# Addressing Educated Unemployment in Padang City: Data Analysis, Theory, and Policy Recommendations

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## ARTICLE INFO

## ABSTRACT

This study addresses educated unemployment in Padang City by integrating official labor-market statistics with a theory-informed policy diagnosis. Using recent Sakernas-based indicators and provincial/city benchmarking, the analysis documents that Padang's unemployment level is among the highest in West Sumatra and that joblessness is disproportionately concentrated among upper-secondary and tertiary-educated groups, indicating persistent frictions in education-to-work transitions. The results suggest that the problem is shaped by interacting mechanisms: limited availability of graduate-appropriate jobs within a service- and microenterprise-dominated economy, substantial informality that absorbs labor but weakly supports high-skill career ladders, and matching inefficiencies consistent with skill mismatch, overeducation risk, and credential competition. Building on these findings, the paper proposes a targeted policy package that combines demand-side job upgrading and sector-oriented job creation with supply-side improvements in skills signaling, employer-linked training, structured internships/apprenticeships, and strengthened labor-market intermediation. The study contributes a city-focused evidence base to guide local government and education institutions in designing measurable, implementable interventions to reduce educated unemployment and improve job quality.

## INTRODUCTION

Educated unemployment, unemployment among labor-force participants with at least post-secondary or tertiary credentials, has become a persistent challenge in many middle-income settings where educational expansion has outpaced the creation of stable, high-productivity jobs. At the provincial level, recent labor-force statistics show that West Sumatra

recorded an open unemployment rate of 5.62% in August 2025, alongside a large share of informal employment (64.34%), a pattern consistent with constrained availability of "good jobs" and limited formal absorption. Within this context, Padang City stands out: the open unemployment rate for Padang is reported at 9.70% (2025), exceeding other districts/cities in the province. These figures motivate a targeted investigation into why joblessness remains high even as the supply of educated workers grows.

The central analytical puzzle is not simply a shortage of jobs, but a potential misalignment between what graduate's supply and what employers demand. The skills mismatch literature emphasizes that mismatch is multidimensional, covering qualification mismatch (including overeducation), skill gaps, and field-of-study mismatch, and that it can weaken employment outcomes and productivity by increasing frictions in the matching process. (McGuinness et al., 2018) Importantly, mismatch can also be persistent rather than temporary, especially when institutional features of education and training systems shape the types of jobs individuals enter early in their careers. (Damelang & Ruf, 2022)

Evidence from Indonesia reinforces the relevance of these mechanisms. Using labor-force survey data, research finds that education–occupation mismatch is associated with meaningful wage penalties and career mobility constraints, implying that educational attainment alone does not guarantee access to commensurate employment when matching frictions are strong. (Wicaksono et al., 2023) In addition, Indonesian evidence on school-to-work transitions suggests that labor-market outcomes differ by educational track and macroeconomic conditions, highlighting the importance of transition institutions and the demand-side structure of jobs. (Ariansyah et al., 2024)

From a structural perspective, educated unemployment is also shaped by the composition of labor demand. Broader development evidence argues that when structural transformation fails to generate sufficient high-productivity employment, educated workers may face constrained opportunities, accept non-matching jobs, or experience prolonged job search. World Bank analyses highlight that a mismatch between available jobs and skills can contribute to frustration and migration pressures, while country-focused work links "good jobs" creation to productivity-enhancing structural change. For Padang, where the local economy is widely characterized by services and MSME activity, the policy challenge is therefore twofold: (i) improving the alignment between education/training and market-relevant competencies, and (ii) expanding the demand for graduate-level work through productivity upgrading and targeted job creation.

Padang offers a policy-relevant case because it is a regional urban center with a relatively large pool of educated labor supply but an unemployment rate that remains high compared with surrounding areas. This creates a setting where matching frictions, job-quality constraints, and transition barriers are likely to be visible in measurable outcomes such as unemployment incidence and prolonged job search among graduates. Moreover, the development implications are substantial: persistent educated unemployment can lower productivity, increase dependency burdens, and intensify outward mobility of skilled workers, thereby weakening local human-capital retention and long-run competitiveness. These concerns align closely with the decent-work agenda under Sustainable Development Goal 8 articulated by the International Labor Organization.

This study is guided by human capital and signaling perspectives, job-

search and matching theory, and labor-market segmentation. It addresses four research questions: (1) What are the recent patterns and profiles of educated unemployment in Padang (by age, gender, and educational level)? (2) Which individual and labor-market factors are most strongly associated with the probability of unemployment among educated labor-force participants? (3) To what extent do indicators of skill mismatch and overeducation appear in the local labor market, and how are they associated with unemployment risk? (4) Which policy interventions are most feasible and likely to be effective for Padang across short-, medium, and long-term horizons?

The paper makes three contributions. First, it provides city-focused empirical evidence on educated unemployment in Padang, situating local outcomes within provincial labor-market conditions reported by official statistics. Second, it connects the Padang case to established labor-economics mechanisms, skills mismatch and overeducation persistence, drawing on internationally recognized frameworks. (McGuinness et al., 2018; Damelang & Ruf, 2022) Third, it translates empirical diagnosis into policy recommendations that explicitly address both the supply–demand alignment problem and the demand-side constraints to "good jobs," consistent with skills-policy priorities emphasized by the OECD.

## LITERATURE REVIEW & CONCEPTUAL FRAMEWORK

### Human capital, signaling, and credential inflation

Standard labor-economics reasoning starts from human capital theory, were schooling increases productivity and therefore employability and earnings. In practice, however, employers rarely observe productivity directly, especially for fresh graduates, so hiring decisions often rely on signals such as credentials, institutional reputation, and observable proxies of ability. When the supply of educated workers grows faster than the upgrading of occupational structures, credentials can lose scarcity value, intensifying competition for a limited number of graduate-level positions. Recent cross-national evidence reframes this dynamic by distinguishing "credential inflation" from "decredentialization": returns to degrees may weaken for lower-tier tertiary expansion while, under certain conditions, skills can become relatively more important than nominal credentials in allocating rewards. (Araki & Kariya, 2022).

This perspective matters for educated unemployment in a city context because graduate job queues may form even without a collapse in education quality: unemployment can rise when credentials become a weaker differentiator and when firms use higher thresholds as a screening device. In such settings, policy responses require more than expanding education access; they require improving the informativeness of skills signals (certification, portfolios, internship transcripts) and strengthening school-to-work linkages that reduce information frictions.

### Skills mismatch as a matching problem

A central concept in contemporary labor-market research is skills mismatch, which captures misalignment between worker attributes and job requirements. A widely used synthesis clarifies that mismatch is multidimensional: it can involve vertical mismatch (overeducation/undereducation), horizontal mismatch (field-of-study mismatch), and skill mismatch (deficits or surpluses in competencies relative to job tasks). It also highlights that mismatch is not merely an individual deficit but a systemic outcome of labor-demand structure, education and training systems, and imperfect information in recruitment and job search. (McGuinness et al., 2018).

For the Padang case, this implies that educated unemployment can coexist with vacancies if the local economy creates jobs in sectors or roles that do not match graduate profiles, if graduates lack specific competencies demanded by employers (including digital and socio-behavioral skills), or if employers cannot reliably identify job-ready candidates. In short, educated unemployment is best conceptualized as a matching and job-quality problem shaped by both supply and demand.

**Overeducation and persistence over the career**

Within mismatch research, overeducation (education level exceeding typical job requirements) is especially relevant to graduate labor markets with limited high-skill vacancy growth. Overeducation can function as a short transition phase for some, but recent work shows it can also become persistent, generating path dependence through early-career placement into low-match jobs that may reduce access to training ladders and slow occupational mobility. Using longitudinal reasoning and institutional comparisons, Damelang and Ruf show how training-system configurations and initial labor-market entry conditions relate to persistence in overeducation across employment careers. (Damelang & Ruf, 2023).

This lens suggests that policy should not treat mismatch as a temporary inconvenience: if the local economy repeatedly absorbs graduates into low-match work, the city may face longer-run productivity losses, weaker wage growth, and higher risk of educated joblessness for subsequent cohorts.

**Indonesian evidence on mismatch and labor-market penalties**

Empirical studies from Indonesia support the relevance of mismatch and its economic consequences. For instance, national labor-force survey evidence shows that past overeducation experience is associated with a meaningful probability of repeat overeducation and with wage disparities when workers transition into matched jobs, indicating real efficiency losses in human-capital utilization. (Wicaksono et al., 2023).

Beyond individual penalties, the Indonesian context also highlights spatial and market-thickness dimensions. Evidence using Sakernas data finds that agglomeration economies can reduce multiple forms of job–education mismatch, implying that regions with limited vacancy variety and thinner labor markets may face systematically higher mismatch risk. (Paramitasari et al., 2024).

Together, these findings motivate a city-focused framework that examines not only who becomes unemployed, but also how local labor-demand composition and market thickness shape matching outcomes for educated workers.

Labor-market segmentation, informality, and demand constraints

Educated unemployment in many middle-income settings is inseparable from labor-market segmentation between formal, protected employment and informal, low-productivity work. When formal job creation is limited, educated jobseekers may either accept non-matching informal jobs or remain unemployed while searching for higher-quality opportunities. Evidence on Indonesia's informal sector indicates that many informal firms are micro-scale, relatively unproductive, and oriented to local markets, features that constrain the creation of graduate-level positions and career ladders. (Rothenberg et al., 2016).

From a structural-development standpoint, the core issue becomes the pace of job upgrading. A prominent global synthesis emphasizes that when there is mismatch between available jobs and skills, frustration can rise and may shape mobility decisions; it also stresses that

technology and economic transformation change the skill bundles employers seek, raising the premium on adaptable competencies. (World Bank, 2019).

For Padang City, these arguments imply that educated unemployment is likely to reflect both (i) limited demand for graduate-level work in higher-productivity firms/sectors and (ii) imperfect matching institutions that channel graduates into low-match employment or extended search.

## School-to-work transitions and early-career vulnerability

Educated unemployment frequently concentrates among labor-market entrants. Transition institutions, internships, apprenticeships, placement services, career centers, and credible certification, shape the speed and quality of first-job matching. Indonesia-focused evidence comparing vocational and general secondary graduates shows distinct patterns in time-to-first-job and resilience during shocks, highlighting how transition pathways and labor-demand conditions jointly shape outcomes. (Ariansyah et al., 2024).

While this evidence focuses on secondary tracks, the implication generalizes: where transition supports are weak, educated jobseekers face longer search duration, greater mismatch, and higher risk of unemployment, especially in thinner urban labor markets.

## Conceptual framework guiding the analysis

Synthesizing the above, this study conceptualizes educated unemployment in Padang City as the outcome of interacting forces:

1. Supply-side characteristics: education level, field background, and competency profiles (including job-ready, digital, and socio-behavioral skills), as well as work experience and job-search strategy.
2. Matching frictions and screening: information gaps between employers and applicants, reliance on credentials as screening devices, and credential competition that can elevate hiring thresholds when graduate supply is abundant.
3. Demand-side structure: sectoral composition, firm productivity, and the prevalence of informal or low-growth enterprises that limit graduate-level vacancy creation and upward mobility pathways.

In this framework, the analysis focuses on how these elements jointly shape (i) the probability of unemployment among educated labor-force participants and (ii) the likelihood of mismatch/overeducation among those who do find work. This theoretical structure is designed to support a policy discussion that is grounded in mechanisms, improving skill signals and transition systems on the supply and intermediation side, while strengthening job creation and job upgrading on the demand side, rather than relying on broad, non-targeted program lists.

## METHODS

### Study design

This article uses a policy-oriented empirical design that combines (i) secondary statistical analysis of official labor-market indicators and (ii) a theory-informed diagnostic framework to translate evidence into implementable recommendations. The quantitative component is descriptive and comparative, aimed at documenting the scale, composition, and recent dynamics of educated unemployment in Padang City relative to other districts/cities in West Sumatra and provincial aggregates. The qualitative component is an analytical synthesis that maps empirical patterns to established labor-market mechanisms (skills mismatch, overeducation, screening/credential competition, and

segmentation) and then evaluates policy options against transparent criteria.

**Data sources and scope**

The analysis relies on publicly available official sources produced from the National Labor Force Survey (Sakernas) and related BPS statistical outputs:

1. City-level open unemployment rate (OUR/TPT) tables for West Sumatra districts/cities to locate Padang's position in the province and to support benchmarking.
2. Official statistical news/press releases on the labor force situation in West Sumatra (e.g., August 2025; November 2025) to obtain province-wide labor-market structure indicators, including informality.
3. National BPS Sakernas publications that document the August 2025 survey's sampling scope (district/city estimation capability) and provide harmonized definitions and tables for labor-market conditions.

The empirical window is set to the most recent year(s) available in official releases and tables for Padang and West Sumatra, prioritizing August rounds where city-level estimates are supported.

**Measures and operational definitions**

Unemployment (TPT/OUR). Unemployment follows the official Sakernas operationalization, which includes individuals who are not working and (a) actively seeking work, (b) preparing a business, (c) discouraged from job search, or (d) already have a job arranged but have not yet started.

Educated unemployment. In this article, "educated" refers to individuals with tertiary education (diploma and above). Where the available tables permit, results are disaggregated by tertiary level (e.g., diploma vs bachelor/postgraduate). This definition is chosen to match the paper's focus on graduate labor-market constraints and the policy relevance of education-to-work transitions at the tertiary level.

Labor-market structure (context variables). To interpret unemployment within local demand conditions, the analysis uses province-level indicators such as the share of workers in informal activities, which signals the prevalence of job arrangements typically associated with lower stability and weaker job ladders.

Mismatch/overeducation (diagnostic indicators). Because mismatch measurement depends on the availability of education-by-occupation information, the study applies a tiered diagnostic approach:

1. Conceptual definition and measurement logic: mismatch is defined and interpreted using the ILOSTAT "Education and Mismatch Indicators" framework, which distinguishes normative and statistical approaches to education–occupation mismatch.
2. Operationalization depending on data granularity:
3. If the public tables include cross-tabulations of education × occupation group (or if microdata access is available), the study computes overeducation using:
   a. a normative approach (education compared to occupational requirement by broad occupational group), and/or
   b. a statistical approach (education compared to the modal education level within an occupation group).
4. If only aggregated unemployment-by-education tables are available, mismatch is treated as a mechanism supported by indirect indicators (e.g., high graduate unemployment coexisting with high informality; weak graduate absorption implied by city/province structure), and the paper is explicit that mismatch is diagnosed

interpretively rather than estimated as an individual-level causal effect.

**Quantitative analytical procedures**

Benchmarking and ranking. Padang's open unemployment rate is compared with other districts/cities in West Sumatra using the official statistical table, establishing the magnitude of Padang's relative unemployment burden.

Trend reading across releases. Provincial labor-market changes are tracked across official BPS releases (e.g., August 2025 to November 2025) to situate Padang's city-level condition within broader movements in provincial unemployment and labor-market structure.

Structure-of-employment context. The share of informal employment is used as a macro-structural indicator of limited formal absorption capacity and weaker job ladders, informing the interpretation of educated unemployment pressures.

Descriptive profiling (as data allow). Where the published tables permit, educated unemployment is described by key groupings (age bands, gender, tertiary level). If only partial cross-tabs are available publicly, the paper reports what is observable and avoids extrapolating beyond the published distributions.

All quantitative results are reported as rates, shares, and comparative gaps (Padang vs peer districts/cities; Padang vs provincial level), prioritizing interpretability for policy design.

**Qualitative diagnostic and policy synthesis**

Mechanism mapping. Empirical patterns (e.g., high Padang unemployment, high provincial informality) are mapped to the theoretical channels emphasized in the recent labor-market measurement framework for mismatch (information frictions, job-quality constraints, and education–occupation misalignment).

Problem structuring. The study uses structured problem analysis tools (problem tree/fishbone logic) to organize proximate causes (transition frictions, screening, limited graduate vacancies) and underlying constraints (local job structure, firm capability and productivity, informality).

Policy option appraisal. Policy recommendations are derived through a transparent appraisal of options against criteria commonly used in evidence-based local policy design:

1. expected effectiveness (link to diagnosed mechanism),
2. feasibility (institutional and implementation capacity),
3. time-to-impact (short/medium/long horizon),
4. equity (distributional effects on youth/new entrants and disadvantaged groups), and
5. coherence with "decent work" objectives in the official labor-statistics framing.

**Limitations**

Because the core quantitative analysis relies on published secondary statistics, the article does not claim micro-level causal identification unless education–occupation microdata are available. In the absence of such microdata, mismatch/overeducation is treated as a plausible explanatory mechanism anchored in internationally recognized measurement concepts, while the primary empirical contribution remains the city-focused diagnosis and policy translation.

## RESULTS AND DISCUSSION

Using official labor-force statistics (Sakernas-based series compiled in your dataset) and recent provincial releases, the evidence indicates that educated unemployment in Padang City is both quantitatively large and structurally persistent, reflecting a combination of education–job mismatch, limited high-skill labor demand, and a labor market dominated by service activities with substantial informality.

## Magnitude, trends, and the "educated" profile of unemployment

Recent data place Badan Pusat Statistik estimates of Padang's open unemployment rate among the highest in West Sumatra, at 9.70% in August 2025. This is far above the provincial average of 5.62%, even as the province recorded rising employment and a large informal segment.

Crucially, unemployment in Padang is concentrated among upper-secondary and tertiary graduates. In 2025, the unemployed were dominated by senior secondary general (SMA) at 38.85%, followed by university graduates at 16.70%, vocational secondary (SMK) at 14.03%, and diploma holders at 10.61%. Aggregating these categories shows that 80.19% of the unemployed had SMA/SMK or higher, while SMK + diploma + university alone accounted for 41.34% of all unemployment, an unambiguous "educated unemployment" pattern consistent with the paper's framing. This pattern is also consistent with earlier provincial evidence that unemployment rates can be highest among diploma/degree holders in the region.

In absolute terms, Padang's unemployed population remained very large. A 2025 municipal labor-market report cited 48,067 unemployed persons alongside a 9.88% open unemployment rate, underscoring the scale of the challenge and the policy salience at city level. While point estimates vary by reference month and release, the overall message is stable: Padang faces structurally high unemployment relative to the province, and much of it is borne by people with upper-secondary and postsecondary credentials.

## Labor-demand structure and absorption capacity

Padang's labor absorption is shaped by its economic structure. Employment is highly concentrated in services: in 2024, services accounted for ~73.3% of total employment, compared with ~22.4% in manufacturing and ~4.3% in agriculture (based on the city's sector-of-work distribution reported in your underlying tables). This matters because large shares of urban services and microenterprise activity tend to generate entry-level and medium-skill jobs, while formal high-skill vacancies remain relatively limited and competitive.

Consistent with this, the city's GRDP composition is led by trade and transport-related activities (e.g., wholesale/retail trade and transportation/logistics), with manufacturing and other high-productivity tradable sectors playing a smaller role in overall output. Such a structure is compatible with an "education expansion without commensurate high-skill job creation" trajectory, an empirically common pathway to graduate unemployment and underemployment in developing and emerging urban labor markets.

## Interpreting educated unemployment in Padang

1. Mismatch and credential competition are plausible central mechanisms.

The education profile, especially the large shares for SMA/SMK, diploma, and university, points to mismatch between what education systems supply and what employers demand. International evidence shows that education–occupation mismatch can impose substantial penalties and persistent scarring: for instance, mismatch is associated with wage losses and weaker job mobility prospects. Theoretical and empirical reviews also emphasize that "overeducation" measures can capture credential inflation and job-competition dynamics, where degrees become screening devices in markets that do not actually expand high-skill task content at the same pace.

In Padang's context, the combination of a large higher-education presence and limited growth of high-skill formal positions can generate queues for "good jobs", prolonging unemployment spells among graduates who prefer formal employment and are reluctant to accept informal or non-matching jobs.

2. Urban agglomeration is not automatically protective when job matching frictions are high.

Urban areas can, in principle, improve matching through thicker labor markets. Yet recent Indonesia-focused evidence indicates that agglomeration interacts with mismatch in complex ways, including heterogeneous outcomes across graduate types and local labor-market structures. For Padang, the high concentration of services and informality suggests that agglomeration benefits may be muted if the city's growth engines are not generating enough structured, productivity-linked career ladders for vocational and university graduates.

3. High informality at the provincial level signals absorption, but not necessarily "graduate-appropriate" absorption.

At the provincial level, 64.34% of workers are in informal activities, and the informal share increased year-on-year. Informality can act as a buffer (absorbing labor during slow formal job growth), but it also tends to be associated with lower returns to education and weaker matching, which helps explain why educated unemployment can remain high even when overall employment rises. For graduates, this creates a difficult trade-off: accept lower-quality, non-matching work, or remain unemployed while searching.

4. Policy signals suggest promising directions but limited scale relative to the problem.

City actions described in 2025 include competency-based training and certification, 11 trainings with 157 jobseekers and high pass rates, with certification aligned to Badan Nasional Sertifikasi Profesi standards. These interventions are directionally aligned with the mismatch diagnosis, but the scale remains small relative to tens of thousands unemployed. International evidence suggests that training and job-search assistance can work, yet impacts are sensitive to program design, targeting, and labor-demand linkages; employer-connected placement and well-designed job-search assistance often yield more cost-effective gains than stand-alone training. Therefore, the results imply that Padang's challenge is not only supply-side (skills) but also demand-side and matching-system oriented: expanding employer partnerships, vacancy intermediation, apprenticeships, and sector-specific pipelines may be necessary to translate training into actual employment outcomes.

Overall, the results support a coherent interpretation: educated unemployment in Padang is driven by a high supply of credentialed labor combined with a labor-demand structure concentrated in services and informality, producing persistent mismatch and competition for a limited set of formal, graduate-appropriate jobs. This diagnosis provides a strong empirical foundation for the policy recommendations section, particularly policies that (i) strengthen employer-led matching and placement, (ii) re-orient skills programs toward verified vacancies and sector pipelines, and (iii) support productivity upgrading in firms/industries that can absorb vocational and tertiary talent.

## CONCLUSION

This study examined educated unemployment in Padang City through a data-driven, theory-guided lens and highlighted that the problem is not only about insufficient employment in aggregate, but also about the limited availability of graduate-appropriate jobs

and persistent frictions in education-to-work matching. The evidence indicates that unemployment in Padang remains comparatively high within West Sumatra and is disproportionately borne by individuals with senior secondary and tertiary qualifications, signaling that educational attainment alone does not guarantee smooth transitions into stable and productive employment. The city's employment structure, which is dominated by service activities and small-scale enterprises, appears to provide broad absorption but relatively weak pathways for high-skill job creation, career progression, and wage growth. As a result, many educated jobseekers face a constrained choice set: accept non-matching and often lower-quality work, prolong job search while waiting for scarce formal opportunities, or pursue mobility to other regions.

The findings reinforce the importance of treating educated unemployment as a system-level issue shaped by the interaction between labor demand, the quality and specificity of competencies, and the functioning of matching institutions. Supply-side interventions such as training and certification are necessary but insufficient when they are not anchored to verified vacancies, employer-defined competency standards, and structured transition pathways such as apprenticeships, internships, and placement pipelines. Demand-side measures that support firm upgrading, productivity growth, and the expansion of sectors capable of absorbing educated labor are equally critical to prevent recurring graduate job queues. Therefore, the most effective strategy for Padang is a balanced policy package that improves skills signaling and job matching while simultaneously strengthening the local ecosystem for formal job creation. Future work should deepen the empirical basis by incorporating microdata on education–occupation linkages, tracer outcomes, and firm-level hiring demand to better identify the most binding constraints and to evaluate policy effectiveness over time.

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