



RESEARCH SUMMARY

Findings from the Accelerating Opportunity Evaluation

Building the Evidence on Integrated Career Pathways

Lauren Eyster
Burt Barnow
GEORGE WASHINGTON
UNIVERSITY

Theresa Anderson
Maureen Conway
ASPEN INSTITUTE

Robert I. Lerman
Ranita Jain
ASPEN INSTITUTE

Daniel Kuehn
Marcela Montes
ASPEN INSTITUTE

January 2018



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Contents

Acknowledgments	iv
What Is Accelerating Opportunity?	1
What Is the AO Model?	1
What Issues Does AO Address?	2
How Was AO Evaluated?	3
What Did AO States and Colleges Accomplish?	4
What Were the Implementation Lessons from AO?	6
Whom Did AO States Serve?	7
What Were AO Students' Experiences?	9
What Did AO States Achieve?	10
What Was AO's Impact on Students?	11
Did AO Benefits Outweigh the Costs?	13
How Can AO Inform Policy & Practice?	14
Urban Institute Publications on the Accelerating Opportunity Evaluation	15
Notes	16
References	17
About the Authors	18
Statement of Independence	20

Acknowledgments

The evaluation team would like to thank the funders and management of the Accelerating Opportunity initiative for supporting a rigorous and comprehensive evaluation. The Accelerating Opportunity grants are sponsored by the Bill & Melinda Gates Foundation, the Joyce Foundation, the W. K. Kellogg Foundation, the Kresge Foundation, the Open Society Foundations, the Arthur Blank Foundation, the Woodruff Foundation, the Annie E. Casey Foundation, and the University of Phoenix Foundation. The Accelerating Opportunity grants are administered by Jobs for the Future in partnership with the National College Transition Network, the National Council for Workforce Education, and the State Board for Community and Technical Colleges in Washington state. We especially thank Lisa Soricone and Randall Wilson for their guidance and support throughout this process. We are grateful to them and to all our funders, who make it possible for Urban to advance its mission.

We also thank the leadership teams in Illinois, Kansas, Kentucky, and Louisiana, and all the participating colleges for giving their time and energy to host site visits, complete surveys, provide student data, and answer a myriad of questions about all aspects of Accelerating Opportunity. They have made this evaluation possible.

The views expressed are those of the authors and should not be attributed to the Urban Institute, its trustees, or its funders. Funders do not determine research findings or the insights and recommendations of Urban's experts. Further information on the Urban Institute's funding principles is available at www.urban.org/support.

What Is Accelerating Opportunity?

Accelerating Opportunity (AO) is an initiative launched in 2011 that aims to help adults with low basic skills earn valued occupational credentials, obtain well-paying jobs, and sustain rewarding careers. Designed for adult education students who lack high school diplomas or the equivalent, AO encourages states to change the delivery of adult education for these students by allowing community and technical colleges to enroll them in for-credit career and technical education (CTE) courses while they earn their high school credentials, improve their basic academic skills, or build their English-language abilities. This integrated approach intended not only to make CTE courses accessible for students with low basic skills but also to enhance the quality of instruction. The AO effort is designed to change how states and colleges coordinate with government, business, and community partners by reforming policy and practice to make it easier for students with low basic skills to access and succeed in postsecondary education and the workforce. AO was one of the first efforts to replicate and scale key elements of Washington state's Integrated Basic Education and Skills Training (I-BEST) model.¹ During its first three years, AO focused on students who scored between the 6th- and 12th-grade level in basic skill areas but who expressed interest in earning technical credentials in four states—Illinois, Kansas, Kentucky, and Louisiana. The AO initiative has expanded to 7 states and 85 colleges as states learn more about how to apply the model to new groups of underprepared students and work towards reforming systems to support student success.

What Is the AO Model?

The AO model empowers states to drive change across their community college and adult education systems to better serve adults with low basic skills. At the heart of the model are the integrated career pathways at community and technical colleges. The key elements of the model are as follows:

- Two or more integrated career pathways in each college
- Strategies to accelerate learning and credential attainment
- Academic and social student supports (e.g., tutoring, child care, transportation)
- Dual enrollment strategies (e.g., paired courses, I-BEST or I-BEST-like approaches)
- Marketable, stackable, credit-bearing certificates and degrees
- Award of college-level, professional-technical credits
- Partnerships with the public workforce system and employers
- Evidence of strong local demand for selected pathways

At least eight colleges in each AO state offered integrated career pathways that were at least 12 credit hours long and incorporated at least 25 percent team teaching of a technical and adult education instructor within a pathway. Credentials were offered in industries with sufficient labor demand so students could reasonably become employed within their areas of study. Eligible students fell within National Reporting System levels 4–6 (6th to 12th grade) on math, reading, or writing, or National Reporting System levels 5–6 in English-language skills.

The AO model also called on states to change how they and colleges coordinated with government, business, and community partners and reformed policy and practice to fundamentally change how students with low basic skills access and succeed in postsecondary education and the workforce. Each state’s leadership team—staff from the community college system office, adult education directors, and other agency staff—oversaw the implementation of AO across the state, worked directly with the colleges to develop the integrated pathways, provided professional development and resources to sustain and scale AO over the three-year grant period and beyond, and shared and used data to improve implementation of the AO model for their own policy and economic context.

What Issues Does AO Address?

AO aims to address a major challenge faced in the United States: there are too many adults with low basic skills and few prospects to earn a decent living. About one in six American adults (36 million) has low literacy levels, and one in three (18 million) has low numeracy levels (OECD 2013).

Adults with low basic skills may or may not have high school credentials. Eleven percent of adults lacked a high school diploma or equivalency in 2016.² Adult education programs, operated by community and technical colleges, school districts, and community-based organizations, help adults obtain a secondary school credential, such as a high school equivalency certificate or adult high school diploma, or help them improve English-language skills. However, such programs typically have few links to postsecondary education or advanced training that yield recognized occupational credentials necessary for well-paying jobs. Per the US Department of Education (2013), only 3 to 6 percent of adult education students transition to postsecondary programs and earn any type of certificate. Thus, few adult education students ever enroll in, much less complete, postsecondary education or advanced training.

Also, many high school graduates are low skilled and underprepared for postsecondary education and are placed in developmental education classes when they enroll in college. By one estimate,

community colleges referred approximately three-fifths of first-time enrolling students to at least one developmental math class and referred one-third to at least one developmental reading class (Bailey, Jeong, and Cho 2010). Thus, adults with high school credentials often also require remediation.

Workers who are underskilled or undercredentialed are disadvantaged in the labor market. The average unemployment rate in 2016 for adults ages 25 to 64 without high school credentials was over twice as high as the rate among those with some college education or greater.³ In 2017, workers with only a high school diploma earned 44 percent less than workers with some college or a four-year degree.⁴ About three-quarters of the fastest-growing jobs in the next decade will require a high school credential and some postsecondary education or advanced training.⁵ Coenrollment and career pathway programs, such as AO, may help adults access necessary education for labor-market success.

How Was AO Evaluated?

The AO evaluation—led by the Urban Institute with Aspen Institute and George Washington University—comprehensively assessed the four original AO states. The evaluation took place over the first three grant years of the initiative and aimed to produce valuable evidence for the field and to inform public policy on new approaches to serving the education and workforce needs of adults with low basic skills. The evaluation consisted of three components:

- **Implementation study:** A qualitative study of the process through which states and colleges undertook, scaled, and potentially sustained AO integrated pathways and an analysis of how well the states and colleges implemented the AO model
- **Impact study:** A quasi-experimental analysis designed to measure the effectiveness of the AO model by comparing educational and labor-market outcomes of participants and similar students who did not participate in AO
- **Cost-benefit analysis:** An analysis to estimate the value of AO to society and students, comparing the costs and benefits for states, colleges, and students engaged in the AO initiative

What Did AO States and Colleges Accomplish?

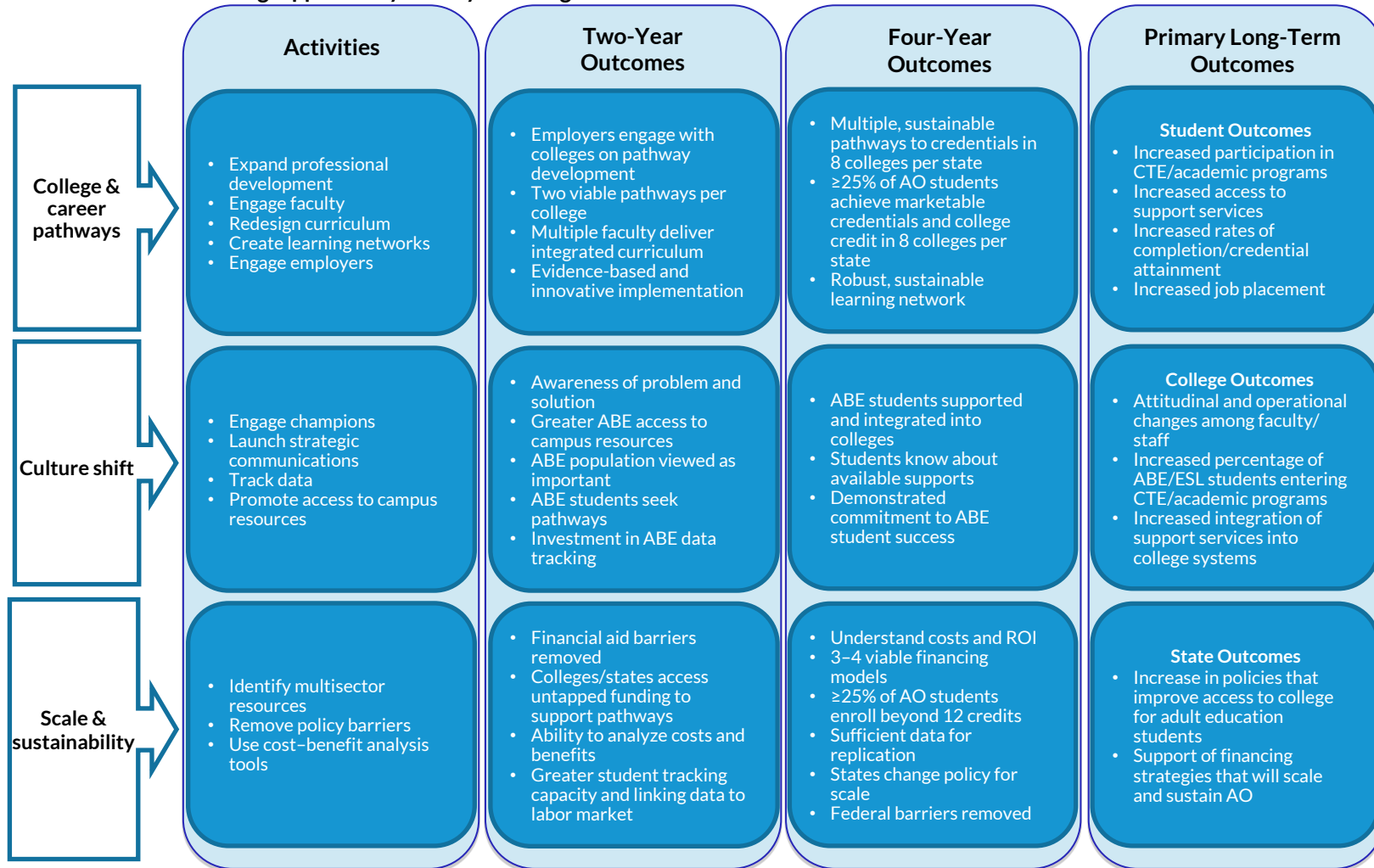
The AO initiative is guided by a theory of change, shown in figure 1. It illustrates the relationship between the model's elements and the main expected outcomes at two and four years. The theory of change provides a framework for understanding whether AO states and colleges made progress towards outcomes around integrated pathways, culture shift, and scale and sustainability.

During the first three years of implementation in Illinois, Kansas, Kentucky, and Louisiana, AO grew to include 54 colleges that enrolled 8,287 students. Participating states originally committed to implementing the program at eight colleges, and all states surpassed that goal. Kentucky and Louisiana implemented integrated pathways statewide (though Louisiana had AO-specific programming at 9 of 13 colleges), Kansas implemented AO at 14 colleges (over 50 percent), and Illinois implemented AO at 19 colleges (40 percent). States also achieved a modest level of scale within AO-participating colleges, with an increase in the number of pathways offered in the original colleges and a larger increase when considering new colleges. Throughout the initiative, those colleges adjusted pathways, eliminated pathways, and added new ones. But in almost all cases, they remained committed to figuring out how best to develop and implement integrated pathways and to support the students going through them. Per the final college survey, 82 percent of AO colleges active in 2014 planned to continue some aspect of the work they started with AO, whereas the remainder did not know whether they would continue after the end of the grant; none said they would not continue.

In the final year of the three-year grant period, the four states and their colleges focused on sustainability planning and continued those activities into a fourth year through a one-year grant extension. For the extension, states and some colleges assessed which aspects of the AO model they considered most effective and which elements they might modify or drop. All AO states reported that they are committed to sustaining integrated instruction in one form or another, though individual colleges may or may not continue the practice. The strong commitment to effect policy change and adapt systems for underprepared learners is indicative of changes in priorities and attitudes throughout the four states. State administrators emphasized, however, that the approach is costly and, in a time of budget constraints, they must think carefully about how to align and repurpose funding.

FIGURE 1

Abbreviated Accelerating Opportunity Theory of Change



Notes: ABE = adult basic education; CTE = career and technical education; ESL = English as a second language; ROI = return on investment.

What Were the Implementation Lessons from AO?

The AO model required states and colleges to adapt existing structures and systems to meet the initiative's overall goal of increasing the ability of students with low basic skills to earn valued occupational credentials and enter well-paying careers. These lessons from AO implementation may be valuable to other state policymakers and colleges interested in pursuing similar efforts:

- **Strong state executive-level leadership and ongoing support bolster college efforts.** The implementation of AO represented a major shift in how state administrators and college staff and faculty perceived low-skilled adults in community and technical college systems. The leadership and ongoing support of state executive agencies were critical for the design and implementation of the AO model at the college level. These state teams coordinated the effort across colleges, helped college leadership navigate policy barriers, and provided professional development and technical assistance to help colleges deliver the AO model.
- **State policy can support student success.** AO state teams recognized that formal policies were critical to ensure that adults with low basic skills and adult education students could enroll in and complete postsecondary coursework successfully. Therefore, state teams engaged multiple stakeholders to build policy support for AO. This policy work included changing assessment practices for low-skilled students, aligning curricula to allow for acceleration, developing new funding models to support integrated instruction strategies, and improving data collection and tracking capabilities.
- **Both college institutional factors and labor-market demand influence pathway selection.** The AO model emphasizes that pathways should be in high-demand or high-growth occupational areas, based on local labor-market information. Although local labor-market demand played a role in college decisions on pathway selection and implementation, most colleges initially prioritized institutional factors over demand. Over time, states required colleges to consider labor-market demand more explicitly in developing new pathways, critical to AO.
- **Team teaching is considered effective, but it requires greater investments.** Many college faculty and administrators were initially concerned about the team-teaching model prescribed by AO but were convinced of its benefits by the end of the grant period. Students were also enthusiastic about the model and expressed that they would like more exposure to team-taught classes.
- **College internal partnerships are fundamental but time intensive.** Internal college partnerships among various departments—adult education, CTE departments, college admissions, financial aid, and student support services—proved critical for AO success. These partnerships supported the coenrollment of adult education students in college courses, increased the type and amount of instructional resources available, and facilitated students' transition to employment.

- **External partners provide needed support, but deep employer engagement is challenging.** Colleges leveraged external partnerships in various ways: local workforce systems helped with recruitment and sometimes tuition, and community-based organizations often provided individualized case management and access to resources, such as child care or transportation vouchers. Colleges made some connections with employers as a part of AO, but creating and sustaining meaningful relationships with employers was challenging. Colleges with strong CTE engagement in the AO effort were better positioned to leverage existing college relationships with employers, but engaging employers in a systematic way was often new for adult education departments.
- **Individualized supports are helpful for student success but difficult to sustain in the long term.** Staff and students expressed that the individualized attention that AO staff provided factored heavily into students' success. AO students received this support from adult education instructors in the classroom or from navigators who connected them to needed services inside or outside the college. College leadership, however, worried about their ability to scale and sustain individualized support services, given the costs, and have explored new funding sources that can be tapped for this purpose.
- **Stakeholders at the state and college level can support scaling and sustainability.** Even with the substantial resources required for implementation and the challenges in developing pathways, support structures, partnerships, and policies to support the model, many of the states and colleges found the investments worthwhile. Legislative bodies in Kansas and Louisiana appropriated funds to support AO, and Kentucky and Louisiana scaled up AO or AO-like efforts to all community and technical colleges. Across all four states, 82 percent of colleges identified specific aspects of the AO model they would carry on after the grant period.

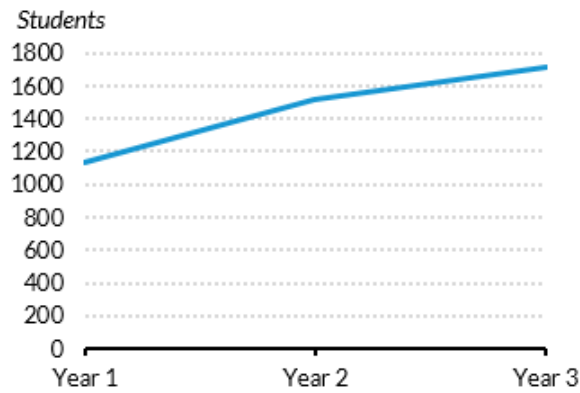
Whom Did AO States Serve?

AO served adults from diverse backgrounds, education levels, and recruitment sources. Across the initial grant period (2012–14), analysis of the student records provided by the four AO states shows a diverse group of AO students enrolled in integrated career pathways, mainly in health and manufacturing (see figure 2).⁶

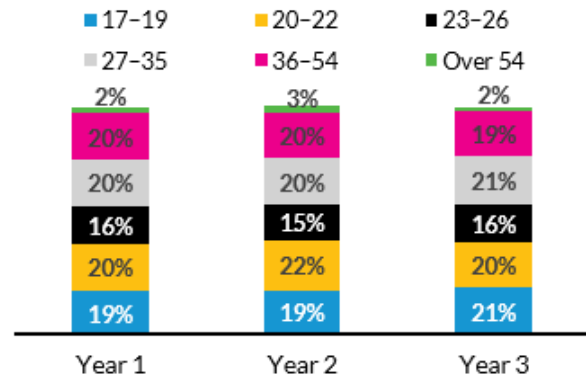
FIGURE 2

Total Enrollment by Academic Year, All States

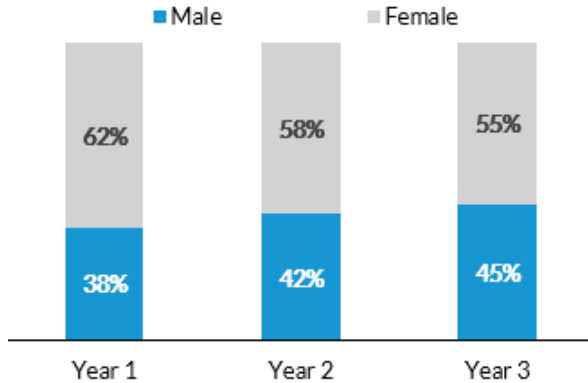
Total enrollment, by academic year



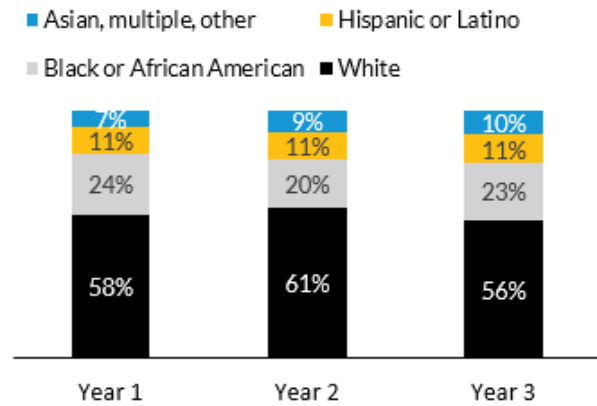
Age, by academic year



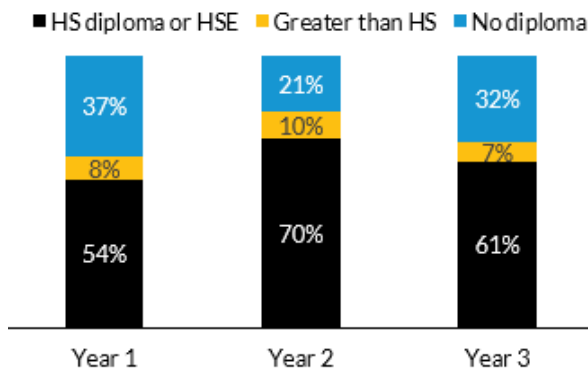
Gender, by academic year



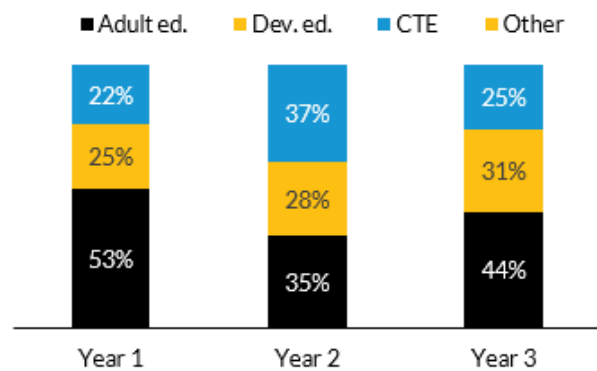
Race or ethnicity, by academic year



Educational attainment, by academic year



Recruitment source, by academic year



Sources: Illinois Community College Board, Kansas Board of Regents, Kentucky Community and Technical College System, and Louisiana Community and Technical College System.

Notes: N=4,361. Percentages are computed for students for whom data are available; missing values are excluded. Years correspond to calendar years 2012-14 in Illinois, Kansas, and Kentucky and to academic years 2012-14 in Louisiana. CTE = career and technical education; HSE = high school equivalency; Dev. ed. = developmental education. Samples are students enrolled in the first three years of AO implementation.

What Were AO Students' Experiences?

To better understand the student experience, the Urban Institute conducted an online survey of AO students during the second year of the initiative. Nearly 500 students from 39 colleges across the 4 states responded to the survey and shared their experiences with and feelings about their AO program.

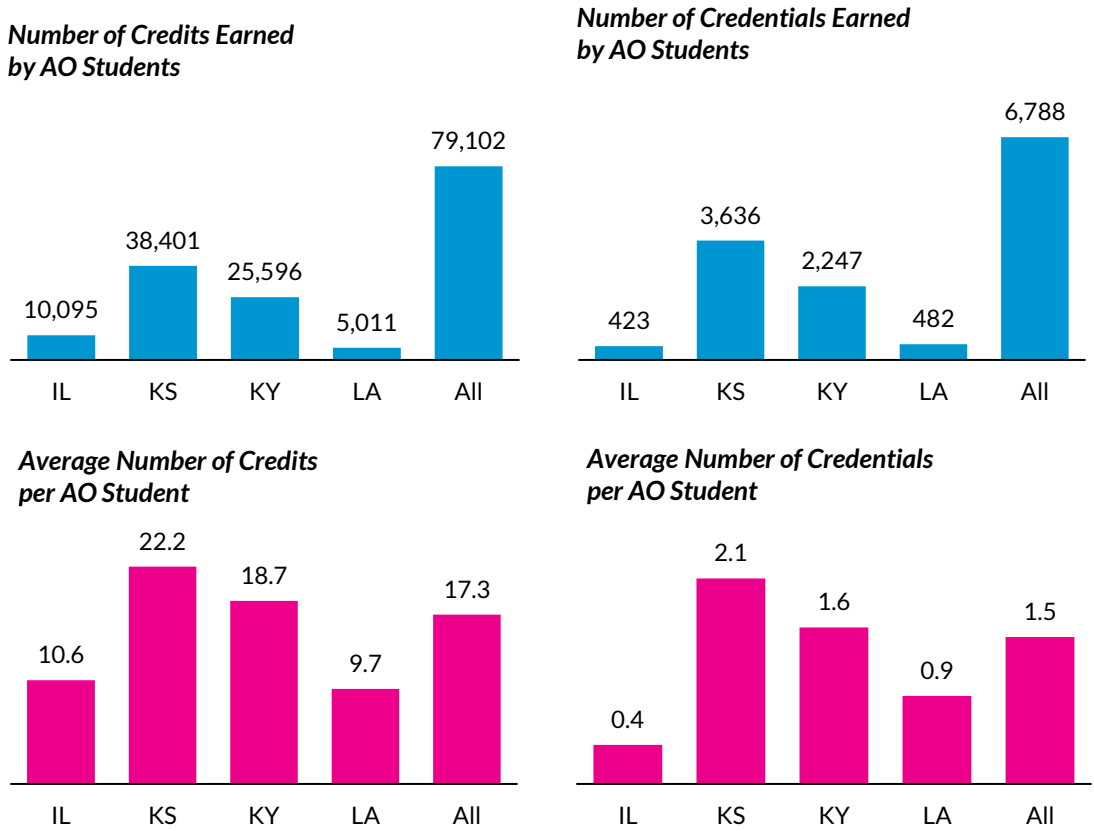
- **Students expressed great satisfaction with AO programs.** Almost 90 percent of students felt the program prepared them adequately or very well for work in their field or for further education. Close to half of students said the program exceeded their expectations, and an additional 47 percent said the program met their expectations.
- **AO served nontraditional students.** Nearly two-thirds of survey respondents were ages 25 or older. More than half of survey respondents had dependent children, and almost a quarter were single parents. Also, more than half of respondents were working while enrolled in AO, mostly in low-paying jobs for more than 30 hours a week. Almost half of survey respondents received government assistance aside from student financial aid, such as Supplemental Nutrition Assistance Program benefits.
- **Despite the initial focus on serving individuals who lacked high school credentials, most survey respondents had a high school degree or its equivalent.** Nearly 90 percent of students surveyed had obtained a high school credential. Although this may have been because of changes in Pell grant policy that limited receipt to those with such credentials, only 35 percent reported receiving Pell grant assistance for AO.
- **Students reported that their classes focused more on job-related skills than on basic skills.** About 64 percent of students reported spending time on content related to knowledge and skills for a job, compared with 52 percent who said coursework included instruction to improve their reading, writing, and/or math skills. Reflecting the focus on job-related skills, programs often included some connection to employers, with 60 percent of students reporting training at a job site, class visits from employers, or meetings with employers. Although basic skills content was supposed to be delivered through integrated instruction, where an adult education and a content instructor teach the material together in the same classroom, more than a quarter of students did not report ever being in a team-taught class. Still, most students experienced team teaching frequently. Less than half of the respondents received tutoring. Students widely expressed the desire for more team teaching and tutoring.
- **Although most students reported receiving financial or nonfinancial support while in the program, a majority had to pay for some part of the program.** Almost three-quarters of respondents received some type of advising from staff members, primarily related to academic issues and job issues. Very few students received financial or personal advising or assistance with child care, transportation, and emergencies. Sixty-eight percent of students surveyed had to pay for some part of the program, such as uniforms, books, tuition, or other fees.

What Did AO Students Achieve?

The AO initiative required that states meet ambitious goals for credential achievement for their AO students in the first three years. The four AO states awarded 6,788 credentials and 79,102 credits from spring semester 2012 to the end of 2014 in Illinois, Kansas, and Kentucky and through summer 2015 in Louisiana. Kansas had the highest number of credits per enrollee and the highest number of credentials per enrollee. Many of Louisiana’s AO programs were noncredit, and enrollment, credentials, and credits were not captured in the available data.

FIGURE 3

Credits and Credentials Earned by AO Students, by State



Sources: Illinois Community College Board, Kansas Board of Regents, Kentucky Community and Technical College System, and Louisiana Community and Technical College System.

Notes: N=4,361. Percentages are computed for students for whom data are available; missing values are excluded. Years correspond to calendar years 2012–14 in Illinois, Kansas, and Kentucky and to academic years 2012–14 in Louisiana. Samples are students enrolled in the first three years of AO implementation.

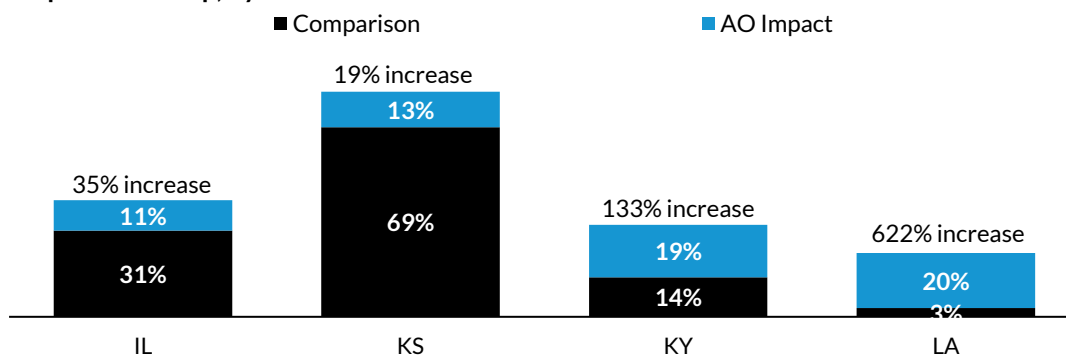
What Was AO's Impact on Students?

The figures below present estimates of the educational and labor-market impacts of AO in each of the four states. These estimates are based on a quasi-experimental method called propensity score matching and indicate how well AO participants performed compared to how well they would have performed in the absence of AO.

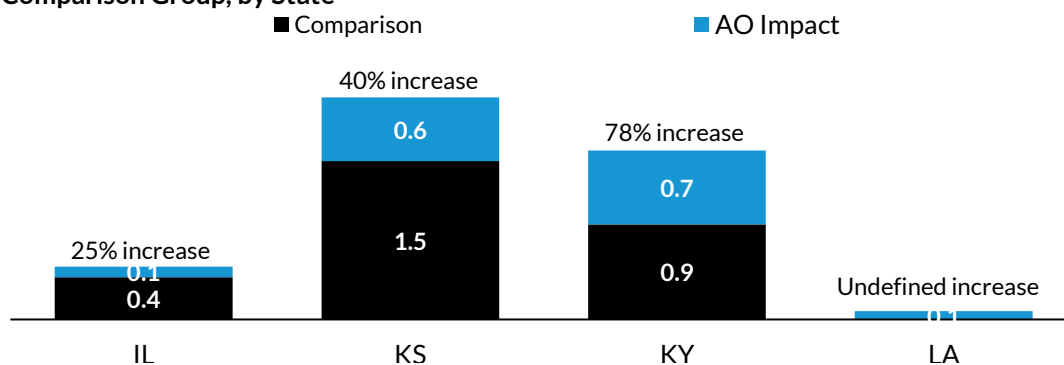
Education Impacts: Positive Impacts on Credits and Credentials. The evaluation found that AO exerted positive impacts on the number of college-awarded credentials earned by almost all groups of students (see figure 4). In most cases, AO students earned more credentials while taking fewer credits, possibly indicating more efficient course-taking and accelerated learning.

FIGURE 4

Likelihood that Accelerating Opportunity Students Earned Any Credential, Relative to Matched Comparison Group, by State



Average Number of Credentials Earned by Accelerating Opportunity Students, Relative to Matched Comparison Group, by State



Sources: Illinois Community College Board, Kansas Board of Regents, Kentucky Community and Technical College System, and Louisiana Community and Technical College System.

Notes: N=4,361. Percentages and averages are computed for students for whom data are available; missing values are excluded. Years correspond to calendar years 2012–14 in Illinois, Kansas, and Kentucky and to academic years 2012–14 in Louisiana. Samples are students enrolled in the first three years of AO implementation.

Labor Market Impacts: Positive Impacts on Employment and Earnings Only Sustained for a Few Subgroups. The positive outcomes for credential attainment are notable, though they did not always translate into labor market gains in the observed timeframe. AO exerted strong and sustained positive impacts on earnings for two subgroups: AO students recruited from adult education in Kentucky and AO students recruited from CTE in Kansas (see figure 5).⁷ Adult education students from Illinois, Kansas, and Louisiana, and developmental education students from Kentucky did not achieve positive, statistically significant, or enduring gains in earnings during the follow-up period.

FIGURE 5

AO Impact on Employment and Earnings, Relative to Matched Comparison Group, by State and Recruitment Source

	Illinois	Kansas		Kentucky		Louisiana
	Adult Ed.	Adult Ed.	CTE	Adult Ed.	Dev. Ed.	Adult Ed.
Short-term employment	-	•	+	-	+	+
Mid-term employment	+	•	+	+	+	◇
Long-term employment	+	N/A	N/A	+	+	◇
Short-term earnings	-	+	+	-	◇	+
Mid-term earnings	+	•	+	+	•	◇
Long-term earnings	•	N/A	N/A	+	◇	-
AO sample size	867	459	1,239	122	1,234	440

Sources: Illinois Community College Board, Kansas Board of Regents, Kentucky Community and Technical College System, and Louisiana Community and Technical College System.

Notes: N=4,361. Percentages and averages are computed for students for whom data are available; missing values are excluded. Years correspond to calendar years 2012–14 in Illinois, Kansas, and Kentucky and to academic years 2012–14 in Louisiana. CTE = career and technical education; HSE = high school equivalency; Dev. ed. = developmental education. Samples are students enrolled in the first three years of AO implementation.

⊕ = significant positive impacts; • = no significant impacts; ⊖ = significant negative impacts; ◇ = both positive and negative significant impacts; short-term = quarters 1–3; mid-term = quarters 4–8; long-term = quarter 9 through final observations; N/A = not applicable.

Kansas does not have long-term impacts because students are only observed for eight quarters following enrollment. The short-term impacts largely reflect the in-program period, when it may be reasonable to expect negative labor-market impacts because many in training would reduce their work effort.

Discussion of the Impacts. Overall, AO helped participants with low academic skills earn more credentials from community college programs than similar non-AO students. AO students often increased their credential attainment while taking fewer credits. Depending on the value of the certificates, this pattern may represent a cost savings in terms of tuition and time dedicated to earning credentials. Labor-market gains for AO participants were mixed. Most AO students were not able to translate added certificates into consistent employment and earnings gains in the observed period. For Kansas CTE students and Kentucky adult education students, however, the earnings impacts were positive and persistent.

Did AO Benefits Outweigh the Costs?

The cost-benefit analysis for AO considers two different perspectives: 1) the “social” perspective, which incorporates the costs and benefits experienced by all members of society; and 2) the student perspective, which considers costs and benefits from the perspective of the student. Social costs include college resource expenditures on AO, supports provided by colleges to AO students, and state administrative and oversight costs. Social benefits consist of the earnings gains of AO participants relative to similar students who did not participate in AO. Student costs are their actual expenditures as well as any foregone earnings (i.e., reductions in earnings while they are in school). Student benefits are the earnings gains experienced by AO students after taxes and reductions in social assistance. Net benefits are calculated by subtracting the costs associated with AO from the benefits that it provides.

- **Net student benefits were positive for three of the four AO states.** Illinois (\$705), Kansas (\$4,030), and Louisiana (\$1,639). However, per-student net student benefits were negative for Kentucky (-\$305). These net student benefits suggest that participants in Illinois, Kansas, and Louisiana were economically advantaged for participating in AO.
- **Kansas achieved positive net social benefits from AO (meaning that the social returns outweighed the costs).** The state incurred a relatively low cost per student of delivering AO (\$2,717) but a much higher per-student benefit of \$4,129.
- **None of the other three states generated positive net social benefits.** While Louisiana’s costs were even somewhat lower than Kansas’s costs on a per-student basis, their benefits were not large enough to make the program result in a positive net gain. Illinois and Kentucky had the highest costs of delivering AO and the lowest benefits associated with the AO program.

Several constraints on the analysis suggest caution in drawing conclusions about AO. First, this cost-benefit analysis only covers the first three AO program years, a period when participating colleges were still constructing their pathways. State and college costs for implementing AO may be different in more mature programs that do not incur the same start-up costs and have had time to forge stronger relationships with employers to ensure that programs are linked to jobs that are available, thus increasing the net benefits to students. Second, the evaluation team is only able to observe the initial labor market outcomes for AO participants, typically into the third year after enrollment. Tracing effects of more mature programs and long-term earnings gains could be remedied in future research. Still, this cost-benefit analysis provides a rigorous assessment of the initial costs and benefits of the early years of AO model implementation.

How Can AO Inform Policy and Practice?

AO's purpose was to raise the education, skills, and employment success for adults with low basic skills. It also aimed to change the view of underprepared adult learners within state and college systems. Many policymakers, administrators, and staff were very skeptical initially that adults with low skills, especially those without high school credentials, could be successful in college programs. These results show that underprepared adult learners can be successful in college, earning more college-awarded credentials in fewer credits than their counterparts.

AO fostered systems and policy changes in all states. Each state introduced curricular alignment or change, and Illinois and Louisiana introduced new professional development models for their faculty. Kansas, Kentucky, and Louisiana adjusted entrance examination requirements to accommodate students coming from adult education. Kansas and Kentucky aligned technical programs across the state. All states experimented with new funding models to support AO, including incorporating performance-based funding (Illinois), accessing grant funding (Illinois, Kentucky, and Louisiana), and braiding public funding streams (Illinois, Kansas, and Louisiana). Illinois, Kentucky, and Louisiana made data system improvements, including an expansion of current prekindergarten to postsecondary (P-20) systems, and Louisiana introduced new data systems. Kansas and Louisiana received support from their legislatures to continue to provide integrated career pathways for underprepared learners.

This comprehensive evaluation extends the knowledge of the field about integrated career pathways. The AO findings are largely consistent with results of the I-BEST research: credential gains, no impact on persistence, and limited labor market impact (Bailey, Jeong, and Cho 2010). The AO evaluation finds more promising labor market impacts than I-BEST for Kansas's career and technical education students and Kentucky's adult basic education students. But the evaluation also finds AO to be cost-beneficial only in Kansas, which had particularly strong labor markets for low-skill workers and strong CTE program alignment across the state, among other assets. Overall, AO was a personnel-intensive intervention, and the gains in the labor market need to be high to outweigh that initial investment. To improve labor market outcomes, similar programs will need to make sure that credential gains translate into labor market gains. Options for doing so include increasing work-based learning, and apprenticeships and working with employers to assure that students completing credentials have direct access to jobs in their field of study.

Urban Institute Publications on the AO Evaluation

Cost-Benefit Analysis for Accelerating Opportunity (2017)

Daniel Kuehn, Theresa Anderson, Robert I. Lerman, Lauren Eyster, Burt S. Barnow, and Amanda Briggs

New Evidence on Integrated Career Pathways: Final Impact Report for Accelerating Opportunity (2017)

Theresa Anderson, Daniel Kuehn, Lauren Eyster, Burt S. Barnow, and Robert I. Lerman

Implementation of Accelerating Opportunity: Lessons for the Field (2016)

Theresa Anderson, Lauren Eyster, Robert I. Lerman, Maureen Conway, Ranita Jain, and Marcela Montes

Accelerating Opportunity: A Portrait of Students and Their Program Experiences from the 2014 Student Survey (2015)

Shayne Spaulding and Ananda Martin-Caughey

The Second Year of Accelerating Opportunity: Implementation Findings from the States and Colleges (2015)

Theresa Anderson, Lauren Eyster, Robert I. Lerman, Carolyn T. O'Brien, Maureen Conway, Ranita Jain, and Marcela Montes

The First Year of Accelerating Opportunity: Implementation Findings from the States and Colleges (2014)

Theresa Anderson, Lauren Eyster, Robert I. Lerman, Carol Clymer, Maureen Conway, and Marcela Montes

Find all Accelerating Opportunity Evaluation publications at:

<https://www.urban.org/policy-centers/income-and-benefits-policy-center/projects/evaluation-accelerating-opportunity-initiative>

Find more information on the Accelerating Opportunity initiative at:

<http://www.jff.org/initiatives/accelerating-opportunity>

Notes

1. For more detail, see Anderson et al. (2014); Jobs for the Future's Breaking Through website, "Breaking Through," accessed May 23, 2017, <http://www.jff.org/initiatives/breaking-through>; and the Washington State Board of Community and Technical College's I-BEST website, "I-BEST," accessed May 23, 2017, <https://www.sbctc.edu/colleges-staff/programs-services/i-best/>.
2. Authors' tabulations using the Bureau of Labor statistics data, based on data from the Current Population Survey. See "Databases, Tables & Calculators by Subject," Bureau of Labor Statistics, accessed September 26, 2017, www.bls.gov/data.
3. Authors' tabulations using the Bureau of Labor statistics data, based on data from the Current Population Survey. See "Databases, Tables & Calculators by Subject," Bureau of Labor Statistics, accessed May 23, 2017, www.bls.gov/data.
4. Bureau of Labor Statistics, "Usual Weekly Earnings of Wage and Salary Workers First Quarter 2017," news release no. USDL-17-1402, April 18, 2017, <https://www.bls.gov/news.release/pdf/wkyeng.pdf>.
5. Authors' tabulations using the Bureau of Labor Statistics data, based on data from the Current Population Survey (See "Databases, Tables & Calculators by Subject," Bureau of Labor Statistics, accessed May 23, 2017, www.bls.gov/data). Of the 50 occupational areas projected to grow the fastest between 2014 and 2024, 74 percent will require at least some postsecondary education. compared to 44 percent of the remaining 819 occupational areas requiring at least some postsecondary education.
6. While the four states reported over 8,000 enrolled in AO, only 4,361 were available for the analysis due to several data limitations. First, only AO students who had valid social security numbers could be included in the analysis as we used this information to match to unemployment insurance quarterly wage records provided by the states. AO students who were not enrolled in for-credit courses or could not be identified in a pathway by Classification of Instructional Program code were not included. Finally, AO students in English-language learning courses were not included because so few enrolled in these courses.
7. The impact analysis matched students based on recruitment source into AO; Kansas and Kentucky had two primary student recruitment sources, while Illinois and Louisiana each had one. The analysis was completed for recruitment-source subgroups as well as for states overall.

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About the Authors

Lauren Eyster is a senior research associate in the Income and Benefits Policy Center at the Urban Institute, where her research focuses on innovative workforce development programs and how to best evaluate and learn from them. Most recently, Eyster has examined industry-focused job training and career pathway initiatives implemented through the workforce investment system and at community colleges. She studies how these programs can best provide education and training to different groups such as laid-off workers, youths, low-income individuals, and older workers. She also researches how systems and various stakeholders can collaborate to help these individuals find and retain jobs.

Theresa Anderson is a research associate in the Income and Benefits Policy Center at the Urban Institute, where she works primarily on completing evaluations of workforce development and education programs. She has worked on evaluations of programs such as the Health Profession Opportunity Grants, Accelerating Opportunity, Family-Centered Community Change, and the Alaska Native Science and Engineering Program. She has expertise on a wide range of social assistance programs and is skilled in mixed-methods research.

Robert I. Lerman is an Institute fellow in the Center on Labor, Human Services, and Population at the Urban Institute as well as professor of economics at American University and a research fellow at IZA in Bonn, Germany. A leading expert on apprenticeship, he recently established the American Institute for Innovative Apprenticeship. His current research focus is on skills, employer training, apprenticeship programs in the United States and abroad, and housing policies.

Daniel Kuehn is a research associate in the Urban Institute's Income and Benefits Policy Center. Dr. Kuehn has ten years of experience conducting and managing research on employment, education and training, apprenticeship the science and engineering workforce, racial disparities, and the transition from school to work. He primarily conducts quantitative empirical work, with an emphasis on non-experimental evaluation methods. Dr. Kuehn also has experience doing qualitative research and much of his quantitative research experience has been on mixed-methods projects.

Burt Barnow is the Amsterdam Professor of Public Service and Economics at the Trachtenberg School of Public Policy and Public Administration at George Washington University. Dr. Barnow has over 40 years of experience as an economist and manager of research projects in the fields of workforce investment, program evaluation, performance analysis, labor economics, welfare, poverty, child

support, and fatherhood. Prior to coming to George Washington University, Dr. Barnow was Associate Director for Research at Johns Hopkins University's Institute for Policy Studies, where he worked for 18 years. Prior to that, he worked for 8 years at the Lewin Group and nearly 9 years at the U.S. Department of Labor, including 4 years as Director of the Office of Research and Evaluation in the Employment and Training Administration. Prior to those positions, Dr. Barnow was an assistant professor of economics at the University of Pittsburgh. He has a BS degree in economics from the Massachusetts Institute of Technology and MS and PhD degrees in economics from the University of Wisconsin at Madison.

Maureen Conway is the vice president of policy programs at the Aspen Institute and the executive director of the Economic Opportunities Program. Conway founded EOP's Workforce Strategies Initiative (AspenWSI) and has headed up workforce research at the Aspen Institute since 1999. She leads a team of researchers and consultants in a variety of initiatives to identify and advance strategies that help low-income Americans gain ground in today's labor market. A featured speaker at numerous national and regional conferences, she is a nationally recognized expert in sectoral, or industry-specific, workforce development and has been quoted in a variety of news media including the *New York Times*, *Wall Street Journal*, *National Journal* and National Public Radio's *Market Place*. Under her leadership, EOP's Workforce Strategies Initiative has investigated the outcomes of sectoral workforce development, provided innovation seed grants to leading programs in order to illuminate promising practices and explored key operating features of programs in specific industry sectors.

Ranita Jain is a senior evaluation manager for the Workforce Strategies Initiative. Jain currently assists with the planning, management and implementation of a variety of WSI evaluation projects and has expertise in developing and implementing study designs and protocols, developing logic models, conducting data collection and analyses, and producing written reports and presentations.

Marcela Montes is a program manager for the Economic Opportunities Program at the Aspen Institute. At Aspen, Montes works on range of program evaluation projects, which include: the evaluation for Jobs for the Future's national initiative Accelerating Opportunity; the evaluation of a DOL TAACCCT grant for a consortium of gulf coast states; and the evaluation for the work of a New York City Healthcare Workforce Intermediary. In this role, Ms. Montes has designed research tools, planned and conducted site visits, led interviews, and documented findings in reports. Marcela has also been involved in the design and facilitation of technical assistance activities; peer learning events; and other convenings.

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