

POLICY BRIEF • SERIES NO. 2026-05 • JULY 2026 • STATE OF MAINE

The Widening Signal for Maine's Youth with Disabilities

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Broadband, AI-mediated hiring, and the demand-side layer Maine must now build itself — evidence for the Pathways to Partnership coalition

OVERVIEW

Technology is raising the stakes of connection faster than Maine is closing its gaps. The state has connected more of its map in the last decade than in the previous three combined, while hiring, schooling, benefits, and services moved online and artificial intelligence began mediating who even gets an interview. Every step of that transformation raises the return to being connected and the penalty for being left out. Without deliberate policy, the buildout now underway will amplify inequality rather than reduce it, and the young people with the most to gain — youth with disabilities — will absorb the cost.

72 → 92%

Maine populated blocks with 25/3 fixed service, 2014–2024

19 → 27%

post-closure employment for VR youth, least- to best-connected areas

10–15 pp

national adoption gap for disability households

\$272M

Maine's BEAD allocation now moving to construction

Five Things Maine Policymakers Need to Know

- The path from school to work now runs through a connection.**
Postings, applications, screening interviews, onboarding, and benefits navigation assume a connected household with a capable device, and AI-mediated hiring is hardening that assumption into a wall.
- Maine's coverage gains are real but uneven.**
Fixed 25/3 availability rose from roughly 72% to 92% of populated blocks over the decade, concentrated in southern and coastal Maine, while parts of the rural interior — where VR caseloads run heaviest — still lack high-speed service.
- Infrastructure alone can widen the gap it targets.**
National causal evidence shows that when broadband arrived, better-off households upgraded while disability households took the cheapest tier on fewer devices. Coverage improved while the quality-of-access divide grew.
- Connectivity is associated with keeping jobs, not just finding them.**
Maine VR youth in the best-connected areas were employed in 27 percent of post-closure quarters versus 19 percent in the least connected — the sustained-employment margin that VR services exist to protect.
- The federal architecture just removed the demand side.**
The 2025 BEAD restructuring stripped affordability, adoption, and workforce provisions, so Maine must now build that layer itself — and Pathways to Partnership is the coordinating vehicle it already has.

SECTION 01 • WHY THE STAKES ARE RISING

Every year, more of the labor market moves to the other side of the connection

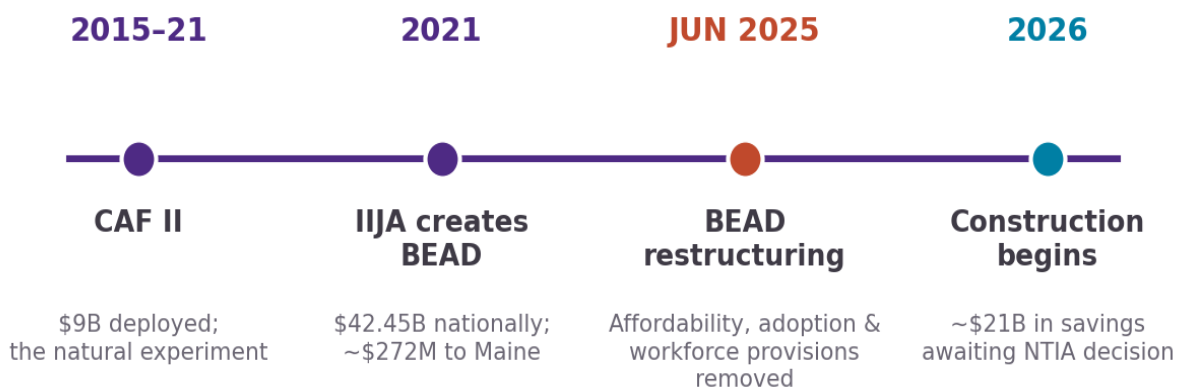
For a young person leaving school in Maine today, the labor market is a digital artifact. Job openings are posted online and often only online. Applications flow through platforms, screening interviews happen by video, and scheduling, onboarding paperwork, and increasingly the first read of a résumé are automated. Artificial intelligence and workplace automation will deepen this occupational transformation, not relax it. Each of these shifts quietly raises the return to a reliable household connection and a capable device, and it raises the penalty for lacking one by the same amount.

That penalty is not distributed at random. It lands on households that are lower income, more rural, and more likely to include a person with a disability. Nationally, adoption in these households lags by roughly 10 to 15 percentage points, driven by affordability, device access, and infrastructure gaps that concentrate in the same rural geographies where vocational rehabilitation caseloads are heaviest. For transition-age youth with disabilities (YWD), the digital divide stacks on top of the barriers VR exists to address, including thin work histories, thin networks, and deep information asymmetries about which employers will accommodate them.

There is a further and less visible layer, because the AI systems now mediating hiring are themselves unstable. Our companion research finds that occupational AI exposure scores — the numbers institutions use to decide which jobs and skills are at risk — vary as much as 3.6-fold depending on which AI model generates them, and the same profile can be scored oppositely by different systems. A labor market sorted by opaque and shifting algorithms is hardest on candidates with the least room for error: those with unconventional histories, disclosure decisions to manage, and no insider network to route around the machine. **Connectivity does not solve that problem, but being disconnected guarantees losing to it.**

FIGURE 1

A decade of federal buildout and the demand side that fell out of it



The demand-side layer — affordability, devices, skills, matching — is now a state responsibility by default.

The figure traces the federal broadband policy timeline. The June 2025 NTIA Restructuring Policy Notice re-scored BEAD awards on lowest cost and removed non-deployment requirements including low-cost plans, adoption, and workforce development. Maine's BEAD allocation is approximately \$272 million. Sources: FCC and NTIA (2025 and 2026).

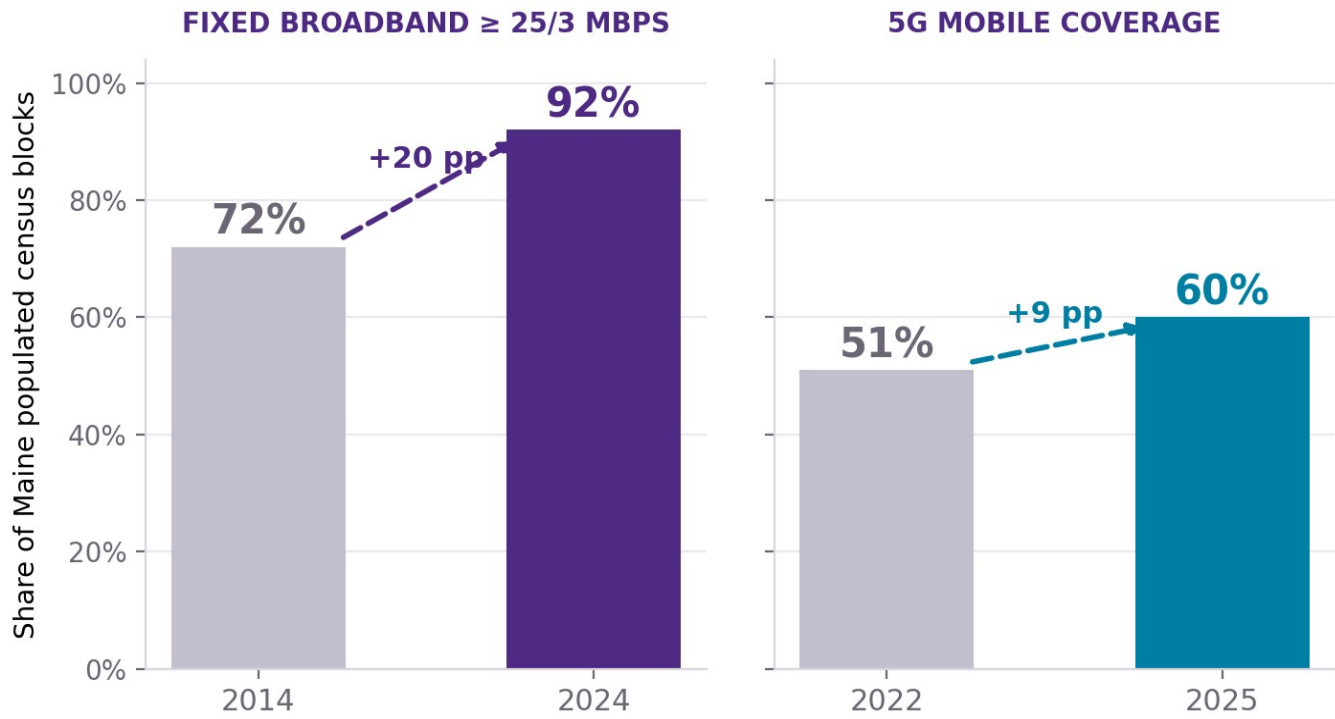
SECTION 02 • MAINE'S MAP IS FILLING IN UNEVENLY

Availability rose sharply while the interior and adoption lag behind

Fixed broadband availability expanded substantially in Maine over the last decade. Among populated census blocks, the share with non-satellite service of at least 25/3 Mbps rose from roughly 72 percent in 2014 to 92 percent in 2024, and best-available

download speeds climbed from the 25–100 Mbps range to 250 Mbps or more across most settled areas. Mobile coverage tells a similar story, with 4G LTE now reaching nearly all populated blocks and 5G growing from about 51 to 60 percent of populated blocks between 2022 and 2025.

FIGURE 2
Maine connectivity, 2014–2025: fast progress and a persistent frontier



Share of Maine’s populated census blocks offered non-satellite fixed service of at least 25/3 Mbps, and 5G mobile coverage. Coverage reflects availability rather than adoption — a distinction that carries the whole equity story. Gains concentrated in southern and coastal Maine, and parts of the rural interior still lack high-speed fixed service and the fastest mobile tiers. Data: FCC Form 477 and the Broadband Data Collection.

The distinction between availability and adoption is where inequality enters. A coverage map records where service could be bought. It says nothing about whether a household can afford the plan, owns a device capable of a video interview, or has the digital skills to navigate an AI-screened application. On every one of those margins, households that include a person with a disability — disproportionately reliant on fixed incomes and disproportionately rural in Maine — start behind and, as the next section shows, fall further behind when infrastructure arrives without support.

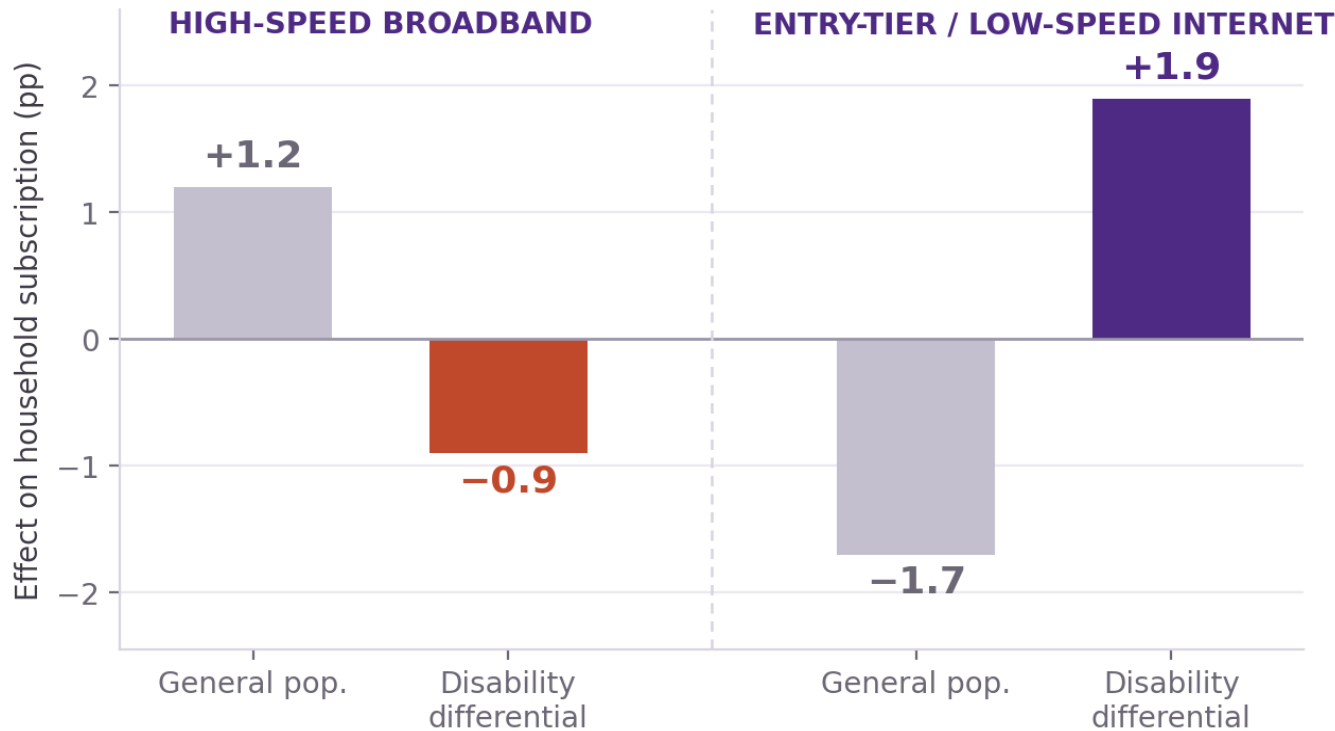
SECTION 03 • HOW A BUILDOUT AMPLIFIES INEQUALITY
The national causal evidence shows the same wire producing a two-tier outcome

Yin and Guerrero (2026) exploit the quasi-random, engineering-based rollout of the federal Connect America Fund Phase II, the \$9 billion predecessor to BEAD, to estimate what broadband deployment causally does. The main finding is hopeful: labor force participation for people with disabilities rose by up to 4.7 percentage points more than for the general population, one of the largest measured policy effects on disability employment on record. The mechanism was matching rather than remote work. Telework rose less for workers with disabilities, employment gains spread across occupations including jobs that cannot be done from home, and commutes shortened only for workers with mobility barriers. Connectivity helped people find suitable, accessible employers near where they live.

But the same study contains a warning that Maine should read closely. Deployment raised high-speed adoption for the general population and left it flat for disability households, which instead adopted the cheapest entry tier and owned fewer

devices to begin with. **The infrastructure raised every rung of the ladder, and the households with the least climbed onto the bottom one.**

FIGURE 3
The amplification mechanism: who upgraded when the wire arrived



Causal effects of federal broadband deployment on household subscription by service tier, using national ACS data for 2013 to 2024. The general population moved up the tier ladder while households including a worker with a disability moved onto its bottom rung — a price and device response rather than a preference. Availability rose for everyone while quality of access diverged. Data: Yin and Guerrero (2026), Tables 2, 3, and A3.

Why this is a social-impact problem, not a telecom problem

Divergence in access quality compounds over time. A household on an entry-tier connection with one shared device can check a job board, but it cannot reliably sustain a video interview, complete a timed online assessment, attend a telehealth appointment, and support a student’s coursework in the same week. As employers automate screening and public services move online, each year of divergence converts into missed interviews, dropped applications, and foregone services for exactly the population with the least slack to absorb it. The national evidence also shows where returns were weakest — in the thinnest rural labor markets and in low-income counties where affordability binds even when service exists — and that is a description of Maine’s interior. A buildout that stops at the wire will document its own success on a coverage map while the social gap underneath it widens.

SECTION 04 • THE MAINE EVIDENCE

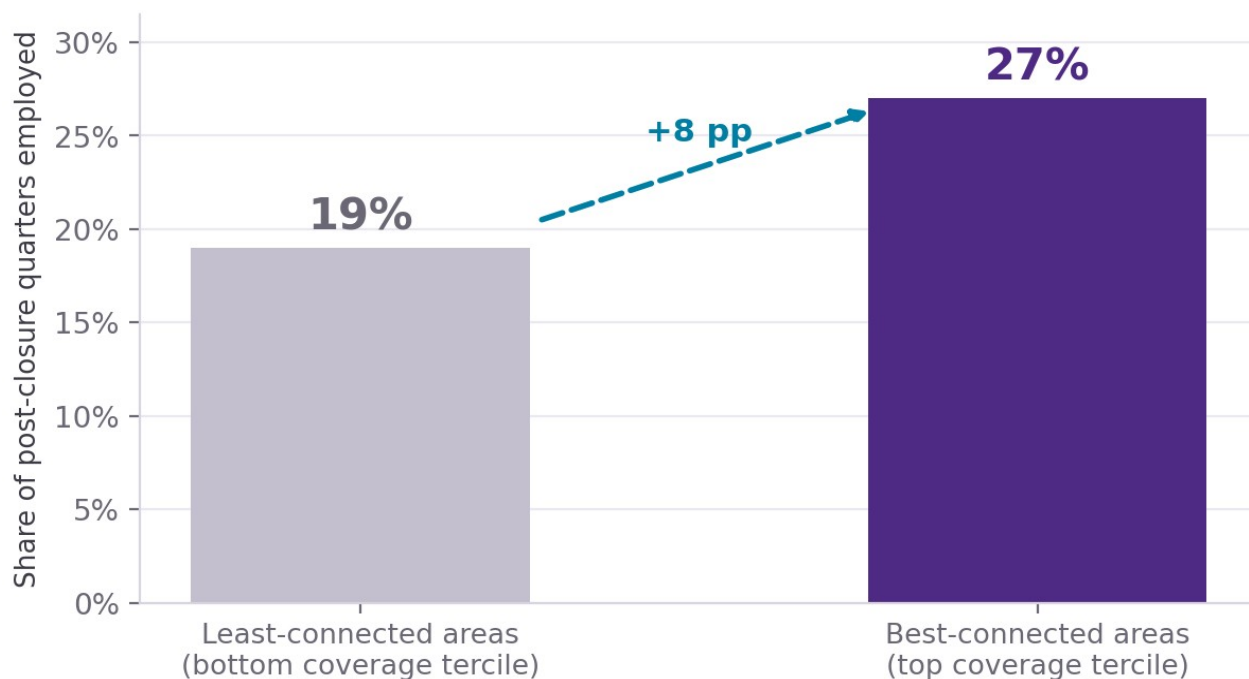
Connectivity tracks whether VR youth keep jobs — the margin transition policy exists to protect

Maine’s own administrative data point the same direction as the national causal evidence, in precisely the population the state’s transition system serves. Among transition-age youth ages 14 to 24 with an Individualized Plan for Employment who applied for VR services between 2015 and 2025, those living in better-connected areas show meaningfully better long-run

labor market outcomes. The share of post-closure quarters in which a former VR youth was employed rises from about 19 percent in the least connected areas to 27 percent in the best connected — a gap of more than 40 percent in relative terms.

FIGURE 4

Post-closure employment for Maine VR youth rises with local connectivity



The figure covers Maine VR transition-age youth ages 14 to 24 with an IPE who applied between 2015 and 2025, and shows the share of calendar quarters with reported wages after case closure by residential ZIP broadband coverage tercile at the 25/3 and 100/20 standards. The gap is statistically meaningful and middle-tercile outcomes fall between. Patterns are descriptive rather than causal and cover a small single-state population, but they align with the national causal evidence in exactly the population P2P serves. Data: RSA-911 and UI records linked to FCC broadband data.

The composition of the gap matters as much as its size. Stronger connectivity is associated less with landing a first job at case closure than with sustaining employment afterward — staying attached, re-matching after a job ends, and finding the next accessible employer without the caseworker who has since closed the file. That is exactly the margin VR services and transition supports work to protect, and exactly where a connected household can keep doing on its own what the agency once did on its behalf. It is also the margin where an unconnected household silently loses ground, not through a visible crisis but through fewer quarters worked, year after year.

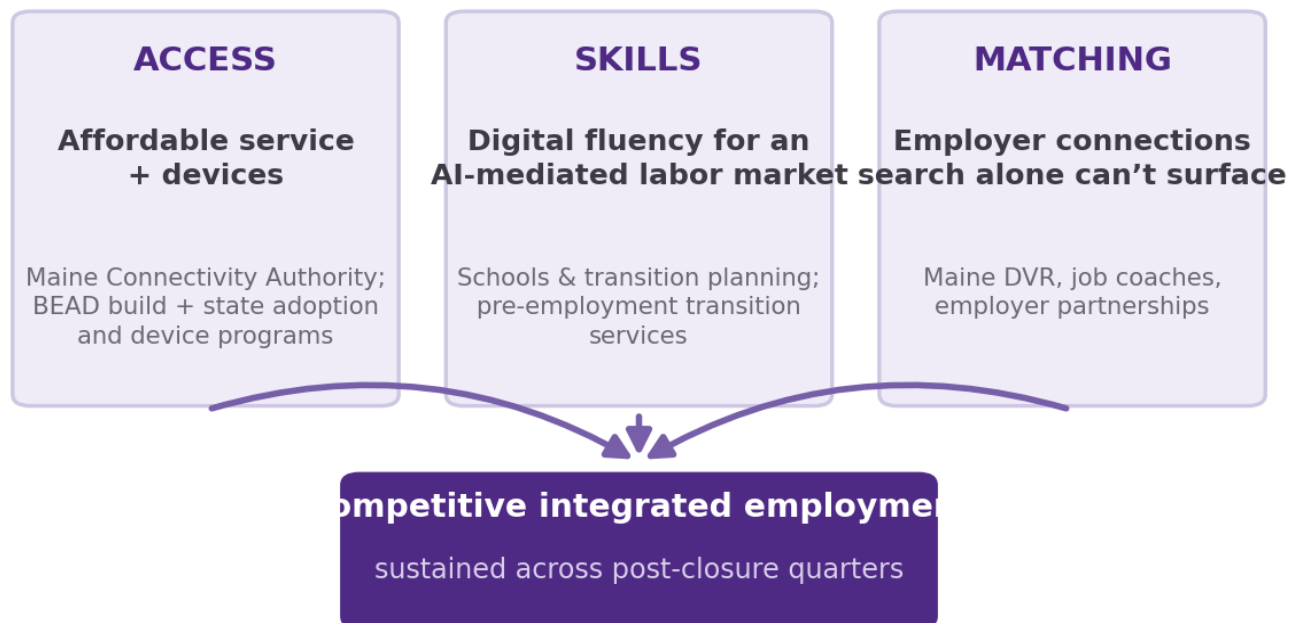
SECTION 05 • WHAT MAINE SHOULD DO

The federal program builds the wire, and someone has to build everything else

The matching-efficiency evidence implies that connectivity converts into employment only when three complementary capabilities are in place. **Access** means an affordable connection and a capable device in the household; **skills** means the digital fluency to search, apply, interview, and navigate AI-mediated systems; and **matching** means institutions that connect youth to accessible employers that pure search still cannot surface. The 2025 federal restructuring removed the first from BEAD's requirements and never funded the other two. No single Maine agency holds all three, which is the strongest possible argument for the integrated, multi-agency structure the state already has.

FIGURE 5

Three capabilities, one pathway, and the coalition that maps onto them



The complementary-capabilities framework implied by the matching-efficiency evidence. The school system is asked to teach digital skills but does not place youth with employers; Maine DVR matches youth to employers but does not provide connectivity or deep digital training; and connectivity programs build access but neither of the others. Pathways to Partnership (P2P) is the coordinating structure that already spans all three. Returns to any one capability are limited unless the other two are in place — the case for P2P's integrated form.

Program spotlight • Pathways to Partnership is the vehicle Maine already has

P2P is built on the premise that school-based transition planning and VR services work better in concert. The evidence in this brief adds a third partner to that conversation — digital infrastructure — and supplies the economic logic for why the integrated form matters, since matching-efficiency gains are multiplicative rather than additive. A connected household without matching support searches a labor market it cannot fully read, while a well-matched youth in a disconnected household cannot sustain the search after the case closes. P2P is positioned to braid state connectivity investments, school-based digital skills instruction, and DVR's employer network into a single pathway — and to do it before the BEAD construction wave finishes writing the map.

SECTION 06 • POLICY ACTIONS

Recommendations

1

Fund the household, not just the network.

Pair the BEAD construction wave with state-level affordability support and device access targeted to YWD households — the layer the 2025 federal restructuring removed. The national evidence shows the labor-market gains ran through any connectivity, so even modest adoption support has outsized returns for constrained households.

2	Target the interior, and pair wire with opportunity. Returns were weakest nationally in thin rural and low-income markets, which describes the communities where Maine's remaining gaps concentrate. Direct complementary investment there toward work-based learning slots, employer development, and transportation, so that connectivity has a labor market to convert into.
3	Make digital job-search fluency a standard transition service. Through P2P, embed platform navigation, video interviewing, AI-screening literacy, and disclosure strategy into pre-employment transition services, treating them as core employability skills rather than enrichment.
4	Measure adoption, tier, and devices, not just availability. Coverage maps cannot see two-tier adoption. Maine should track subscription rates, service tier, and device access for YWD households, and link them to VR outcomes, so divergence surfaces in data before it hardens into biography.
5	Protect the post-closure margin. The connectivity gradient is steepest in sustained employment after VR cases close. Light-touch post-closure supports such as periodic digital check-ins and alumni matching services are cheap where households are connected and impossible where they are not.
6	Compete for the federal demand-side dollars. NTIA is deciding how to deploy roughly \$21 billion in BEAD restructuring savings, with digital adoption and workforce programs among the uses under discussion. Maine should arrive with a shovel-ready, P2P-anchored proposal that braids adoption, skills, and matching for YWD — a model other states can replicate.

SECTION A • METHODS APPENDIX

Data Sources, Linkages, and Interpretation

A. Maine coverage measures

Coverage statistics derive from FCC Form 477 and Broadband Data Collection filings aggregated to populated census blocks for 2014 to 2025. A block is counted as served at a given standard (25/3 or 100/20 Mbps) if any non-satellite provider reports offering service at that speed to locations in the block. Figures measure availability — where service is offered — rather than adoption, price, or realized speed. Provider self-reports are known to overstate availability at block edges. The qualitative conclusions of rapid but uneven expansion and an interior frontier are robust to this, but block-level shares should be read as upper bounds. 5G coverage uses provider-reported mobile footprints for 2022 to 2025.

B. Maine VR youth linkage

The VR analysis draws on RSA-911 case records for transition-age youth ages 14 to 24 at application with an Individualized Plan for Employment who applied to Maine DVR between 2015 and 2025, linked to Maine Department of Labor UI wage records to construct quarterly employment histories after case closure. The outcome is the share of post-closure calendar quarters with positive reported wages. Each youth is assigned the broadband coverage tercile of their residential ZIP code at both the 25/3 and 100/20 standards. The reported 19-to-27-percent gradient compares bottom and top terciles, and 95 percent confidence intervals exclude equality. UI records omit self-employment, federal employment, and out-of-state work, which attenuates measured employment for all terciles.

C. Interpretation and limitations

The Maine estimates are descriptive, not causal. Better-connected ZIP codes differ from less-connected ones in employer density, income, and services, and youth are not randomly assigned to places. We present the gradient because it points in the same direction as the national causal evidence, at the same margin of sustained attachment, in the population the P2P grant is designed to

serve — and because the policy actions it motivates (adoption support, digital skills, matching capacity) are justified by the causal evidence independently. The sample is a single state and modest in size, so subgroup estimates are not reported.

D. The national causal foundation

Causal claims rest on Yin and Guerrero (2026), which exploits the engineering-based staggered rollout of the Connect America Fund Phase II from 2015 to 2021. Deployment timing was set by the FCC's Connect America Cost Model, which uses terrain slope, soil composition, depth to bedrock, and loop length, providing quasi-random variation orthogonal to labor market conditions. Estimation uses triple-difference designs on about 71 million ACS person-year observations for 2006 to 2024 across 3,144 counties, with county and year fixed effects, county-clustered standard errors, and heterogeneity-robust event-study estimators from Borusyak et al. (2024), de Chaisemartin and D'Haultfœuille (2023), and Sun and Abraham (2021). Results survive a 500-draw placebo permutation with p below 0.01, pre-trend tests, benefit-substitution and industry-composition controls, and extensive sample restrictions. The conservative pre-pandemic participation differential is 1.6 percentage points; the full-sample estimate is 4.7. See RISEI Policy Brief No. 2026-04 for the full methods appendix.

E. AI-exposure instability

Statements about the instability of AI-mediated assessment draw on Yin, Vu, and Persico (2026, NBER Working Paper 35110), which replicates the standard occupational AI-exposure rating protocol across three frontier language models on 18,797 O*NET task statements. That study finds up to 3.6-fold divergence in occupational exposure scores, worst-case inter-model agreement of 57 percent, and county-level employment-effect estimates that flip sign with model choice.

SUGGESTED CITATION

Yin, M., & Guerrero, D. (2026). *The Widening Signal for Maine's Youth with Disabilities* (Policy Brief No. 2026-05). RISEI Lab, Northwestern University. The brief draws on Yin and Guerrero (2026); Yin, Vu, and Persico (2026, NBER Working Paper 35110); Yin and Ogut (2026); FCC Form 477 and BDC data; and the NTIA BEAD Restructuring Policy Notice of 2025. Supported by the Pathways to Partnership project.

DISCLAIMER

The contents of this paper were developed under grant Disability Innovation Fund (DIF 84.421E) from the U.S. Department of Education (Department). The Department does not mandate or prescribe practices, models, or other activities described or discussed in this document. The contents of this manuscript may contain examples of, adaptations of, and links to resources created and maintained by another public or private organization. The Department does not control or guarantee the accuracy, relevance, timeliness, or completeness of this outside information. The content of this manuscript does not necessarily represent the policy of the Department. This publication is not intended to represent the views or policy of or be an endorsement of any views expressed or materials provided by any Federal agency.

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Research and Innovation for Social and Economic Inclusion

The RISEI Lab at Northwestern University, led by Michelle Yin, is a multidisciplinary research and innovation hub focused on education, workforce development, and inclusive economic mobility. The lab conducts rigorous, policy-relevant research using large-scale data and causal methods, and designs and evaluates interventions in partnership with federal and state agencies, with a focus on how policy, systems, and emerging technologies shape pathways to education and employment for individuals with disabilities and other underserved populations.

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