



**NEW  
DIRECTIONS FOR  
NON-DEGREE  
CREDENTIALING  
RESEARCH**

**Briefing for  
Stakeholders  
of the  
Non-Degree  
Credentials  
Research  
Network**

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# PROJECT TEAM

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## **NCRN Advisory Council Members**

- Sean Gallagher, Northeastern University
- Larry Good, Corporation for a Skilled Workforce
- Mary Alice McCarthy, New America
- Heather McKay, Rutgers University
- Andrew Reamer, George Washington University
- Robert Sheets, George Washington University
- Jeff Strohl, Georgetown University
- Roy Swfit, Workcred
- Michelle Van Noy, Rutgers University

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**GEORGE WASHINGTON INSTITUTE OF PUBLIC POLICY**

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# EXECUTIVE SUMMARY


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Non-degree credentials (NDCs) are becoming a common fixture of labor markets worldwide. Ranging from certifications issued by trade or professional associations to university-based micro-credentials, apprenticeship programs, and digital badges awarded for completion of compact learning modules, NDCs are popping up on resumes and job applications in nearly every occupation and industry. For some workers they are becoming a substitute for post-secondary degrees.

The Non-Degree Credentials Research Network (NCRN) is a community of scholars and practitioners organized by the George Washington Institute of Public Policy (GWIPP) at George Washington University. Over the past two years, the NCRN has – through regular meetings until the onset of COVID-19 and a robust webinar series since then – provided a forum for researchers whose work focuses on NDCs to discuss their work and collectively shape a research agenda for answering the many unanswered questions about NDCs and how they fit into evolving labor markets.

This report describes the most pressing research questions that remain for our field. In order to help what has thus far been a fragmented field of research move forward, we have identified 15 distinct research questions that we believe should be a priority for the research community. These include questions about who benefits from different types of credentials, how to identify high-quality credentials, how employers are using credentials, and how policymakers can improve the value of NDCs for all parties in the credentialing marketplace.

In the unprecedented wake of the COVID-19 pandemic and mass unemployment that has accompanied it in much of the world, governments, employers, and other stakeholder organizations



are increasingly looking to NDCs as potential tools to help workers adapt to structural changes in the world of work. Research conducted by NCRN member researchers highlights the potential benefits and pitfalls associated with turning to NDCs in this unprecedented economic environment, including the consequences of encouraging NDC attainment for labor market inequality.

This report describes several areas of unmet needs for data on credentials, credential-seekers, credential holders, and employers that credentialing organizations and government agencies could help researchers identify and obtain. It also describes the need for more resources to be devoted to research in this area, including investments on the part of government agencies and the private and nonprofit sectors.

Coordination and shared objectives have proven to be instrumental to the success of programs of scientific research. We believe that this report provides an adaptable framework for the advancement of non-degree credentialing as a vibrant area of education and labor market research. In disseminating it widely, we hope to stimulate the many organizations working to shape the credentialing marketplace to help us advance a shared vision of NDCs as contributors to a more prosperous and equitable economy.

# INTRODUCTION


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In the world of workforce credentials, academic degrees have long commanded the lion's share of attention among policymakers and researchers alike. Yet, non-degree credentials (NDCs) – including certificates, certifications, licenses, apprenticeships and badges -- perform significant functions in the careers of millions of workers, including but not limited to motivating their learning, documenting their skills, and enabling social mobility. Despite the importance of non-degree credentials, we know little about them. We need a clearer understanding of how students, workers, employers and governments view and use them, how they vary in quality and value, how and why they are expanding, and what their potential is for facilitating reskilling, employment, and re-employment.

The Non-Degree Credentials Research Network (NCRN) was established to address these gaps in our understanding of role of credentials in contemporary labor markets. This report documents areas where we believe the research community, in partnership with stakeholders, can focus their efforts to create a more effective and equitable credentialing marketplace. We conclude this report with a discussion of the implications for education and training providers, employers and their associations, and federal and state policymakers.

## **Why Focus on Non-Degree Credentials (NDCs)?**

Non-degree credentials have long been neglected by mainstream education scholars, though a few research centers (such as the Community College Research Center at Columbia University and Georgetown Center for Education and the Workforce) have given serious consideration to certificates as a distinct level of educational attainment. Yet, evidence amassed over the past decade points to the widespread prevalence of non-degree credentials in the US population. A 2009 Brookings Institution meeting on sub-baccalaureate credential attainment led to the creation of the Interagency Working Group on Expanded Measures of Enrollment and Attainment (GEMEnA), which in turn led to the 2016 Adult Training and Education Survey (ATES) that produced reliable estimates of the overall prevalence of NDCs. According to ATES data, 18 percent of American adults hold a license and six percent hold a certification (Cronen, McQuiggan, and Isenberg 2017). While GEMEnA's work arguably culminated in the 2016 ATES, the federal government's interest in NDCs continued under the Trump administration. Among other initiatives, the



Trump administration attempted to understand and shape policy around NDCs through the American Workforce Policy Advisory Board, a panel of workforce development stakeholders who examined (among other topics) the potential for NDCs to fit into efforts to retrain and upskill the workforce.

Interest in NDCs on the part of many NCRN researchers is probably driven by the unique potential of NDCs to create socioeconomic opportunity for disadvantaged populations in which degree attainment is limited. The career focus of NDCs and the relative speed with which many (though not all) of them can be acquired – which can be as little as a few hours in cases where one earns a badge or certification on the basis of demonstrating knowledge already possessed – inspires optimism on the part of researchers and policymakers alike that NDCs offer a quicker and cheaper pathway to high-quality employment opportunities. Yet, this promise is often not realized. NDCs are characterized by significant barriers to quality assurance; with accreditation of certificate and certification programs remaining relatively rare, many non-degree learners are forced to assess the quality of a program without the baseline assurance that comes with the system of regional higher education accreditation for degree-granting institutions. NDCs are also characterized by unique issues with respect to transparency, which affect learners, employers, and educational institutions alike. In many cases, it is not clear to employers what competencies or skills a NDC is intended to signal and whether the upgraded skills resulting from a NDC make a worker more productive. Similarly, educational institutions struggle to determine whether the competencies associated with NDCs align with existing curricula and workers often have little idea of whether a given NDC will increase one's marketability to employers. These issues of quality and transparency within the extremely heterogeneous landscape of NDCs make NDCs both a focus of concern from a policy perspective and, for many NCRN researchers, also an object of interest for the advancement of sociological theory.

In the following pages, we identify some of the lessons stemming from the NCRN's work to date that we believe to be of particular relevance to the stakeholder community. We then describe 15 of the most essential research questions that we as a research community may have started to explore to varying degrees, but in which major efforts remain to be made to gain the insights we need to ensure that NDCs contribute effectively and equitably to the overall credentialing system in the United States.



# LESSONS FOR STAKEHOLDERS

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## Lessons for Stakeholders

A long-term goal of the NCRN is to improve policy and practice regarding non-degree credentials by promoting relevant studies and distilling their implications for credentialing and accrediting bodies, employment and training providers, students and workers, employers and employer associations, and the stakeholders who develop, implement and analyze policy. While the research conducted by NCRN members and presented at NCRN meetings during its first two years does not lend itself to major generalizations about the lessons learned, it does suggest some promising insights - examples of which we summarize below. Stakeholders should refer to the NCRN's section of the George Washington Institute of Public Policy website ([www.gwipp.gwu.edu](http://www.gwipp.gwu.edu)) for additional resources.

**Evidence is pointing toward inequality in access to, and outcomes associated with, non-degree credentials - with troubling implications for race and gender equity.** Research presented at NCRN meetings suggests that inequality exists in who attains non-degree credentials, much as is known to be the case with respect to the attainment of baccalaureate degrees in the U.S. This inequality may come as a disappointment to some credentialing organizations, which may have hoped that the lower "price tag" attached to competency-based credentials like certifications may lead to greater equity in attainment.

The persistence of inequality in non-degree credentialing may be explained to some extent by the lack of public-sector support for the learning that goes into preparing for many types of certifications and licenses. Unlike a college degree, for which both direct costs like tuition and indirect costs such as living expenses can be covered by federal financial assistance programs, preparation for certification and licensure can be a solitary affair. Most certification bodies do not provide merit or need-based aid to prospective certificants. Moreover, many certification





bodies seem to be only minimally aware of the barriers that may be preventing disadvantaged individuals from attaining certification and, given their traditional focus on upgrading competency, may view equity as a secondary mission.

**The answer to the “value of credentialing” question can be answered in ways that go far beyond immediate post-completion wages.** Identifying the “value of credentialing” or “value of certification” has become a major preoccupation of many industry certification bodies (and, to a lesser extent, other credential issuers) in recent years, with salary surveys of recent certificants appearing to be a favored tool for measuring value. However, the active participation of organizations and researchers with a regional economic planning focus and federal agencies focused on the overall competitiveness of the U.S. workforce in the NCRN points to significant cumulative macroeconomic benefits associated with non-degree credentialing.

**Limitations in providers’ data collection and sharing practices limit our ability to identify high-impact credentials.** The issuers of non-degree credentials – and certifications in particular – make considerable efforts to ensure that they do not over-collect personal data (social security numbers being a prime example) that may make certificants uncomfortable (and lead to the risk of an embarrassing data leak should security precautions fail). However, such identifiers that would allow certificants to be identified in large public-use (or, at least, publicly owned) datasets are essential for efforts to identify which credentials are associated with positive long-term outcomes. Certification bodies can address this problem directly by establishing partnerships with researchers and organizations that manage large datasets, a model of which is provided by the National Association of Manufacturers’ partnership with the National Student Clearinghouse and Census Bureau.

**Stacking and embedding credentials within, and on top of, each other can yield dividends.** A considerable line of research for the Network has involved the exploration of how non-degree credentials can complement each other and be embedded into degrees. Preliminary results of the research conducted by multiple NCRN members – such as the Credential as You Go project based at SUNY Empire State College and Workcred’s convenings with higher education institutions and certification bodies – suggest that credential issuers often struggle to understand how their “products” complement each other but are very open to finding complementarities. The challenges in establishing data linkages between non-degree credentials and datasets containing other types of credentials (as described above) limit our ability to determine exactly which combinations lead to the greatest labor market outcomes. Yet, the growing body of evidence showing that certifications and certificates have the most value when earned in combination with other credentials suggests that there is much to be gained



by credentialing bodies willing to establish such linkages.

**Researchers are providing frameworks for improving the quality of non-degree credentials.** Multiple frameworks for understanding non-degree credential quality exist. The differences between frameworks may seem subtle but lead to different understandings of quality. While divergent frameworks being proposed or used by different research organizations may leave credential issuers with some confusion about which dimensions of quality to prioritize in their improvement efforts, many common threads exist across frameworks.

Quality is becoming a greater area of emphasis for individual researchers, research organizations, policymakers and foundations alike. Given growing emphasis on the quality of non-degree credentials, credential issuers would be well advised to prioritize quality enhancement and verification whenever possible. Certificants should be mastering the essential competencies identified by job task analyses and those competencies should align with employer demand, leading to better employment outcomes. With greater transparency facilitated by better data being made available to the public, lower-quality credentialing bodies will need to either undertake serious efforts to improve quality or face growing difficulty recruiting and retaining learners. Not providing data will not be a tenable strategy as holdouts become increasingly conspicuous and state and federal policymakers require transparency as a condition of eligibility for different types of support. Progressive credential issuers can take the lead in making sure that the world is aware of efforts undertaken, for example by seeking third-party accreditation.

**The above lessons are provided as mere examples of the sorts of insights that the NCRN is producing that could benefit the overall non-degree credentialing community.** However, in our meetings we have consistently found that our research tends to motivate more new questions than we answer. In the pages that follow, we describe some of the unanswered research questions that we believe could be better answered with the data that could be produced through collaboration with the stakeholder community.

# 15 ESSENTIAL RESEARCH QUESTIONS

1

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## *Why are so many NDCs emerging?*

This is a fundamental question, the answer to which may inform our approach to research addressing many other questions. Some research, both ongoing and predating the NCRN, has attempted to understand the motivations of educational institutions that launch NDCs, including the extent to which they use information about local labor markets to inform the decision to launch new certificate programs.

The extent to which business interests on the part of associations and institutions, to say nothing of the political pressures associations put on state licensure agencies, guide the creation of NDCs is largely unexplored in recent research. However, knowing the motivations of the issuers of credentials would surely impact our research on other aspects of credentialing. For example, evidence that a profit motive, rather than actual costs, guides the pricing of some certificates and certifications would point to the potential for non-profit competitors to bring down prices and improve accessibility to lower-income learners. A better appreciation for the business aspects of credentialing would also help policymakers ensure that programs intended to encourage credential attainment do not lead to the accumulation of unnecessary or predatory credentials. Similarly, knowing the extent to which pressure to enact occupational closure impacts the design of certification programs may lead to greater attention to the necessity of the work experience requirements attached to many professional certifications. While the importance of closure in credential design has been explored at some length in sociological studies of “peak” professions and their associations such as law and medicine (e.g., Freidson 1986; Larson 1977), the origins of the attributes of credentialing programs outside these professions remains largely unexplored to this day. However, empirical observation that many certification and certificate programs are created on the initiative of large corporations, employer organizations, and higher education institutions, suggests that the model of practitioner-driven professional-

ization described in much of the literature on professions may have limited generalizability.

2

Why do some learners (and not others) choose NDCs?

Despite a push for “college for all” on the part of some policymakers and advocacy organizations, many individuals who are fully qualified to excel in a degree program choose to pursue an NDC, either as a stepping stone to further education or as the postsecondary credential that launches their career. Some of these individuals do so in spite of engrained cultural norms prizing the quality of instruction associated with a college degree (and, for some, the social experiences thought to accompany it). Different answers to the question of why individuals earn NDCs will exist in the context of different populations, such as youth and displaced workers, as well as different geographic and institutional contexts. The decision to pursue a NDC, a degree, or no credential at all is an intensely personal one, but such decisions do not occur in a vacuum, and researchers may be able to use knowledge about when and why credentials are pursued to design better credentials. Understanding the factors that lead learners toward or away from non-degree options may also help credential issuers redesign credentials to broaden their appeal. Such research may be particularly helpful to community-based organizations attempting to create credentials, including new certifications, that serve disadvantaged and displaced workers.

3

How do individuals choose between NDC fields and programs?

Arguably, field of study selection is underexplored at all levels of American higher education. Just as we know little about why some individuals choose non-degree credentials (especially among those who choose to pursue a NDC as an alternative to, rather than to complement, a college degree), we also know very little about how individuals go about comparing certificates, certifications, apprenticeships, and other NDCs. There are several sub-questions within this broad research question, all of which matter to researchers and policymakers who might view the promotion of NDCs as a means of alleviating socioeconomic inequality. One question is the extent to which individuals weigh potential future earnings as a factor in their choice of fields of study and NDC providers. While some state-level data on outcomes associated with various certificate and degree programs exists, we have few empirical data points about whether individuals are using such data, and to what extent data demonstrating strong economic returns to a credential is weighed against such personal decision-making factors such as preferences for different types of work environments, interests, and perceptions of how friendly a given field of study may be to individuals of a particular racial or gender identity. Another piece of this broad research question involves the potential role of advisors in the context of postsecondary non-degree education: to what extent do learners have access to and rely on advisors, what is the quality of advice that is available, and how does the use of advising relate to learning and career outcomes?

4

Who starts, but does not complete, programs leading to NDCs?

The extent of the virgin ground for researchers to explore here is difficult to understate. An indicator of the lack of attention given to persistence in non-degree programs

comes from the award data published by the National Science Foundation. A keyword search for “persistence,” the keyword often used in studies predicting the risk of dropping out of an academic program, reveals that on the first page of results alone the NSF has given \$8,258,942 to support research and practice-oriented projects aimed at keeping students enrolled in college degrees. To our knowledge, the NSF has not funded a single study focused specifically on persistence in the non-degree context. In theory, higher completion rates facilitated by more flexible curricular requirements could be one of the major advantages of non-degree credentials over traditional degrees. However, the lower “sunk costs” in terms of tuition and time invested in some NDCs may also make them easier to walk away from. Knowing more about completion rates (and how those rates vary across subpopulations, types of NDCs, time to complete, and industries/occupations) would give us important data points to consider when determining whether to recommend NDCs to credential seekers.

5

*What are the implications of NDCs for equity in the labor market?*

Non-degree credentials are often thought to potentially mitigate labor market inequality by providing an alternative route to human capital accumulation and a signal of competence that employers should, in theory, reward with higher-quality employment opportunities. However, empirical research to date does not tell us whether, on net, non-degree credentials are reducing inequality. Prior research (e.g., Albert 2016) finds that individuals who already hold a college degree are more likely to obtain certain types of NDCs than those without a degree, suggesting that NDCs can help individuals who already possess advantages in the labor market to further distinguish themselves. But what about the effect of earning a NDC for subpopulations – in terms of race, gender, or other demographic attributes – that have historically faced labor market disadvantage?

While some certifications certainly offer a pathway to career advancement for individuals without a college degree, we need to know more about how often, and to what extent, such benefits accrue to individuals who seek a credential as an alternative to or a substitute for a college degree, and whether those benefits accrue unequally across workers of different races and genders. We also need data on whether certain non-degree credentials, such as those commonly earned for entry-level positions in the health sciences, tend to be associated with lower levels of upward economic mobility as individuals become “tracked” into lower-paying occupations. While NDCs can certainly be better than no credential at all for many workers, much more research is needed to be able to make inferences about how outcomes associated with NDCs compare to degrees and the implications of the growth of NDCs for overall levels of inequality.

6

*What barriers exist to the attainment of NDCs?*

The direct costs associated with non-degree credential attainment, such as tuition and required course materials, are rarely measured in any systematic manner. While it is widely believed that certifications are far cheaper than degrees, we do not know to what extent this cost difference results in a lower net burden to potential certificants – especially considering that options for federal, institutional, and employer-based fi-



financial assistance for NDCs are very different from those that are available to degree-seeking students. NDCs at the high end of the cost spectrum, such as coding boot-camps, are increasingly offering financing through private lenders at interest rates and other terms that differ from loans guaranteed by the US Department of Education to fund accredited degrees, including income sharing arrangements; in a similar vein, merit and need-based aid that directly subsidizes tuition and fees is less common for non-credit, non-degree programs than degrees. Understanding the extent of financial barriers to attainment would help actors in this space design and promote credentials that are less burdensome to potential learners.

Cost is not the only barrier worthy of researchers' attention. We also know relatively little about how academic preparation, time constraints, and pre-existing knowledge and perceptions about NDCs may pose barriers to the attainment of non-degree credentials. To answer these questions, we may need to collect data on the characteristics of individuals who do not pursue non-degree credentials for the purpose of establishing a control group that can be compared to those who do attempt and attain NDCs.

7

*How do we differentiate between high and low quality NDCs?*

While NCRN member organizations, including Workcred, the Rutgers Education and Employment Research Center, and the National Skills Coalition, conduct extensive research around issues of quality – including how to define quality in the context of non-degree credentials – researchers still struggle to accurately categorize NDCs on the basis of quality. Accreditation standards for certification are largely based on the processes used by a certification body to assure the integrity of its examinations and the validity of competencies measured, and are not a reliable indicator of the labor market value of a certification. Due to the proprietary nature of certification and licensure examinations, it is difficult for outside researchers to characterize the rigor of a given credential unless a credential is accredited by a third party based on publicly accessible standards. Quality assurance indicators are even more scarce for NDCs other than certification and licensure (and perhaps apprenticeship programs registered with the US Department of Labor), though new entities are emerging to evaluate the quality of certificate programs. Similarly, data on pass rates are often treated as a trade secret – and even if known, could be contingent on the relative level of preparation of individuals choosing to sit for certification exams. Thus, there is a need for innovative research methods that allow researchers to identify the relative rigor and quality of a NDC, which could enable research comparing accredited and non-accredited NDCs.

8

*What is the value of non-credentialed training and learning experiences?*

Job seekers and other individuals are free to list educational experiences on their resumes and job applications that do not correspond with a credential of any type. Also, many individuals have gained extensive human capital through activities that are not assessed through formal certification exams or documented on transcripts. Such skills and competencies can come through years of on-the-job experience, or even through reading books and self-study outside of a formal learning environment. A growing number of entities are developing ways to measure these competencies, but much work remains to be done. In a future labor market where employers are truly able to

hire based on competency, we can imagine that employers would rely as much on the demonstration of competencies gained outside of formal credentialing programs as ones gained inside them. Identifying the extent to which employers would actually value such competency – and the barriers to the acceptance of such evidence of competency – is an essential question to be answered as policymakers call for the creation of interoperable learner records (a.k.a. “learning and work records”) that unite learning from many formal and informal contexts.

9

*What types of certificates are of greatest value to different subpopulations of learners?*

Among the large categories of NDCs commonly recognized within the NCRN and in the credentialing research community, certificates are probably the category that remains most amorphous and daunting to researchers. Certificates take many different forms and are offered at many different levels by many different types of institutions – and range in duration from one day to over a year. Nearly all types of accredited higher education institutions offer certificates, but the nature of a certificate issued by a community college may vary dramatically from one issued by a private liberal arts college or a research university. Some, but not all, university-based certificates are intended to be completed by individuals who hold a bachelors’ degree, yet some of those post-baccalaureate certificates are considered non-credit and do not result in credits transferable to a master’s degree. Likewise, certificates offered by different types of vocational and trade schools vary dramatically in the extent and quality of their assessments, which can limit efforts to embed such credentials into degrees. Moreover, full-time, short-duration programs in information technology that describe themselves as “bootcamps” are sometimes analyzed as a unique class of credentials, yet most datasets are not fine-grained enough to pick out bootcamp completers from other certificate-holders (if survey respondents even manage to identify bootcamp credentials as certificates).

Clearly, certificates are a heterogeneous category of credentials. We have a two-part problem when examining certificates: the first part being disagreement on whether and how to differentiate between them in official datasets, and the second being a lack of quality data on the universe of certificates and certificate-holders – especially for those certificates based on courses that do not award academic credit and are not covered in the Integrated Post-Secondary Education Data System (IPEDS). (Another issue, alluded to in a report by the American Institutes for Research [2013], is that survey respondents may not know the attributes of certificates and certifications that they hold.) Innovative data collection methods and a widely accepted taxonomy of certificate programs that classifies certificates according to distinctions such as accredited vs. non-accredited, short vs. long-term, and credit vs. non-credit, may be needed for researchers to be able to guide individual learners toward the types of certificate programs that are most likely to result in positive labor market outcomes.

10

*How do employers value NDCs relative to degrees?*

Employers’ attitudes toward, and the valuation they place on, various non-degree credentials is still poorly understood. With tens of thousands of certifications and certificates available in the United States alone (Reamer *et. al.* 2019), employers may struggle



to identify which credentials are of value and which are not. While several credible research studies of employer perceptions of credentials in specific industries and contexts have given us insights on this question, much remains to be learned about the situations under which employers may accept (or even prefer) a certification, apprenticeship or other NDC to a degree and how NDCs are valued in determining salary and promotion.

As employers ultimately determine the value of credentials in the hiring and promotion decisions they make, their perceptions of credentials are of vital importance for understanding the nature of the earnings premium attached to degree and non-degree credentials and why it may vary across different types of NDCs and even within specific types. NDCs may well be preferable to degrees in many contexts, for example in fields where hands-on apprenticeship training provides an assurance of competence that goes above and beyond what one learns in the classroom. Identifying such contexts would help policymakers justify investments in expanding access to those credentials.

11

*What are the non-wage benefits of NDC attainment?*

The theory that non-degree credentials pay off for workers in ways that do not increase wages (or very indirectly increase wages) has been explored in studies of nursing certifications, but by in large has not attracted the attention of the broader non-degree research community. Nursing scholars coined (and copyrighted) a common set of survey items known as the Perceived Value of Certification Tool decades ago (Sechrist and Berlin 2006), a questionnaire that focuses on a broad set of intrinsic and extrinsic benefits, including benefits that may only indirectly affect earnings such as being perceived as an expert among one's peers and the sense of accomplishment and professional identity that may accompany certification. These sorts of benefits have been investigated to a far more limited extent in other types of non-degree credentials, including licenses, certificates, and apprenticeships, though data on the relationship between credential attainment and some aspects of job quality and satisfaction for some segments of the population may be available through surveys sponsored by the National Center for Science and Engineering Statistics. Moreover, broad benefits to society would be associated with having a workforce in which skills and competencies are upgraded as a result of attaining non-degree credentials, especially in fields where public health or safety is affected by the competency of individual practitioners. Documenting the existence of such benefits – and comparing the extent of such benefits in non-degree credentials relative to college degrees and non-credentialed skill acquisition – would help us understand the overall value proposition inherent in expanding access to non-degree credentials.

12

*How do the long-term outcomes associated with online NDCs compare to high-contact NDCs?*

Much of the research on online learning has focused on the effectiveness of online platforms for educational purposes – examining how online students learn, and to what extent online learners retain knowledge. However, few studies exist that compare the labor market outcomes associated with online degrees to in-person degrees, and the long-term consequences of choosing to complete a NDC through an online (or

even a blended or hybrid course format) remains virgin ground for researchers. If we believe that some of the labor market value associated with the completion of credentials comes from the social and cultural capital acquired through in-person interactions with classmates and instructors, to say nothing of the qualitative experience of learning in an in-person format, we would expect online NDCs to be associated with weaker outcomes over time as their graduates find themselves with less of a professional network (and perhaps less intensive professional socialization) to fuel career advancement. This effect may be more pronounced for certain categories of workers, such as youth and workers from disadvantaged socioeconomic backgrounds. Establishing an evidence base on the implications of online non-degree instruction for labor market outcomes and socioeconomic mobility may enable institutions and policymakers to make better decisions about the design and character of these programs, especially now in the wake of the COVID-19 pandemic.

13

*Are more intensive NDCs more valuable than shorter, less rigorous NDCs in the labor market?*

Because much of the research on the labor market outcomes associated with non-degree credentials tends to treat attainment as a binary variable, we know little about whether the duration, intensity, or even the quality of instruction in non-degree programs (perhaps especially certificates) is related to the benefits that those who complete such credentials receive in the labor market. The extent to which employers are even aware of the nuances between different certifications and certificates in the duration and depth of associated learning experiences is unclear. While the quality of instruction in certificate programs is difficult to quantitatively measure, basic measures such as seat time, instructor qualifications, and assessment tools used to evaluate learning may exist that can be used as proxies for the intensity and rigor of instruction (and the quality of learning). Knowing how these quality measures relate to labor market outcomes would allow for much more effective career advising in cases where an individual is choosing between shorter or longer NDCs.

14

*How effective is the public workforce system in supporting the attainment of quality NDCs?*

The system of public assistance for job seekers established under the Workforce Innovation Act and continued under the Workforce innovation and Opportunity Act (WIOA) includes mechanisms intended to connect displaced job seekers with quality credentials, often favoring non-degree credentials that can be completed faster than college degrees. The primary mechanism for ensuring that individuals choose quality credentials when receiving grant support under WIOA through Individual Training Accounts are the eligible training provider lists (ETPLs) established by each state. ETPLs, which are intended to shape the structure of incentives for displaced workers and help individuals seeking training to identify quality credentials in high-demand fields, are gaining attention from policymakers and researchers alike as recognition grows of their role in shaping the structure of training and credentialing opportunities for displaced and disadvantaged workers. However, much is still unknown about their effectiveness –and of the overall effectiveness of public support for retraining and credentialing. More broadly, we know little about why some unemployed individuals seek non-degree credentials, and how they go about choosing from among the thousands of non-

degree credentials available to American workers. Research that helps us understand variation in credential attainment on the part of unemployed workers (and other disadvantaged individuals served under WIOA) could help us design credentials and innovations that improve outcomes for individuals transitioning between employers and careers.

15

*Would innovative credentials gaining traction in the United States be of value in the context of developing countries?*

For its first two years, the NCRN has focused primarily on non-degree credentials in an American context, though several European experts were invited to join our initial meeting in April 2020. However, some types of non-degree credentials are available throughout the world. Professional certifications, in particular, tend to be available globally; indeed, US-based certification organizations are even largely exempt from US economic sanctions and free to offer their credentials in otherwise restricted markets like Iran and Cuba. Similarly, certificates based on massively open online courses are widely available in developing countries. Yet, we know little about how NDCs are being used in an international context.

Development agencies such as USAID spend substantial sums of money on programs to enhance human capital in developing countries, but the extent to which such programs incorporate non-degree credentials varies widely. There is an opportunity for the non-degree research community to engage with institutions in developing countries to enhance the quality of non-degree credentials worldwide, which may include disseminating emerging models and best practices in the United States to educators, regulators, and learners worldwide. Such outreach could also help our community to identify best practices that could be applied in a US context to contribute to the skills and competencies of our workforce.

# CONCLUSION


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## ***How do non-degree credentials – and credentialing research – fit into the challenges facing policymakers and the future workforce?***

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Learning more about non-degree credentials not only helps us assess their usefulness in meeting credential attainment goals (such as Lumina's 2025 attainment goal) but is also useful for understanding how the workforce can prosper in the face of technological change and other social trends, such as globalization and economic stratification. What started over two decades ago with self-checkout machines at supermarkets and automated teller machines is accelerating; retail jobs are being lost to e-commerce and only being partially replaced by the network of distribution warehouses emerging on the outskirts of American cities. Displacement from service-oriented jobs in retail and hospitality sectors accelerated in the wake of the COVID-19 pandemic, but changes in the distribution of employment opportunities across industries have been a constant feature of the American labor market. Non-degree credentials have the potential to speed up the reskilling process as individuals move between occupations and keep up with technological developments within their fields. Researchers should be mindful of the potential for economic mobility unlocked by such reskilling and upskilling to indirectly benefit society by ameliorating some of the consequences of poverty, such as high rates of opioid abuse and the entrenchment of polarizing political ideologies.

More broadly, addressing these grand challenges – especially the consequences of growing socioeconomic inequality – require the research community to move beyond the demonstration of value. There is a need for the research community to not just collect evidence, and rather build a case for the effectiveness of quality NDCs as facilitators of mobility. We must actively propose and evaluate different policy options for increasing the attainment of quality NDCs. Proposals currently circulating in the policy advocacy and think tank communities concerning the expansion of apprenticeship, new modes of federal support for financing NDCs, and efforts to improve the creation of new credentials and training programs deserve urgent attention from the research community. One potential initiative worthy of specific mention is the expansion of Pell grant eligibility for short-term training and credentials, such as certificate pro-



grams. Knowing more about the return-on-investment associated with short-term certificates would help us understand whether expanded eligibility for such programs would be likely to unlock economic mobility for a broader population of learners. Similarly, the potential of the industry-recognized apprenticeship program (IRAP) model promoted under the Trump administration should be critically evaluated by researchers. Do IRAPs help expand the availability of experiential learning to learners who would otherwise be excluded from traditional apprenticeship, certificate, or certification programs, and if so does that availability compensate for such programs' abbreviated nature? Having a more robust literature to draw upon on the attributes of apprenticeships that correlate with earnings premia would help us to answer this sort of question.

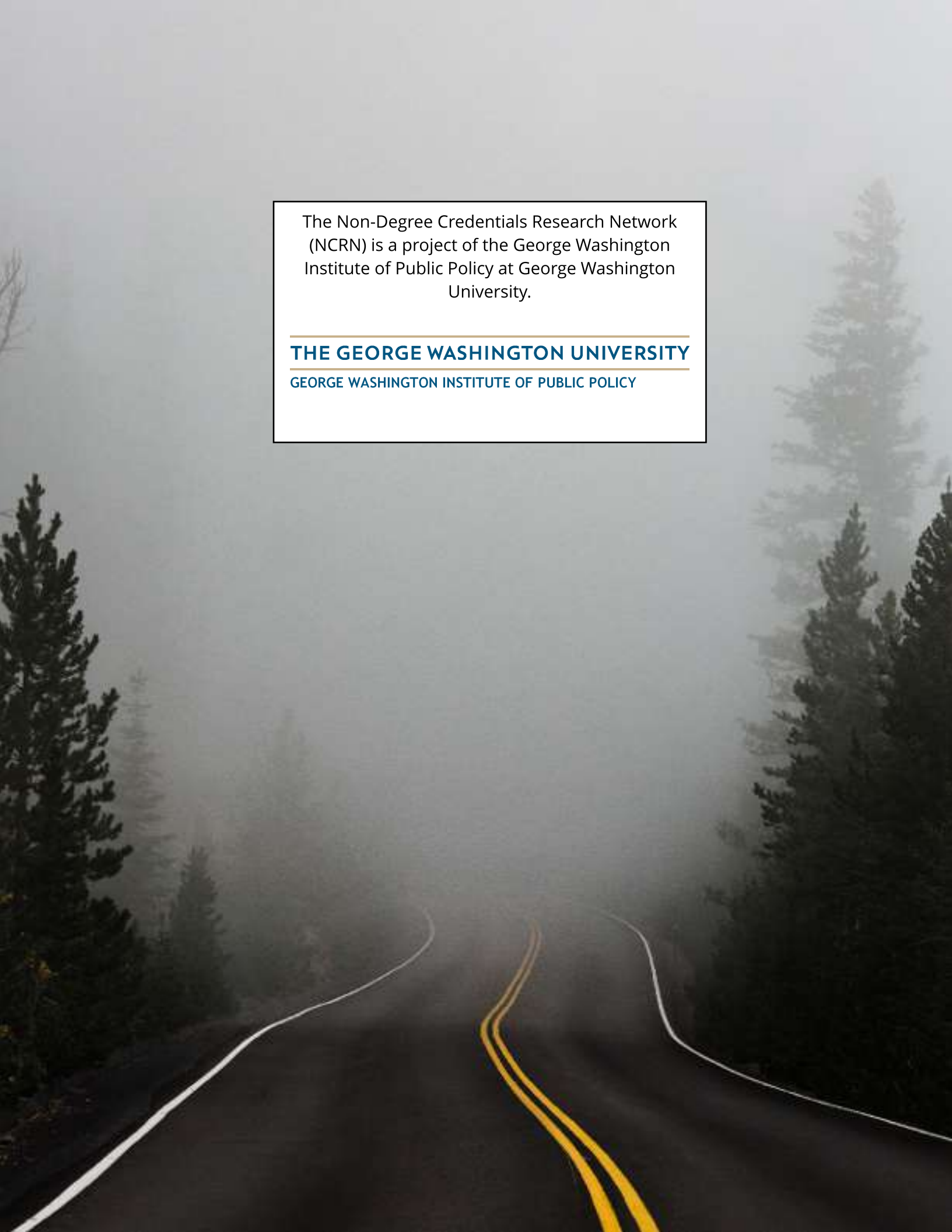
As NDCs remain in the policy spotlight in the wake of the COVID-19 pandemic and continue to be prioritized by politicians and policymakers looking to quickly re-employ individuals displaced by the recession, it is essential for the research community to keep its eye on how NDCs fit into a long-term vision for a more efficient and equitable labor market. Addressing the pressing needs for research to inform policy decisions in the present while keeping an eye on how NDCs may interplay with long-term social trends is a tall order for our research community, yet the growing size and intellectual capacity demonstrated in the first two years of the NCRN suggest that we can rise to the challenge. Going forward, the NCRN can take inspiration from the biological sciences in its approach to research. As famously observed by Platt (1964), better organized scientific disciplines – those with stronger professional networks and infrastructure, and consensus on a unified research agenda – tend to make more progress over time. The objectives identified in this report, which are subject to change over time as the NCRN engages in further dialogue on the state of the field, could give non-degree credentialing researchers the sort of guidance and cohesion (as well as access to data from public and private-sector stakeholders) that leads to breakthrough discoveries. It will ultimately be up to the many researchers and stakeholders in this space to decide whether we work in tandem and advance as a field, but the roadmap provided in this document offers a clearly defined starting point to work from for researchers answering the call to improve our credentialing system.

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A photograph of a winding road through a dense forest of evergreen trees, shrouded in a thick fog. The road has a white line on the left and a double yellow line in the center. A white rectangular box is centered in the upper half of the image, containing text and a logo.

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