pool. A large proportion of the sample comprises migrants and refugees, with 63 percent of referred individuals having a refugee background. Furthermore, a majority (71 percent) of those referred lack formal vocational qualifications, reinforcing the relevance of the test for individuals with non-formal or informal learning experiences. The last observation is further highlighted by extremely high unemployment rate (23 percent) among individuals without vocational training.

Despite being part of the same referral process, test takers and non-takers display significant differences in their socio-economic and labour market characteristics, suggesting potential selection effects into the skills validation programme.

The results indicate statistically significant differences in age, gender composition, and marital status between the two groups. Test takers are older on average (36,62 years) than non-takers (34,51 years), suggesting that older jobseekers may be more inclined to formalise their competencies. This could be due to a longer accumulation of work experience or greater difficulty in finding employment without recognised qualifications.

The proportion of women is lower among test takers (19 percent) compared to non-takers (24 percent). This gender disparity may reflect differences in referral patterns, industry composition, or self-selection into skills validation. Regarding marital status, single individuals are overrepresented among non-takers (56 percent), whereas test takers are more likely to be married (48 percent vs. 35 percent) ($p < 0{,}001$). This suggests that individuals with family

responsibilities may be more motivated to improve their labour market prospects by obtaining formal validation of their skills.

Educational attainment varies between the two groups, with test takers having higher levels of formal education than non-takers. The proportion of individuals without vocational education is lower among test takers (69 percent) compared to non-takers (74 percent), indicating a positive selection of more educated individuals into test participation. Furthermore, higher education degrees are more common among test takers (6 percent) than non-takers (3 percent), reinforcing the notion that individuals with stronger educational backgrounds may perceive the test as a beneficial complement to their existing qualifications. When considering secondary education, test takers are more likely to have advanced secondary education (17 percent vs. 12 percent) and less likely to have only basic secondary education (24 percent vs. 31 percent). These findings suggest that test takers generally have a stronger educational foundation despite their lack of vocational training.

While the information of a country of birth is not available, the data reveal significant differences in citizenship and refugee status between the two groups. A substantially higher proportion of test takers are non-German citizens (73 percent) compared to non-takers (60 percent). Among the non-German subgroup, Syrian nationals represent 32 percent of test takers, compared to 22 percent of non-takers, making them the largest non-German nationality in the sample. Additionally, 67 percent of test takers have a refugee background, compared to 53 percent of non-takers.

The employment history of test takers and non-takers within the year preceding test referral reveals significant disparities, with test takers exhibiting weaker labour market attachment and lower employment stability. In contrast, non-takers have a somewhat longer history of marginal employment. Test takers experience longer unemployment durations and display greater reliance on unemployment benefits II compared to non-takers. They spend more days engaged in active job search and receive unemployment benefit II payments for a longer period. However, they accumulate fewer days receiving unemployment benefit I payments, which is typically linked to prior formal employment. Additionally, a group if test takers had more days of participation in ALMPs prior to test referral. These trends persist over the five-year period before test referral, reinforcing the pattern of weaker labour market attachment and higher exposure to unemployment among test takers.

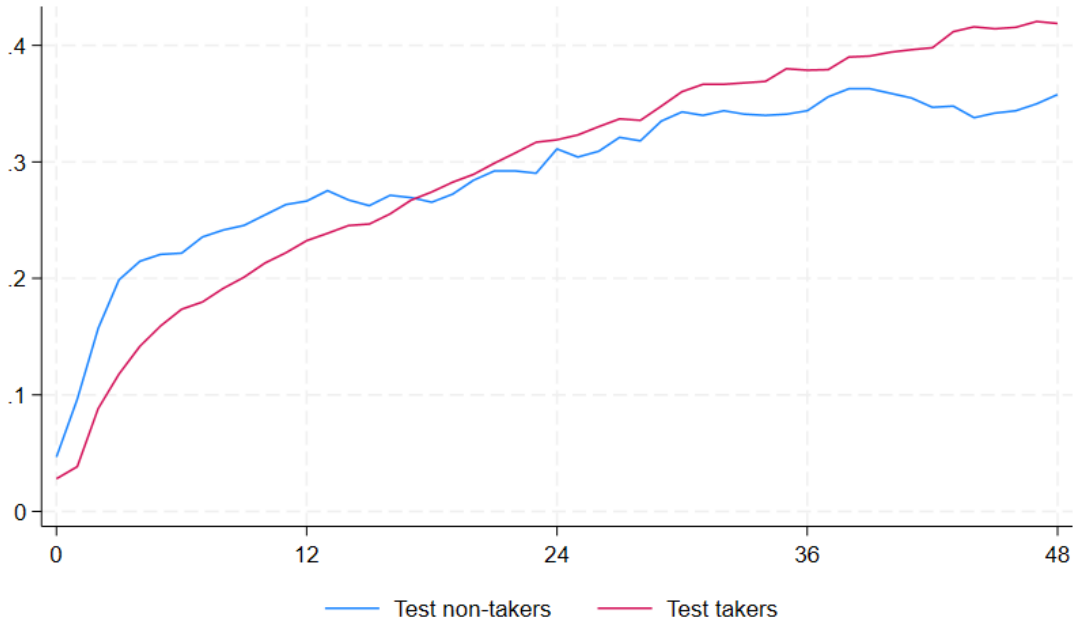
While test takers are more likely to have been employed in manufacturing and healthcare, non-takers are overrepresented in trade and cleaning sectors. These findings suggest that test takers are more likely to come from industries where formal skills validation is beneficial or even necessary for securing employment. In contrast, non-takers are more likely to have worked in service and retail jobs, where employment opportunities may be less dependent on formal certification and where practical experience alone may suffice. Finally, there are no substantial regional differences in test participation and district unemployment rates.

With regards to the outcomes, we find gradual increase in regular contributory employment for both groups throughout the period (Figure 1). In terms of labour market trajectories after the test referral we see a diverging path for two groups: During the initial 18 months since the test referral the share of persons in contributory employment was somewhat higher in the group of non-

takers, after that the employment share among test takers catches up and exceed that of non-taker group.

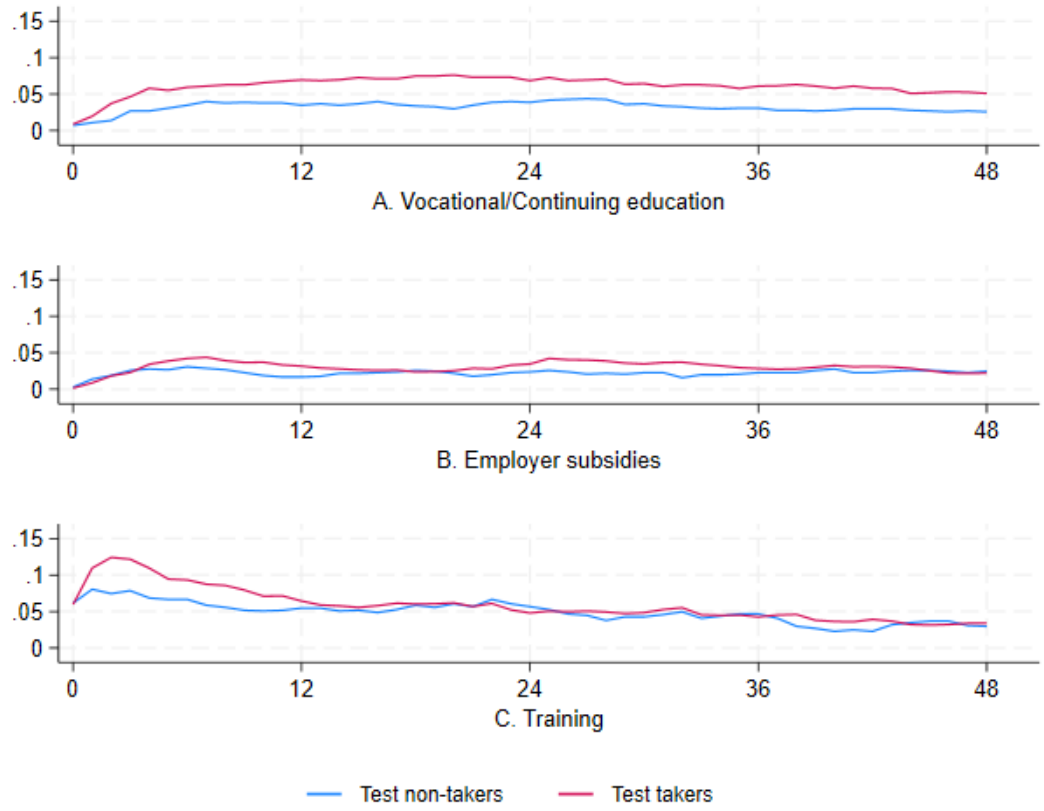
The probability of participation in various ALMPs is higher among test takers (Figure 2). They have higher chances of enrolling in (A) vocational retraining, (B) short-term training courses, and (C) subsidized employment programs..

Figure 1: Shares in regular contributory employment in groups of test takers and non-takers



Note: X-axis months since referral to the test; Y-axis share in regular contributory employment.
Source: Author's calculations. © IAB

Figure 2: Shares in ALMPs in groups of test takers and non-takers



Note: X-axis months since referral to the test; Y-axis share in the ALMP..
Source: Author's calculations. © IAB

5 Multivariate analysis

Although the analysis presented in the previous section may suggest diverging career trajectories between the control and treatment groups, these results could be influenced by the observed differences reported in Table A1. To account for potential confounding factors, the next section applies the econometric procedure outlined in Section 3.3, aiming to disentangle the causal effect of taking the test from any spurious correlations.

5.1 Main results

We estimate a logit model to predict probability of taking the test – propensity score – using all covariates presented in Table A1. We examine first whether there is a sufficient overlap of propensities between control and treatment groups and whether the covariates in the sample are balanced after IPW. The diagnostic tests (Figure A1 and Table A2) suggest that both conditions are likely to hold. We proceed with reporting the effect of the test on career trajectories of persons that actually took the test.

Figure 3 presents the ATET for participation in various ALMPs over a 48-month period following referral to the MySkills competency assessment, along with the 95 percent confidence intervals. The results indicate a positive but heterogeneous impact of the test taking on ALMP engagement. Panel A (Vocational/Continuing Education) demonstrates a sustained increase in participation among test-takers. The effect remains consistently positive throughout the observation period, suggesting that individuals who took the test were more likely to enrol in educational programs aimed at skill enhancement. The confidence intervals largely remain above zero, indicating statistical significance. In contrast, Panel B (Employer Subsidies) exhibits a much weaker and statistically insignificant effect. The estimated ATET remains close to zero for most of the observation period, and the confidence intervals indicate a lack of statistical significance. Panel C (Training Programs) reveals a pronounced short-term effect, with test participants exhibiting a higher probability of engaging in training programs in the initial months, reaching an ATET of approximately five percentage points. However, this effect diminishes over time and eventually fluctuates around zero, suggesting that the initial advantage does not translate into sustained training participation.

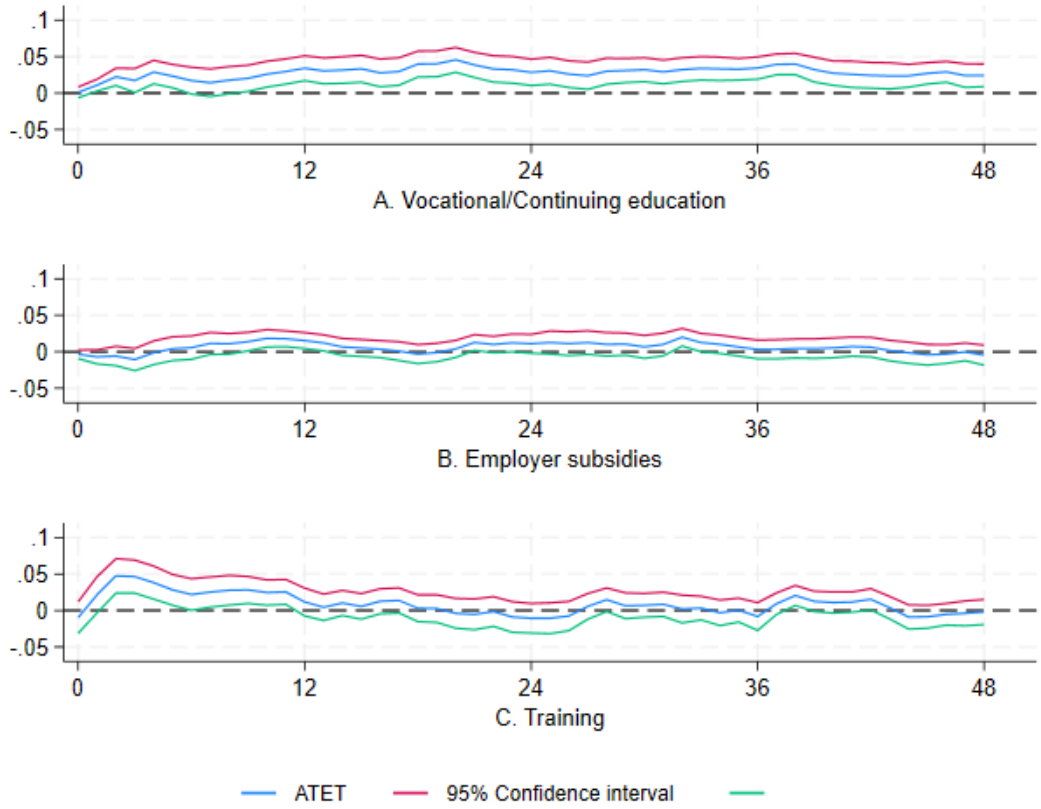
Overall, the findings suggest that MySkills enhances engagement in ALMPs, particularly in vocational education and short-term training. However, its impact on employer subsidies remains limited. These results align with prior research indicating that structured skills validation can improve alignment with ALMP opportunities, ultimately influencing long-term employment prospects.

Figure 4 presents the ATETs for the probability of regular contributory employment in the 48 months following referral to the MySkills competency assessment. The findings reveal a negative short-term effect of MySkills participation on employment probability. In the first 13 months after test referral, test-takers had up to 5 percentage points lower probability of being in regular employment compared to non-participants. However, the employment effect recovers over time and turns positive after the first year. While the estimated effect remains relatively small, fluctuating between 2 and 3 percentage points, it often lacks statistical significance at the 95 percent confidence level, as indicated by the overlapping confidence intervals. A notable increase in ATET is observed in the fourth year following the test. During this period, the estimated effect surpasses 5 percentage points, suggesting that MySkills participants experience long-term employment benefits.

Results presented in Figure 3 and Figure 4 are further corroborated by the cumulative effects reported in Table A3. Specifically, although test takers initially accumulate approximately 12 fewer days of regular employment in the first year, this deficit is reversed by the fourth year, when they accumulate over 20 additional employment days relative to non-participants. Similarly, the table documents the increased cumulative days in vocational training and short-term training participation among test-takers.

Figure 3: ATET Estimates on ALMP Participation

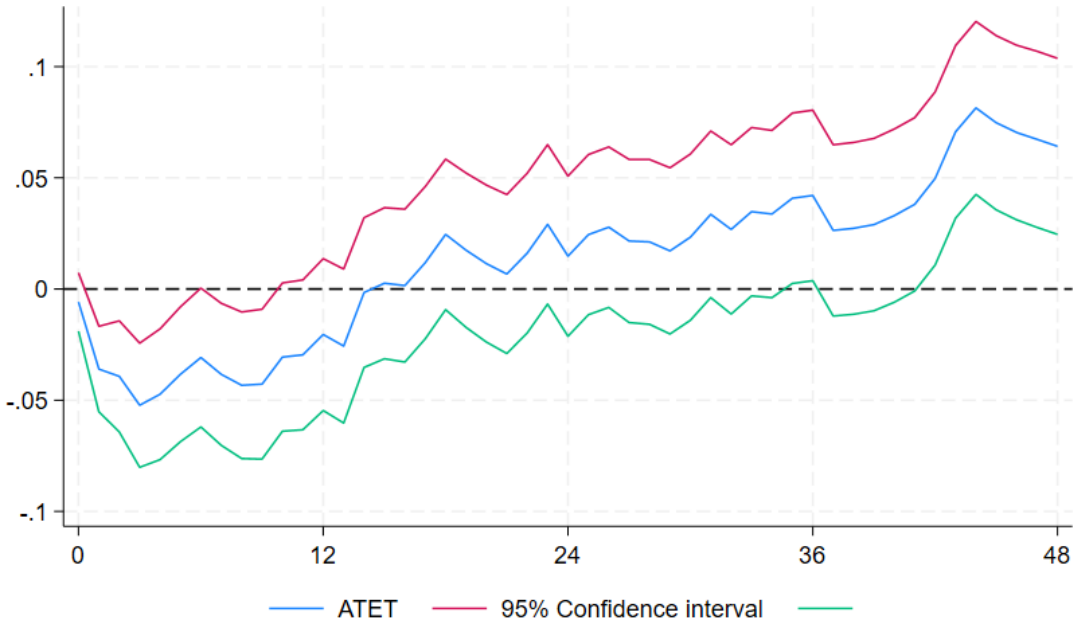
Percentage Points



Note: The figure presents the ATET estimates for participation in three categories of ALMPs. The x-axis represents the number of months since referral to the MySkills competency assessment. The y-axis indicates the estimated effect on ALMP participation, measured in percentage points.

Source: Author's calculations. © IAB

Figure 4: ATET Estimates on the Probability of Regular Contributory Employment
Percentage Points



Note: The figure presents the ATET for the probability of regular contributory employment following referral to the MySkills competency assessment. The x-axis represents the number of months since referral to the MySkills competency assessment. The y-axis indicates the estimated effect on the probability of regular contributory employment, measured in percentage points. The horizontal line at zero serves as a reference for no effect.
Source: Author's calculations. © IAB

5.2 Heterogeneity analysis

Next, we consider effects heterogeneity. Table A4 summarises cumulative effects on contributory employment for several socio demographic groups: gender, citizenship, refugee status, and an indicator that the person was not employed in the past 5 years before referral to the test. Point estimates confirm that the effects of the test turn from negative to positive after the first year since referral. However, the absolute size on the effects and statistical significance vary by subgroups. Overall, we find that men, non-German citizens and people with refugee status as well as persons that were not employed in the past tend to benefit the most from taking the test.

5.3 Sensitivity analysis

This section present sensitivity analysis towards the choice of econometric method and possible violation of the CIA. For the sake of computational time we concentrate in this section on cumulative outcomes.

We examine first an alternative to IPW method. Table A5 provides results for the inverse probability weighted regression adjustment method. This is a "doubly robust" estimator that first corrects for selection bias by weighting observations based on their estimated treatment probabilities and then adjusts for differences in covariates via regression (Wooldridge 2007). This approach provides a more efficient and robust estimate of treatment effects than methods relying on either inverse probability weighting or regression adjustment alone. The results

reported in Table A4 are very close to the effects reported in the previous section. Like other propensity score–based methods, inverse probability weighting (IPW) relies solely on observed covariates, thereby adhering to the conditional independence assumption (CIA). However, if unobserved confounders are present, the CIA may be violated, potentially biasing the results. To address this limitation, we conduct a sensitivity analysis to assess the robustness of our findings to unobserved confounding. Specifically, we adapt the methodology proposed by (Ichino/Mealli/Nannicini 2008), which incorporates simulated unobserved covariates that follow the distribution of some known confounders into the logistic regression model that estimates the propensity to take the test. The weights derived from this adjusted model reflect the potential influence of these unobserved factors, thereby allowing us to evaluate the extent to which our ATET estimates might be biased by confounders that simultaneously affect treatment selection and the outcome variable. The sensitivity analysis results discussed in the Appendix (see Table A6) broadly suggest that the results of the previous analysis are not affected by the inclusion of the simulated unobserved confounders, and hence the CIA is likely to hold.

5.4 Robustness check

Thus far, the analysis has focused on individuals referred to the MySkills assessment in 2019, a period that immediately preceded the onset of the COVID-19 pandemic and the associated lockdown measures in Germany. These lockdowns, introduced in early 2020, led to a marked decline in referrals to ALMPs (Büttner et al. 2022; Hohmeyer et al. 2022).

In contrast, individuals referred to the test in 2018 were not affected by pandemic-related restrictions during the first year following referral. However, this cohort likely encountered significant obstacles in securing employment after completing ALMPs, particularly during the peak of the pandemic. As a result, we hypothesize that the employment effects of test participation for the 2018 cohort may be lower than those observed for the 2019 cohort.

Figure A2 and Figure A3 present the ATETs for participation in ALMPs and for the probability of regular contributory employment, respectively, based on the 2018 referral cohort. Compared to the main analysis, which follows individuals for up to 48 months, the 2018 cohort can be tracked for a longer post-referral period of up to 60 months.

The findings indicate somewhat higher ATETs for ALMP participation among the 2018 test-takers, suggesting that the test remained a useful tool for facilitating program access even prior to the pandemic. However, the patterns for regular contributory employment differ. Employment rates decline shortly after the test but tend to recover within the first year. A pronounced decline in the second year coincides with the period of strict COVID-19 restrictions, likely reflecting the difficulty many test-takers faced in transitioning to employment after completing ALMPs. While the employment effects recover gradually in subsequent years, they remain smaller in magnitude and generally lack statistical significance when compared to the effects observed for the 2019 cohort. These findings highlight the importance of contextual labour market conditions in shaping the effectiveness of skills assessments such as MySkills.

6 Discussion and limitations

The results presented in the previous sections provide evidence that participation in the MySkills assessment can, to some extent, improve the medium- to long-term labour market prospects of test takers. While the immediate effect of test participation on employment probability is negative, this effect reverses approximately 12 months after referral. The delayed benefits are plausibly linked to an increase in participation in vocational and short-term training programmes. This finding aligns with existing literature, which suggests that ALMP engagement may temporarily delay labour market re-entry while contributing to longer-term integration (Card et al. 2018).

The absence of a positive short-term effect, however, may stem from the limited external recognition of the test. MySkills does not confer formal certification, and the number of tests conducted remained relatively low. Public awareness, among both employers and jobseekers, was modest, making it unlikely that test results would function as credible labour market signals. This undermines the potential signalling power of the test, particularly in settings where employers continue to rely on formal credentials to screen applicants.

Moreover, as noted in (Promberger et al. 2023), issues with the test design may have constrained its psychological impact on jobseekers. Few participants received high scores, and the visualisation of results often emphasised deficits rather than strengths. This reduced the likelihood that the test would strengthen jobseekers' self-efficacy or motivate active job search and upskilling. In many cases, participants reported feeling discouraged or frustrated after receiving their results, especially when they contradicted their self-perceived abilities. The test's capacity to act as a motivational intervention was therefore limited.

On the other hand, caseworkers at the PES were trained in administering and interpreting the test, and the qualitative evidence suggests they played a pivotal role in how the test was utilised. Even though caseworkers faced challenges interpreting results, due to the abstract presentation of skill levels and limited granularity, they reported that the test provided useful hints about candidate abilities, especially for those without formal documentation. While the test was not widely used for direct job referrals, it supported decision-making around ALMP placement and vocational counselling.

From an organisational behaviour perspective, MySkills may have functioned less as a motivational tool for jobseekers and more as a nudge for caseworkers. As many papers have argued (Kahneman 2011; March 1994) among others, decision-making in professional settings is often shaped by heuristics and bounded rationality. When facing high caseloads, limited information, and uncertainty, particularly with disadvantaged groups such as refugees or long-term unemployed, caseworkers may default to simple rules based on formal qualifications or recent experience. MySkills introduces structured information that can reduce noise and bias in such settings, leading to more evidence-based assessments.

The value of such information becomes particularly salient in contexts of high uncertainty. In Germany, the influx of refugees with limited documentation, low German proficiency, and unfamiliarity with local labour market institutions has increased the cognitive load placed on caseworkers. In such cases, the structured output of a test, however imperfect, can serve as a low-

cost signal of employment or training potential, supporting caseworkers in making more consistent and transparent placement decisions. This role of competency assessments as a support tool has also been observed in similar programmes. For instance, the KOMPAS initiative—designed to assess and promote the skills of refugees—yielded comparable results: although it did not lead to immediate employment effects, it improved employment prospects over time (Kasrin et al. 2021). In this light, MySkills can be seen as a behavioural intervention that reshapes the heuristics and routines of PES staff, rather than a tool that directly alters jobseekers' attitudes or behaviours.

Indeed, the more positive effects of test participation among disadvantaged subgroups, such as non-German citizens, refugees, and those without recent work experience, suggest that the test's informational role for caseworkers may be particularly important. These groups tend to suffer from both limited signalling capital and weaker institutional trust, making caseworker judgement a decisive factor in accessing ALMPs and job opportunities. If the test prompts caseworkers to re-evaluate clients they may otherwise have overlooked, it could enhance matching outcomes through more equitable access to services.

Taken together, the evidence implies that MySkills has had a modest but meaningful effect, possibly through its indirect influence on institutional actors. Rather than changing jobseeker behaviour by boosting confidence or motivation, its main contribution lies in changing the informational environment of the PES and nudging caseworkers toward more structured, fair, and potentially inclusive decision-making. Our findings advocate for the value of skill assessments, but the MySkills experience and the qualitative findings (Promberger et al. 2023) also underscore the importance of ease-of-use and managing participant expectations. Policymakers looking to implement such tests at scale should consider reducing burden (e.g., shorter modules or modular testing) and clearly communicating the benefits to encourage participation.

Our study has several limitations. The quasi-experimental approach we employed does not completely eliminate the possibility of unobserved factors influencing both the decision to take the test and subsequent labour market outcomes. While sensitivity analyses suggest that the CIA likely holds in our setting, we cannot rule out confounding by unobserved variables such as individual motivation. This concern is particularly relevant when comparing individuals who chose to take the test to those who were selected to test but did not participate.

Additionally, our analysis covers a period characterised by COVID-19 lockdown measures, during which the transition from unemployment to employment was substantially suppressed. Referrals to ALMPs declined sharply, and many training programmes transitioned from in-person to digital formats, potentially affecting programme quality. Consequently, it is not surprising that employment outcomes for the 2018 cohort, who participated in ALMPs just before or during the lockdown period, were notably lower compared to the 2019 cohort. Within our analytical framework, it is challenging to disentangle the specific effects of skills validation from the broader impact of lockdown disruptions.

Taken together, our findings should be interpreted as preliminary evidence of how skill validation assessments might influence career trajectories for unemployed individuals without formal qualifications. Future research, ideally involving controlled experiments, could help to clarify and strengthen these conclusions.

7 Conclusion

Despite these limitations, this study is, to the best of our knowledge, the first to examine the quantitative net effect of skill testing, meaning to validate non-formal and informal skills on labour market outcomes for low-skilled unemployed persons over a long period of time. Our findings indicate that participating in the MySkills assessment supports jobseekers in securing employment in the medium- to long-run. We suggest that the test primarily influences caseworker behaviour, leading to improvements in referral decisions within ALMPs.

Increasing caseworker awareness about the potential benefits of structured assessments like MySkills could significantly enhance the effectiveness of PES, particularly by providing objective grounds for assigning jobseekers to ALMPs. However, research consistently shows that even robust evidence on program effectiveness rarely leads to automatic implementation. Caseworkers retain substantial discretion and often resist behavioural change (Behncke et al. 2010; Bolhaar/Ketel/van der Klaauw 2020; Schmieder/Trenkle 2020). Qualitative findings from Promberger and Kawalec (2024) echo this, revealing that experienced caseworkers often prefer real-life job trials, which they see as more effective in both validating skills and securing immediate job placements. Yet, while structured tests may not directly yield job offers, they serve as vital tools for identifying and documenting skills, enabling more informed referrals to ALMPs and, eventually, better employment outcomes through upskilling. Making skills validation and assessment a mandatory part of job referrals or training assignments may help reduce discretion-based barriers and increase overall program uptake and impact (Casano 2016).

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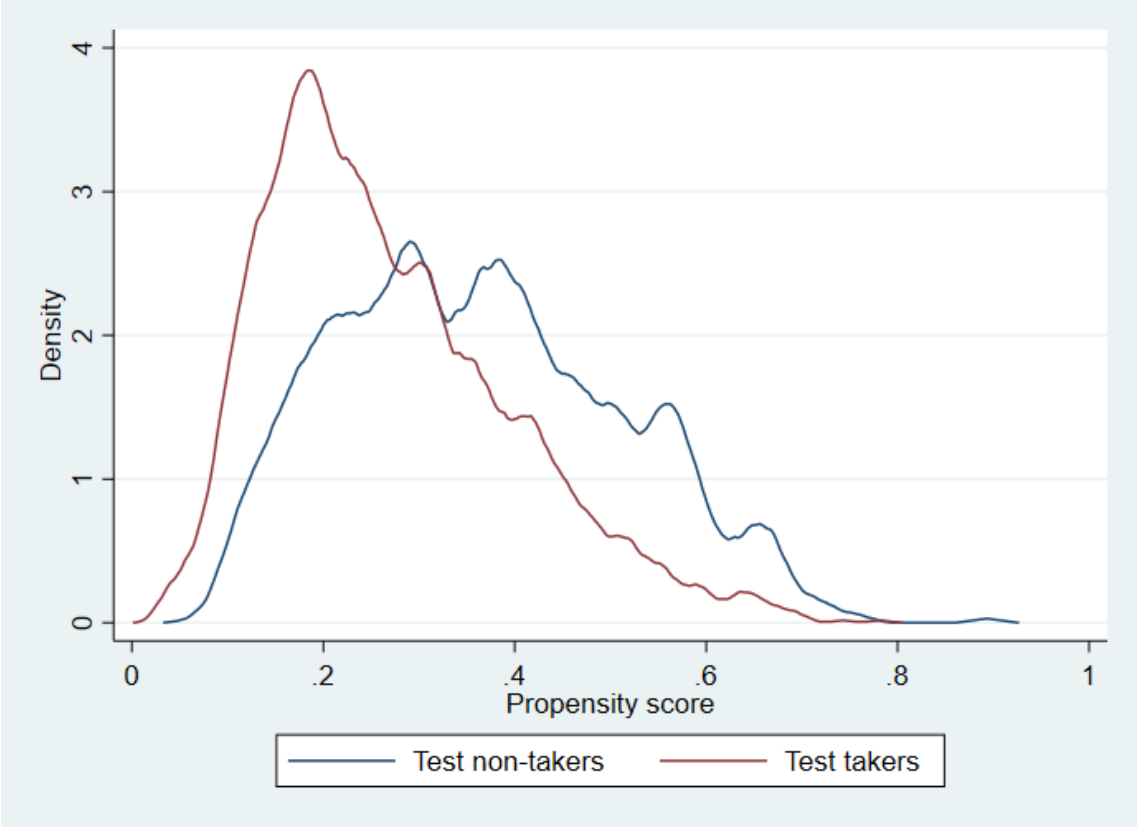
Appendix

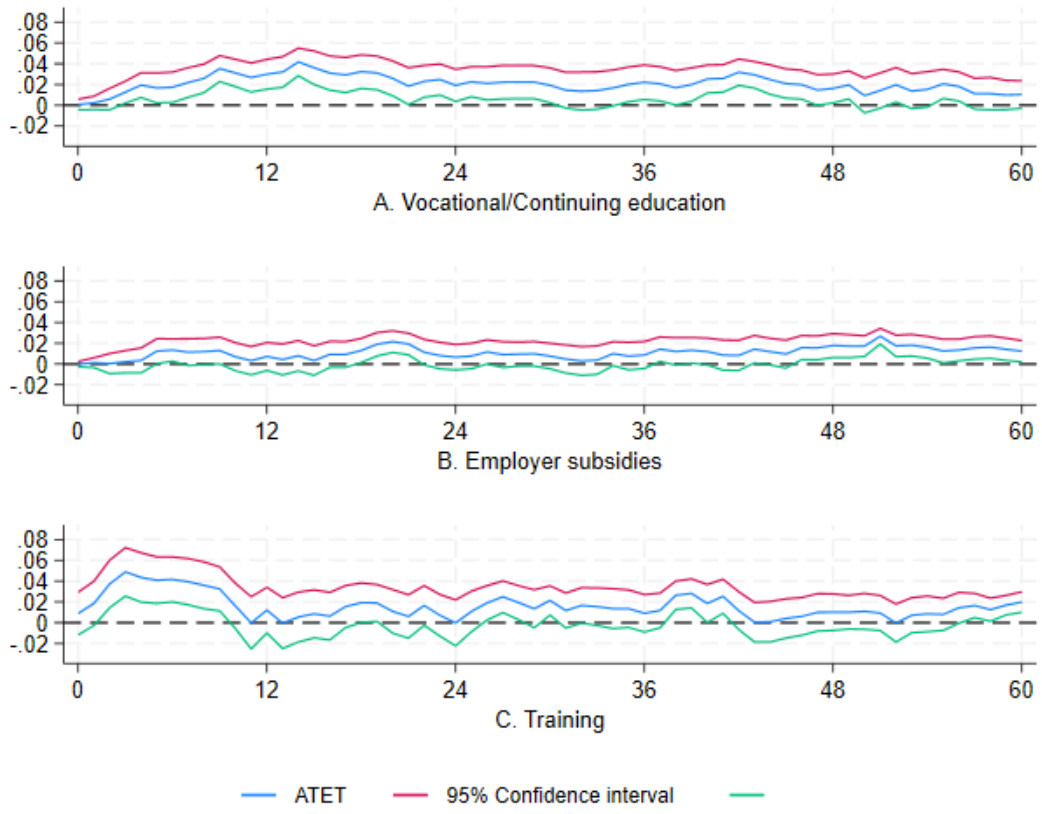
Figure A1: Overlap plot of propensity score by treatment status



Note: The overlap plot displays the estimated density of predicted probabilities for both treated (test takers) and non-treated (Test non-takers) groups. It shows the probability of non-treated individuals being classified as treated and vice versa. As neither distribution exhibits excessive probability mass near 0 or 1, and the majority of their respective densities overlap, there is no indication that the overlap assumption has been violated.

Source: Author's calculations.. © IAB

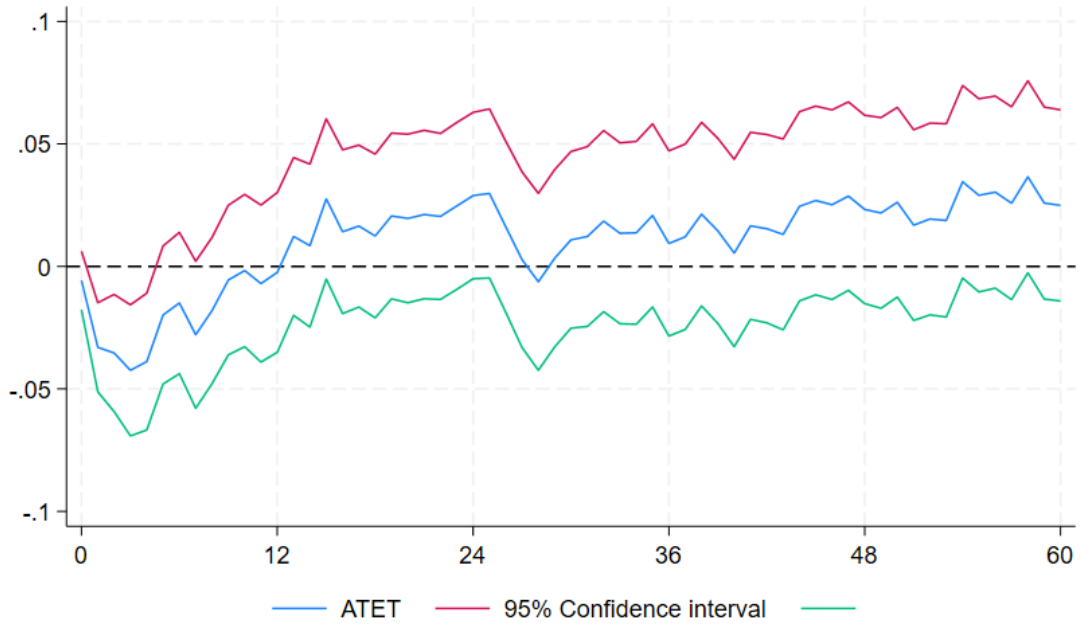
Figure A2: ATET Estimates on the Probability of ALMP Participation, referrals to the test in 2018



Note: The figure presents the ATET estimates for participation in three categories of ALMPs. The x-axis represents the number of months since referral to the MySkills competency assessment. The y-axis indicates the estimated effect on ALMP participation, measured in percentage points

Source: Author's calculations.. © IAB

Figure A3: ATET Estimates on the Probability of Regular Contributory Employment, referrals to the test in 2018



Note: The figure presents the ATET estimates for participation in three categories of ALMPs. The x-axis represents the number of months since referral to the MySkills competency assessment. The y-axis indicates the estimated effect on ALMP participation, measured in percentage points

Source: Author's calculations. © IAB

Table A1: Sample means

	Total	Control Test non-takers	Treatment Test takers	p-val
Women	0,21	0,24	0,19	0,004
Age	35,99	34,51	36,62	0
Children	0,81	0,78	0,82	0,453
Marital status				
Single	0,47	0,56	0,43	0
Married, separated	0,03	0,03	0,03	0,93
Married	0,44	0,35	0,48	0
Divorced	0,05	0,05	0,04	0,799
Widowed	0,01	0	0,01	0,986
Unknown	0,01	0,01	0,01	0,553
Highest educational degree				
No Completed Vocational Education	0,71	0,74	0,69	0,005
Vocational/Apprenticeship Training	0,24	0,23	0,25	0,395
Higher Education	0,05	0,03	0,06	0
Schooling degree				
No Formal Certificate	0,44	0,43	0,45	0,156
Basic Secondary Education	0,26	0,31	0,24	0

	Total	Control Test non-takers	Treatment Test takers	p-val
Intermediate Secondary Education	0,14	0,14	0,14	0,822
Advanced Secondary Education	0,15	0,12	0,17	0
Citizenship				
Germany	0,31	0,4	0,27	0
Syria	0,29	0,22	0,32	0
Turkey	0,04	0,04	0,04	0,568
Irak	0,04	0,04	0,04	0,827
Afghanistan	0,06	0,06	0,06	0,79
EU countries	0,05	0,05	0,05	0,527
Other European countries	0,05	0,07	0,04	0
African countries	0,05	0,04	0,05	0,33
Near/Middle East	0,06	0,04	0,07	0
Other Asian countries	0,01	0,01	0,02	0,134
America, Australia	0	0,01	0	0,488
Unknown	0,03	0,01	0,03	0,01
Refugee	0,63	0,53	0,67	0
Labour market history 1 year prior to test referral				
Days in employment	77,28	85,94	73,64	0,006
Number of employment spells	0,48	0,58	0,44	0
Days in marginal employment	37,66	42,68	35,54	0,041
Number of marginal employment spells	0,25	0,29	0,23	0,001
Days in job search	278,05	266,83	282,76	0
Number of job-search episodes	1,2	1,25	1,18	0
Days with unemployment benefit II receipt	223,13	208,69	229,2	0,001
Number of unemployment benefit II episodes	0,8	0,79	0,8	0,546
Days with unemployment benefit I receipt	35,69	42,92	32,65	0
Number of unemployment benefit I episodes	0,41	0,5	0,37	0
Days in ALMPs	27,38	24,72	28,5	0,097
Number of ALMPs episodes	0,43	0,42	0,43	0,726
Cumulated wage	2542,68	2705,05	2474,4	0,284
Labour market history 5 year prior to test referral				
Days in employment	340,9	365,6	330,51	0,063
Number of employment spells	1,13	1,43	1	0
Days in marginal employment	138,76	166,82	126,96	0,001
Number of marginal employment spells	0,64	0,8	0,57	0
Days in job search	933,36	965,61	919,79	0,026
Number of job-search episodes	1,85	2,05	1,76	0
Days with unemployment benefit II receipt	812,67	838,58	801,78	0,108
Number of unemployment benefit II episodes	1,24	1,36	1,19	0
Days with unemployment benefit I receipt	67,55	79,98	62,32	0
Number of unemployment benefit I episodes	0,64	0,78	0,58	0
Days in ALMPs	123,06	123,37	122,92	0,951
Number of ALMPs episodes	1,31	1,37	1,28	0,117

	Total	Control Test non-takers	Treatment Test takers	p-val
Cumulated wage	8978,41	8862,79	9027,03	0,818
Last occupational segment				
Missing	0,12	0,11	0,12	0,537
Agriculture, Forestry, and Gardening	0,02	0,02	0,02	0,828
Manufacturing	0,11	0,09	0,12	0,019
Manufacturing Technology	0,1	0,08	0,11	0,054
Construction and Expansion	0,1	0,1	0,09	0,694
Food and Hospitality	0,11	0,12	0,1	0,191
Medical and Non-Medical Healthcare	0,07	0,05	0,07	0,012
Social and Cultural Services	0,02	0,02	0,02	0,997
Trade	0,09	0,11	0,08	0,03
Corporate Management and Organisation	0,01	0,01	0,02	0,097
Business-Related Services	0,01	0,01	0,01	0,622
IT and Scientific Services	0,01	0	0,02	0,004
Security	0,02	0,02	0,01	0,191
Transport and Logistics	0,16	0,17	0,16	0,502
Cleaning	0,06	0,09	0,05	0
Status before test referral				
Employment	0,11	0,12	0,11	0,397
Marginal employment	0,12	0,13	0,11	0,08
Unemployment benefit II receipt	0,65	0,62	0,67	0,008
Unemployment benefit receipt	0,2	0,23	0,18	0,001
ALMP measure	0,14	0,12	0,15	0,01
Months of referral				
January	0,09	0,08	0,09	0,199
February	0,07	0,09	0,07	0,056
March	0,08	0,08	0,08	0,852
April	0,1	0,09	0,11	0,303
May	0,1	0,11	0,1	0,476
June	0,07	0,05	0,07	0,024
July	0,09	0,08	0,09	0,09
August	0,08	0,09	0,08	0,354
September	0,09	0,09	0,1	0,542
October	0,08	0,09	0,08	0,306
November	0,1	0,11	0,09	0,242
December	0,05	0,06	0,04	0,078
Federal state				
Schleswig-Holstein	0,02	0,02	0,02	0,758
Hamburg	0,01	0,01	0,01	0,951
Niedersachsen	0,11	0,11	0,11	0,976
Bremen	0,01	0,01	0,01	0,873
Nordrhein-Westfalen	0,18	0,2	0,18	0,1
Hessen	0,02	0,02	0,02	0,703

	Total	Control Test non-takers	Treatment Test takers	p-val
Rheinland-Pfalz	0,11	0,11	0,11	0,77
Baden-Württemberg	0,11	0,1	0,11	0,328
Bayern	0,07	0,06	0,08	0,081
Saarland	0,02	0,02	0,02	0,444
Berlin	0,12	0,13	0,11	0,109
Brandenburg	0,05	0,05	0,04	0,329
Mecklenburg-Vorpommern	0,03	0,03	0,03	0,669
Sachsen	0,05	0,05	0,05	0,6
Sachsen-Anhalt	0,07	0,06	0,07	0,386
Thüringen	0,01	0,01	0,02	0,307
Unemployment rate district	7,03	7,15	6,99	0,115
Unemployment rate no vocational education	23,02	23,23	22,93	0,396
Unemployment rate with vocational education	4,29	4,33	4,28	0,339

Note: This table presents means of control variables separately for groups of test takers and non-takers. p-value refers to a two-tailed t-test. Number of observations is 3,398.

Source: Author's calculations.. © IAB

Table A2: Balancing tests for groups of test takers and test non-takers

	Raw	Weighted
Number of observations	3398	3398
Treated observations	2392	1700,73
Control observations	1006	1697,27

	Standardized differences		Variance ratio	
	Raw	Weighted	Raw	Weighted
Women	-0,11	-0,04	0,86	0,95
Age	0,21	-0,01	0,95	0,91
Children	0,03	0,01	0,97	0,95
Marital status				
Single	-0,26	0,02	1,00	1,01
Married, separated	0,00	0,02	0,98	1,15
Married	0,28	-0,03	1,10	1,00
Divorced	-0,01	0,01	0,96	1,04
Widowed	0,00	0,00	1,01	1,02
Unknown	-0,02	0,00	0,80	1,04
Highest educational degree				
No Completed Vocational Education	-0,11	0,01	1,11	1,00
Vocational/Apprenticeship Training	0,03	-0,01	1,04	0,99
Higher Education	0,17	0,01	2,26	1,03
Schooling degree				
No Formal Certificate	0,05	-0,02	1,01	1,00
Basic Secondary Education	-0,17	0,01	0,85	1,02
Intermediate Secondary Education	-0,01	0,00	0,98	1,01
Advanced Secondary Education	0,15	0,00	1,35	1,01
Citizenship				
Germany	-0,28	-0,02	0,83	0,98
Syria	0,22	0,03	1,26	1,02
Turkey	0,02	-0,01	1,11	0,96
Irak	-0,01	-0,01	0,96	0,94
Afghanistan	0,01	0,01	1,04	1,02
EU countries	-0,02	-0,01	0,91	0,95
Other European countries	-0,13	0,01	0,59	1,06
African countries	0,04	-0,01	1,17	0,96
Near/Middle East	0,15	-0,02	1,79	0,95
Other Asian countries	0,06	0,03	1,67	1,32
America, Australia	-0,03	-0,02	0,70	0,70
Unknown	0,10	0,01	1,99	1,05
Refugee	0,29	0,03	0,88	0,98
Labour market history 1 year prior to test referral				
Days in employment	-0,10	0,00	0,96	0,98

Number of employment spells	-0,21	0,01	0,72	0,98
Days in marginal employment	-0,08	0,00	0,88	0,99
Number of marginal employment spells	-0,13	0,00	0,82	1,04
Days in job search	0,13	0,02	0,94	0,99
Number of job-search episodes	-0,15	-0,01	0,71	0,97
Days with unemployment benefit II receipt	0,12	0,03	0,98	1,00
Number of unemployment benefit II episodes	0,02	0,00	0,84	0,93
Days with unemployment benefit I receipt	-0,14	0,00	0,85	1,02
Number of unemployment benefit I episodes	-0,20	-0,01	0,70	0,96
Days in ALMPs	0,06	0,02	1,16	1,07
Number of ALMPs episodes	0,01	-0,01	0,92	0,84
Cumulated wage	-0,07	-0,01	0,95	0,92
Labour market history 5 year prior to test referral				
Days in employment	-0,07	0,00	1,10	0,98
Number of employment spells	-0,27	-0,02	0,64	0,93
Days in marginal employment	-0,13	-0,01	0,81	1,00
Number of marginal employment spells	-0,21	-0,01	0,72	1,01
Days in job search	-0,08	0,01	0,88	0,97
Number of job-search episodes	-0,23	-0,02	0,71	0,98
Days with unemployment benefit II receipt	-0,06	0,02	0,88	0,97
Number of unemployment benefit II episodes	-0,17	-0,01	0,78	1,04
Days with unemployment benefit I receipt	-0,14	0,01	0,85	1,03
Number of unemployment benefit I episodes	-0,18	0,00	0,72	0,99
Days in ALMPs	0,00	0,00	1,10	1,09
Number of ALMPs episodes	-0,06	-0,02	0,87	0,92
Cumulated wage	-0,02	-0,01	1,20	0,96
Last occupational segment				
Missing	0,02	-0,02	1,06	0,96
Agriculture, Forestry, and Gardening	0,01	-0,01	1,06	0,90
Manufacturing	0,09	0,00	1,26	1,00
Manufacturing Technology	0,07	0,01	1,23	1,02
Construction and Expansion	-0,01	0,03	0,96	1,09
Food and Hospitality	-0,05	-0,02	0,89	0,95
Medical and Non-Medical Healthcare	0,10	0,00	1,43	1,02
Social and Cultural Services	0,00	-0,02	1,00	0,83
Trade	-0,08	0,01	0,80	1,04
Corporate Management and Organisation	0,07	-0,01	1,81	0,95
Business-Related Services	-0,02	0,03	0,84	1,35
IT and Scientific Services	0,12	0,02	3,95	1,18
Security	-0,05	0,01	0,70	1,07
Transport and Logistics	-0,03	0,00	0,95	1,00
Cleaning	-0,16	-0,01	0,56	0,98
Status before test referral				
Employment	-0,03	0,00	0,93	1,01

Marginal employment	-0,06	-0,01	0,86	0,97
Unemployment benefit II receipt	0,10	0,02	0,94	0,98
Unemployment benefit receipt	-0,12	-0,01	0,84	0,98
ALMP measure	0,10	0,01	1,23	1,02
Months of referral				
January	0,05	0,02	1,16	1,05
February	-0,07	0,01	0,80	1,02
March	0,01	-0,04	1,02	0,89
April	0,04	0,03	1,11	1,08
May	-0,03	-0,02	0,93	0,95
June	0,09	0,00	1,37	1,00
July	0,07	-0,02	1,21	0,95
August	-0,03	0,00	0,90	1,00
September	0,02	0,00	1,07	1,01
October	-0,04	0,01	0,89	1,02
November	-0,04	0,04	0,89	1,13
December	-0,06	-0,03	0,76	0,87
Federal state				
Schleswig-Holstein	0,01	0,01	1,08	1,09
Hamburg	0,00	-0,01	0,98	0,91
Niedersachsen	0,00	-0,01	1,00	0,98
Bremen	0,01	0,02	1,05	1,14
Nordrhein-Westfalen	-0,06	0,03	0,91	1,04
Hessen	-0,01	0,00	0,91	1,01
Rheinland-Pfalz	0,01	-0,02	1,03	0,95
Baden-Württemberg	0,04	-0,02	1,10	0,96
Bayern	0,07	0,01	1,25	1,03
Saarland	0,03	0,00	1,23	1,03
Berlin	-0,06	0,00	0,87	0,99
Brandenburg	-0,04	0,01	0,86	1,05
Mecklenburg-Vorpommern	-0,02	-0,03	0,91	0,83
Sachsen	0,02	0,01	1,09	1,04
Sachsen-Anhalt	0,03	-0,01	1,12	0,97
Thüringen	0,04	0,03	1,41	1,34
Unemployment rate district	-0,06	0,00	1,00	0,99
Unemployment rate no vocational education	-0,03	0,00	1,06	0,94
Unemployment rate with vocational education	-0,04	0,00	1,02	0,93

Note: The "Raw" columns display the differences in means and variance ratios between the treatment and control groups before applying weights, indicating the initial imbalance in observed covariates. The "Weighted" columns present these differences after weighting, assessing the extent to which balance has been achieved. A weighted mean difference close to zero and a variance ratio near one suggest that the weighting procedure has successfully improved covariate balance.

Source: Author’s calculations. © IAB

Table A3: ATET on cumulative number of days in various labour market states

	Employment			Vocational/Continuing education			Employer subsidies			Training		
Year since referral	ATET	ub	lb	ATET	ub	lb	ATET	ub	lb	ATET	ub	lb
year 1	-12,09	-20,26	-3,92	7,02	3,22	10,81	1,74	-1,53	5,01	7,45	4,02	10,88
year 2	4,64	-5,88	15,15	12,02	6,55	17,48	2,26	-0,93	5,45	0,97	-2,32	4,27
year 3	11,81	0,15	23,47	10,35	4,94	15,77	3,60	-0,28	7,49	0,21	-2,97	3,38
year 4	20,54	8,27	32,80	10,08	5,77	14,39	0,49	-3,50	4,49	1,33	-1,39	4,06

Note: This table presents the ATET estimates, measured as the cumulative number of days in various labour market states over each of the four years following referral to the MySkills competency assessment. ub and lb refer to upper and lower bound of 95% confidence interval

Source: Author's calculations. © IAB

Table A4: ATET on cumulative number of days, by subgroups [FV: Table A_Überschrift]

Year since referral	Women		Men		German citizenship		Non-German citizenship		Refugee status		Some work experience		No work experience		Younger workers		Older workers	
	ATET	se	ATET	se	ATET	se	ATET	se	ATET	se	ATET	se	ATET	se	ATET	se	ATET	se
year 1	-8,94	13,19	-14,04	5,15	-15,22	7,40	-11,29	5,18	-9,21	5,48	-16,68	6,50	-11,29	5,70	-8,02	4,91	-11,89	8,49
year 2	7,58	14,69	2,59	6,52	12,39	9,73	5,26	6,48	7,92	6,93	7,26	8,22	-5,79	7,50	1,54	7,01	19,41	9,40
year 3	15,92	16,93	11,60	7,16	19,16	10,17	12,45	7,40	14,32	7,97	9,12	8,28	4,92	8,87	15,02	7,64	12,21	11,02
year 4	16,53	19,00	21,92	7,62	15,71	10,79	22,91	7,87	23,22	8,80	8,12	8,80	20,71	8,93	25,44	7,75	21,88	11,67

Note: This table presents the ATET estimates on the cumulative number of days in various labour market states over each of the four years following referral to the MySkills competency for different subgroups. ub and lb refer to upper and lower bound of 95 percent confidence interval

Source: Author's calculations. © IAB

Table A5: ATET on cumulative number of days in various labour market states, "doubly robust" estimator

Year since referral	Employment			Vocational/Continuing education			Employer subsidies			Training		
	ATET	ub	lb	ATET	ub	lb	ATET	ub	lb	ATET	ub	lb
year 1	-11,57	-19,32	-3,82	7,24	3,61	10,88	1,65	-1,61	4,92	7,44	4,04	10,84
year 2	4,70	-5,08	14,47	12,29	7,17	17,41	1,91	-1,42	5,25	1,02	-2,19	4,22
year 3	12,02	0,94	23,11	10,65	5,64	15,67	3,36	-0,42	7,14	-0,23	-3,43	2,98
year 4	20,21	8,52	31,89	10,26	6,13	14,39	0,27	-3,63	4,17	1,38	-1,25	4,02

Note: This table presents the ATET estimates from the "doubly robust" estimator (Wooldridge, 2007) that corrects for selection bias by weighting observations based on their estimated treatment probabilities and then adjusts for differences in covariates via regression. Outcomes are measured as the cumulative number of days in various labour market states over each of the four years following referral to the MySkills competency assessment. ub and lb refer to upper and lower bound of 95 percent confidence interval.

Source: Author's calculations.

Ichino et al. (2008) propose a sensitivity analysis that evaluates the robustness of estimated ATETs to deviations from the CIA. Their method introduces simulated unobserved confounders into the logistic regression model used to estimate propensity scores and employs the resulting probabilities for matching. In contrast, our approach uses these estimated propensities as balancing weights.

The underlying assumption of this sensitivity analysis is that the inclusion of a single unobserved covariate may be necessary to achieve unconfoundedness. Although such a confounder is not directly observed, it can be simulated under plausible distributional assumptions that capture its potential impact. This simulated variable is constructed to mimic the empirical distribution of key observable regressors in the propensity score model. In our application, this strategy ensures that the simulated confounder behaves similarly to important covariates — gender, citizenship, and indicators for having no employment in the one and five years preceding the test referral. For each specification, we run 100 simulations incorporating the hypothetical confounder. In each simulation, we: (a) re-estimate the propensity score model including the simulated unobserved covariate; (b) compute the new IPW weights; and (c) estimate the test's effect on outcomes. This allows us to observe how the inclusion of a hidden factor would affect the ATET estimates and the coefficients of other covariates.

The findings demonstrate that our main results remain robust in the presence of potential unobserved confounders. A comparison of the ATET estimates for various conditioning variables in Table 6A shows that the coefficients consistently retain the same sign and significance as in the baseline model. This consistency indicates that even when a simulated confounding variable is incorporated into the estimation, the overall inferences regarding the treatment effect are largely unaffected.

Table A6: Sensitivity analysis of violation of CIA

	ATET	se
Baseline estimate	20,54	6.26
Women	19,67	6,33
No German citizenship	17,54	6,64
Zero labour earnings in 1 year before the test	25,20	6,33
Zero labour earnings in 5 year before the test	26,44	6,43

Note: this table reports results of the sensitivity analysis of the ATET using a simulation approach proposed by (Ichino et al., 2008). Outcome variable is cumulative number of days in regular contributory employment in the fourth year after the test referral. Baseline estimate refers to ATET reported in Table A3. The confounding variables are simulated according to four observed covariates: Women, no German citizenship and zero earning in 1 and 5 years before test referral.

Source: Author's calculations. © IAB

Figures

Tables

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