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Raising Job Quality and Skills for American Workers: Creating More-Effective Education and Workforce Development Systems in the States

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ABSTRACT

Raising Job Quality and Worker Skills in the US: Creating More Effective Education and Workforce Development Systems in States*

To improve the employment rates and earnings of Americans workers, we need to create more coherent and effective *education and workforce development systems*, focusing primarily (though not exclusively) on disadvantaged youth and adults, and with education and training more clearly targeted towards firms and sectors providing good-paying jobs. This paper proposes a new set of competitive grants from the federal government to states that would fund training partnerships between employers in key industries, education providers, workforce agencies and intermediaries at the state level, plus a range of other supports and services. The grants would especially reward the expansion of programs that appear successful when evaluated with randomized control trial techniques. The evidence suggests that these grants could generate benefits that are several times larger than their costs, and would therefore lead to higher earnings and lower unemployment rates among the disadvantaged.

JEL Classification: J2, J3, J6, J08

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I. Introduction

In 2008 and 2009, the US economy shed over 8 million jobs; since then, only about 2 million have been created. Most economists expect the labor market to continue to recover slowly from the Great Recession over the next several years. But, while we remain very concerned about the *quantity* of jobs that the US economy creates in the short term, we should also focus on the *quality* of these jobs – in terms of the pay and benefits they provide - and that means paying attention to the skills of workers who will fill them.

Currently, our economy generates workers with too little education to prosper in the labor market, and with too few of the more specific skills often sought by employers in jobs that pay relatively well. Finding too few skills among potential workers, employers likely create fewer such good jobs than they otherwise might. In today's more competitive product and labor markets, employers will only create such jobs if the productivity of their workers can potentially match their higher levels of compensation. But employers, doubtful about the productive potential of their workers, often choose to compete based only on low costs rather than better worker performance.

Instead, we should make it easier for employers to create and fill good jobs with highly productive workers. To do so, we need to create and fund more coherent and effective education and workforce development systems. These systems should place their primary emphasis on providing more assistance to at-risk youth, both in school and out, and also to adult workers who are disadvantaged as well. Furthermore, these programs should take advantage of the latest evidence on effective training to maximize their impact.

A new empirically-based consensus has developed from rigorous economic research that finds that education and training programs that are clearly targeted towards firms and sectors providing good-paying jobs tend to be successful in raising participant earnings. Studies using randomized control evaluation techniques, the gold standard of empirical evidence, have highlighted the importance of linking training programs with employer and labor market needs, and this evidence forms the foundation of my proposal.

To raise the employment and productivity of American workers, I propose a new federal competitive grant program that funds evidence-supported training programs at the state level. At a cost of roughly $2B per year, the program would underwrite a range of efforts aimed at educating workers for jobs in good-paying firms and growing industries. Rather than reinventing the wheel, this program would build on the efforts already made to date in many states to integrate their education and workforce systems and to target them more effectively to key sectors on the demand side of the labor market (NGA Center for Best Practices, 2009).

Grants would be awarded to partnerships between secondary and postsecondary institutions, employers from key industry sectors, workforce agencies and intermediaries. The grants would fund a range of evidence-based educational and training activities for currently low-income or less-educated workers. The grants could also fund support

systems for students such as career counseling activities or child care while in training, and could also be used to provide technical assistance and/or tax credits to firms that create good-paying jobs and fill them through appropriate workforce strategies.

These activities would not only help generate more effective education and workforce systems but encourage states to integrate these systems with their economic development activities. These funds would be used to leverage existing and potentially new private and public sources of funding, and it would encourage more efficient use of funds in a sustained manner over time. Evidence from rigorous evaluations suggests that such investment could potentially generate benefits several times as high as their costs. While the program is mostly designed to create better-skilled workers and more good-paying jobs over the longer term, it could also help reduce the nation's currently high unemployment rate in the next few years as well.

II. Research Evidence

A. The Problem

The growth in education levels among Americans in recent years has not been sufficient to keep with the growing demand for skills in the labor market, thus leading to earnings stagnation and growing inequality (e.g., Goldin and Katz, 2008). Gaps in educational attainment between Americans from higher- versus lower-income backgrounds are large and perhaps widening, as are the gaps in achievement between these groups (Bowen et al., 2004; Reardon, 2010). Too many Americans fail to finish high school, much less obtain a postsecondary credential of some kind (Heckman and Lafontaine, 2007; Autor, 2010; Carnevale and Rose, 2011). Given the very high return to education in the U.S. labor market, the groups that lag behind in educational attainment – particularly the disadvantaged - suffer low earnings over their entire working lives (e.g., Blank et al., 2007).

But, in addition to the quality and skills of American workers, their earnings also depend importantly on the quality of their jobs, and of the "match" between their skills and those required in good-paying jobs. For any general skill level of workers, high-paying jobs are more likely to be found in some industry sectors than others, and some firms (often called "high-road employers" or those with "high performance work systems" in this literature) choose to pay more than others even within the same industry and local labor market.[1] Since labor markets (and the product markets they serve) are increasingly competitive, such firms must be able to offset their higher compensation levels with higher worker productivity; their human resource policies are thus designed to generate highly productive workers with lower turnover than those found in their lower-wage competitors.

But firms might not choose to create a socially optimal number of high-quality jobs on their own, because of a variety of market failures. For one thing, many employers have very limited knowledge of different compensation and human resource options that might

[1] See Krueger and Summers (1987) and Abowd and Kramarz (1999), as well as Appelbaum et al. (2003).

generate highly productive workers who are well compensated (Appelbaum et al., 2003). Furthermore, the ability of employers to choose the "high road" might be very constrained by the quality of workers whom they perceive to be available for hiring, in terms of basic and occupational skills. And employers might be reluctant to invest their own resources in training workers for a variety of reasons.[2]

When employers do, in fact, create good-paying jobs, the evidence suggests that the match between these jobs and the skills of workers filling them is growing more important. Drawing on longitudinal data on both workers and firms for a dozen states during the 1990s and 2000s, a recent book by Holzer et al. (2011) identifies a rising correlation between measures of worker and job quality over time (see Table 1). The fractions of the jobs in the top quintile of quality that are filled by workers in the top quintile of skills grew in this period, as did the fraction of lower-paying jobs (especially in the fourth quintile) filled by less-skilled workers.[3][4]

Furthermore, the locus of the "good jobs" is changing, with many fewer available in manufacturing and more appearing in the professional and financial services, health care, construction, and even the high end of retail trade (see Table 2). And the decline in good job availability in manufacturing is concentrated among the least-skilled workers, whose employment there declined dramatically; in contrast, employment in manufacturing for workers in the highest skill quintiles declined only mildly. [5]

Fortunately, the data show that good jobs are not disappearing in general. If anything, Holzer et al. show that the numbers of jobs in the highest quintile of quality were actually growing in this period. But most of the high-paying jobs require a strong set of basic cognitive and/or communication skills. And, while many do not require a four-year college diploma (outside of the professional and financial services), they generally require some kind of postsecondary training and certification. In health care, these positions often include a variety of nursing categories as well as technicians. In construction, they usually include the skilled crafts (electricians, plumbers, carpenters) which can be filled through apprenticeships or other training models. In manufacturing, they often include not only engineers but also machinists, precision welders and other highly-skilled workers (Holzer, 2010). Similarly, Figure 1 (from Carnevale et al. 2010) indicates a range of sectors and/or occupations where those with some college or an

[2] Firms are often reluctant to pay for general skills training, since workers might not stay with the firm providing such training. In addition, wage rigidities, imperfect or asymmetric information about prospective workers, liquidity constraints and other market "failures" might make firms reluctant to make such investments as well (Becker, 1975; Acemoglu and Pischke, 1999).

[3] Specifically, the percentages of top-quintile jobs filled by top-quintile workers rose from 63.6 to 67.7 percent in just over a decade, while the percentages of second-quintile jobs filled by second-quintile workers rose from 34.1 to 38.6 percent. In contrast, the percentages of four-quintile jobs filled by workers in the bottom two quintiles of skills rose from 59.5 to 65.4 percent.

[4] Worker and job quality are measured by worker and firm "fixed effects" respectively, calculated from matched longitudinal data on workers and their employers. See Holzer et al. for more detail.

[5] Other data from Holzer et al. (Table 2.5 of their book) show that manufacturing employed 27.6 and 24.4 percent of all workers in the top two quintiles of skills respectively in 1992, which declined to 24.8 and 18.4 percent respectively by 2003. But for workers in the bottom two quintiles of skills, these percentages declined much more dramatically, from 17.7 and 10.1 percent to 8.3 and 4.0 percent respectively.

associate's degree enjoy relatively high earnings. These include managerial and professional jobs, those in the "STEM" fields (i.e., science, technology, engineering, and math), healthcare, sales and office support work, and even blue-collar fields. Elsewhere, Carnevale et al. show that significant percentages of workers with occupational licenses or certificates as well as those with associate's degrees earn more than the median worker with a bachelor's degree in key fields.

Despite the value of these skills, certain well-documented problems in our education and workforce systems mean that too-few workers make investments that would allow them to fill these good-paying jobs. For example, many students currently attend two-year or four-year institutions but achieve too little there to improve their labor market outcomes. Dropout rates are extremely high, especially in community college, where so many youth and adults – especially from minority or low-income communities – get stuck in remedial classes from which they never emerge and which are completely separated from the classes providing the relevant occupational training. As a result, most students there never earn even an occupational certificate, much less an associate's degree. Data from the American Association of Community Colleges indicate that 12.4 million students attended community college in the fall of 2008, and about 7.4 million for credit; yet fewer than a million associate degrees or certificates were awarded the previous year. Bailey et al. (2005) also find that fewer than half of all community college students complete a degree or certificate after five years, and completion rates are lower among minorities and those with low incomes.

In Germany and elsewhere in Europe, training that helps workers prepare for good labor market opportunities is delivered through high-quality career and technical education (CTE). Such systems have not developed in the U.S. at least partly because of historical controversies here over "tracking" minority students away from college (Hoffman, 2011; Symonds et al, 2010). But, at its best, CTE would not deter students from attending postsecondary institutions, and might indeed be structured to better prepare and encourage more students to do so.

Indeed, it is often not until after entering the labor market and becoming unemployed that many disadvantaged workers are provided their first valuable career guidance. Such guidance is provided quite cost-effectively to workers at over 3000 "One-Stop" offices around the country, funded through the Department of Labor's Workforce Investment Act (WIA), in the form of "core" and "intensive" services plus very limited training (Besharov and Cottingham, 2011). In contrast, fairly little career guidance is provided to high school or community college students, especially based on local or state labor market data (Soares 2010). And our colleges and these workforce institutions are largely isolated from one another in many states, with little effective interaction on the ground. Local workforce boards, which disperse funds provided through the Workforce Investment Act (WIA), do not always effectively represent the best-paying employers with strong demand in growing industries, and are not always integrated with state and local economic development efforts.

And, even when college students know that earnings and labor market demand are strong in certain fields (like nursing or health technology), they often find very limited instructional capacity in these areas in many colleges; perhaps this reflects a lack of incentives for institutions to meet labor market demand, because their per-student subsidies from state governments do not depend on degree or certificate completion rates or on what kinds of credentials they earn.[6]

As a result, not only do too few workers obtain certificates and degrees, but those obtained are often not well-matched to labor market demand in key sectors. Under these circumstances, when employers create high-paying jobs at both the middle and high ends of the skill spectrum, they often seem to have some difficulty filling them with skilled workers. Indeed, the job vacancy rate has averaged 2.2-2.3 percent over the past year, which is relatively high given an unemployment rate of over 9 percent. And even in some sectors where vacancy rates are not high overall – such as manufacturing – the ratio of vacancies to new hires is striking, suggesting some difficulty that employers have filling vacant positions.[7]

All of this suggests that programs designed to improve the skills and productivity of US workers, if they also work carefully with targeted employers and industries, could help fill vacant jobs that currently exist and perhaps encourage employers to create more such jobs over time. The programs should thus help reduce unemployment and job vacancies in the short term while also raising worker earnings in the longer term as well.

B. Potential Solutions: Education and Training for Good Jobs

One path to creating good jobs for disadvantaged workers involves raising their skills and productivity to make them more attractive to potential employers. A rigorous body of evidence suggests that certain education and training efforts can be cost-effective ways to address these issues, even when brought to substantial scale. While the overall evidence on the cost-effectiveness of job training for disadvantaged workers in WIA and elsewhere is at least modestly positive (Holzer, 2009; Heinrich et al., 2009; Heinrich and King, 2010), there are some particularly strong examples that demonstrate the effectiveness of education and training that target good-paying jobs on the demand side of the labor market and is coordinated with employers there. The best studies have demonstrated results on these programs using experimental methods from randomized control trials (RCT), though some fairly persuasive nonexperimental evidence exists as well. RCT studies are important because they allow researchers to compare the labor market

[6] For evidence on the high variance in rewards to community college degrees and certificates for youth and dislocated adults workers see Jacobson and Mokher (2009) and Jacobson et al. (2003) respectively.

[7] In manufacturing, a job vacancy rate of 1.2 percent and a new hires rate of 1.4 percent in the most recent JOLTS data from the Bureau of Labor Statistics (April 2011) implies an existing job vacancy for almost each new hire, which constitutes a much higher ratio of vacancies to hires than exists in any other broad industry group in these data. Elsby et al. (2010) show evidence that the job vacancy rate associated with a given unemployment rates in the U.S., known as the "Beveridge Curve," has shifted out over the past several years. Uchitelle (2009) and Fletcher (2011) provide journalistic evidence of small employers who have had difficulty finding skilled workers, even at the trough of the recent downturn.

outcomes of those who receive training to the outcomes of those who do not to demonstrate the benefits and costs of each intervention.

The most important recent study is the Sectoral Employment Impact Study (SEIS) of three major programs in Boston, New York and Wisconsin, conducted by PPV (Maguire et al., 2010). The evaluation used random assignment methods to test for program impacts on workers' subsequent earnings, and it found large impacts on earnings in all three programs in the second full year after random assignment, generated by 3-6 months per worker of well-targeted training. Net impacts on earnings were about $4000 per participants over the 24-month period after random assignment but about $4500 in the second year, once training was completed. Direct costs of the program were estimated to be about $6000 per worker.[8] Assuming the large earnings gains persist into the third year, the program is clearly cost-effective.

The study's authors have attributed the programs' success to the close relationships between employers, training providers (which are sometimes but not always community colleges) and the intermediaries who coordinate their efforts. Improved earnings were the results both of higher employment rates and higher wages for this population. Since the three programs evaluated are moderately large, the evaluation demonstrates that effective programs can potentially be brought to scale.

Impacts of similar magnitudes have been estimated recently in a random assignment study of Year Up, a sectoral training program for out-of-school youth. The program trained 18-24 year olds from low-income urban neighborhoods for jobs in the IT sector in New England, New York and elsewhere The year after the program took place, the treatment group reported earnings that were on average $3461 more (30% higher) than the control group due to higher hourly wages (Roder and Elliott, 2011).

Several other efforts that provide occupational training plus work experience to students in key sectors have generated impressive estimated impacts in evaluation studies as well. Regarding CTE in high school, a random assignment evaluation of the Career Academies have shown large impacts on the earnings of young men, especially those deemed at risk of dropping out of school, even eight years after random assignment.[9] The academies focus on particular sectors of the economy, and combine high-quality general academic instruction with a more occupational kind, and provide critical work experience in those sectors to students. And, quite importantly, the academies did not "track" students away from postsecondary education, as the postsecondary enrollment rates of these students were no lower than those of students in the control group.

Thus, we now have rigorous experimental evidence on highly cost-effective programs for in-school youth, out-of-school youth, and disadvantaged adults, all of which provide education or training that closely target good-paying employers or economic sectors and

[8] This information was provided to me by Sheila Maguire, lead investigator on the SEIS study, in a private communication.

[9] See Kemple (2008). Impacts for young men after eight years were still nearly $2000 per year for each participant.

where outreach to and active engagement of employers is a major part of the training process. This evidence supports nonexperimental evidence on effective training programs that suggests, for instance, that apprenticeships have also generated large impacts on earnings in some evaluation studies, as have various state-level programs providing incumbent worker training (Hollenbeck, 2008; Lerman, 2010).

It is important to note that all of these relatively successful programs have been in operation for many years, and have developed strong curricula and links to the business community that might not be easily replicated in a short time period. Furthermore, they focus on disadvantaged workers with strong enough basic skills and education credentials to successfully handle moderately technical training. I believe these successes can be replicated in other settings over time, but only with appropriate screening of candidates and careful development of their occupational training curricula and ties to employers.

A few other education or employment programs in community colleges low-income neighborhoods that have undergone evaluation (with varying degrees of rigor) also deserve some mention. The strongest evidence, based on RCT research designs, shows positive effects on educational outcomes from the Opening Doors community college interventions, which include merit-based financial aid, the structuring of "learning communities" of students, and certain kinds of mandatory counseling on educational outcomes as well (Richburg-Hayes 2008). Nonexperimental evidence from a program in the state of Washington that integrates developmental (or remedial) education with occupational training, known as the Integrated Basic Education and Skills Training (I-BEST), shows positive effects on educational outcomes in a study of community colleges (Jenkins et al 2009). And the Youth Opportunities (YO) program at the U.S. Department of Labor, which provided grants to 36 low-income communities to develop and coordinate local educational and employment services for youth, generates some positive impacts as well on both educational and employment outcomes in these sites (Decision Information Resources 2008). Thus, the potential to improve educational outcomes at community colleges and to build systemic efforts to provide employment services have been demonstrated in a range of studies.

III. The Proposal: Competitive Grants to Foster Education and Workforce Systems and Activities

Given the strong recent evidence on the efficacy of job training for disadvantaged populations that carefully involves employers and considers labor demand, there is clearly some strong potential to raise the skills of workers. Doing so would allow some currently low-skilled workers to fill existing jobs and could also help create new employment opportunities if employers respond to a more productive set of workers by creating more good-paying jobs for them.

The goal of this proposal is to encourage the creation of more effective education and workforce systems that include evidence-based training models and are more responsive to employers who create good jobs. Given current and future budget constraints, any new public expenditure should mostly be designed to improve the efficiency of resources

already in the system, but some important categories of services also would benefit from greater support. They should build on encouraging efforts that have been developed in several states (NGA Center for Best Practices, op. cit), and leverage other sources of funding that have been provided.

Accordingly, I propose that the federal government create and fund a new competitive grants program to support the building of education and workforce development systems aimed at filling good-paying jobs in key economic sectors. Grants would mostly go the state-level partnerships, though some small number would also be provided at the federal level to partnerships in some key sectors, such as health care, which would support state-level efforts around the country in these sectors. Some might also go directly to regional efforts at the sub-state level, though the states would mostly decide how to incorporate these regions into their efforts.

The idea for such a competitive grant is not brand new. In fact, a somewhat similar idea has been embodied in legislation that has already passed the U.S. House of Representatives as a potential amendment to the Workforce Investment Act (WIA) and has also been proposed in the Senate. The Strengthening Employment Clusters to Organize Regional Success (SECTORS) Act of 2008, passed by voice vote in the House of Representatives that year, calls for grants of $4-5M to be made to industry or sector partnerships, although no new funding of services was provided. In the Senate, Senator Patty Murray (D-WA) has recently proposed the Promoting Innovations to 21st Century Careers Act which embodies somewhat similar ideas for state and regional partnerships.

The proposal described here would, however, be much greater in scope, targeted towards states, and would provide new funding for services as well as just the organizational infrastructure of "partnerships." In that way, it might be more like President Obama's originally proposed American Graduation Initiative for grants to states and community colleges, which now receives just moderate funding under the Trade Adjustment Assistance Community College and Career Training (TAACCCT) program.[10]

Structure of the Grants

The grants would begin in the first several months as planning grants, but then would fund both services and system-building within two years of the program's launch. Overall, the programs should be funded at the level of roughly $2B per year for at least five years. Renewal of these grants would be allowable but not automatic, and would be conditional on evidence of outcomes and impacts achieved in the meantime. The grants would be administered jointly by the U.S. Departments of Education and Labor.

Grants would generally be awarded on the basis of the following mandatory criteria designed to model successful training programs:

[10] Originally the American Graduation Initiative was to be funded at $12B for 10 years, with grants both to community colleges and states. Ultimately$2B was authorized over 4 years through TAACCCT to community colleges only.

- The inclusion of key partners including (i) community colleges and other education or training providers, (ii) industries or large employers with strong labor demand and good jobs, (iii) local workforce development agencies, and (iv) intermediary organizations with strong links to employers or industries;
- The targeting of disadvantaged workers;
- The responsiveness to labor market and employer needs;
- The funding of key direct supports and services to students, workers and employers, as identified below;
- The extent to which other sources of public or private funding are leveraged, as part of efforts that will be sustainable over time.
- The strength of the evidence on which the training and educational models are based;
- The strength and rigor of evaluation plans; and

Industry and Employer Partnerships

To begin with, states would need to create new or existing partnerships between postsecondary education institutions (as well as high schools providing high-quality CTE), employers or their associations in key economic sectors, workforce agencies (i.e., state and local WIBs), and perhaps other non-profit institutions at the state or local levels who serve as "intermediaries" in these efforts. The evidence reviewed above suggests that the involvement of employers is critical and that the more successful programs utilized intermediaries with long-term relationships with employers.

Key employer and industry partners would be drawn from sectors where jobs generate good pay and benefits per average level of education and where employment growth is projected to be strong over time, using newly available administrative labor market data at the state and local levels.[11] Industry associations would be particularly important partners, since it is hard to build systemic efforts with individual employers. But impressive models in which particular employers have reached out to education providers to build "career pathways" for high school and college students could be replicated and brought to greater scale. For instance, IBM has recently helped build the Pathways in Technology Early College High School (P-TECH) program in Brooklyn NY, while Pacific Gas and Electric (PG&E) has started the "PowerPathways" skill development program in conjunction with local community colleges in California.

Targeted Trainees and Sectors

During the planning process, states would be required to more systematically identify underemployed groups of workers – including but not limited to disadvantaged youth and adults - who might benefit from new sectoral or "career pathway" models at different levels of skill. They must also identify the sectors where demand will likely remain strong in their states and will likely generate good-paying firms and jobs. Intermediaries with strong ties to those employment sectors should also be included in the planning

[11] State and local data on employment changes and earnings by detailed industry are now available through the Quarterly Workforce Indicators data of the Local Employment Dynamics program.

stage. These could include community-based nonprofits, associations of employers, and workforce development organizations, among others.

Of course, demand projections often have some degree of error, especially since labor demand can shift in directions that are not easily predictable from recent trends.[12] Therefore, state plans should also indicate the extent to which the education and training provided is general and likely portable across specific sectors if such unanticipated demand shifts occur. The best plans will also include funding and/or technical assistance for employers who might need modest retraining either for newly hired or incumbent workers who don't exactly fit their current skill needs.[13] Thus, state plans should provide both for occupation- and industry-specific training but also for mechanisms that generate flexible responses to unanticipated demand shifts.

Broader Measures to Support Employment-Based Training

The grants would be used to encourage more responsiveness to the labor market at community or four-year colleges. For instance, the grants could be used to expand high-quality CTE programs in high school, career counseling at colleges, and also to encourage educational institutions to expand instructional capacity in high-demand areas, based on labor market data, where such capacity is often now lacking. Indeed, states could be rewarded for tying their subsidies for community colleges to rates of certificate or degree completion, especially in sectors of strong demand. The integration of developmental or remedial education with occupational training could be encouraged, along with other proven efforts to reduce dropout rates.

Some funds would be available to pay for tax credits or technical assistance to good-paying employers participating in sectoral training programs and other efforts to upgrade their incumbent workers; a model for this technical assistance might be the Manufacturing Extension Partnership (MEP) program that now helps manufacturers upgrade workplace performance and productivity. More broadly, states should indicate that their education and workforce systems are also part of broader economic development plans to assist industry development and employment growth, especially in geographic areas that are currently underserved (McGahey and Vey, 2009; Bartik, 2010).

Funding Direct Services for Trainees

Grants to states would then pay for some *direct service provision that is not already available to Pell grantees and other lower- or middle-income postsecondary students*. These services could include tuition payments for coursework leading to certification in the relevant fields, by both prospective and incumbent employees, who are not eligible

[12] For instance, the explanatory power of BLS projections relative to subsequent labor market trends has been challenged by Carnevale et al. (2010), who show that their own projections have stronger predictive power over time. Alternatively, some analysts (e.g., Bishop and Carter, 1991) claim that the BLS projections are systematically biased and tend to underpredict the growth in labor market demand for education over time.

[13] For instance, in Uchitelle's example of welders cited above, many employers do not claim that they cannot find welders in general, but seek a particular type of welding training which might not be widely available at any point in time.

for Pell grants;[14] stipends for paid work experience under apprenticeships, internships, and other forms of college work study in these fields; and supportive services, such as child care for low-income parents. Small federal programs that already provide such funding, such as the Child Care Access Means Parents in School (CCAMPIS) program, or the Job Location and Development Program (JLDP) that provides paid work to students off-campus under the Federal Work Study program, could be effectively expanded and perhaps even incorporated into such efforts.

Promoting Sustainability through Leveraging of other Existing Funding Sources
States would only receive grant money if they provide better services to students and better incentives to institutions as part of lasting systemic plans to improve the better matching of less-educated or disadvantaged workers with good jobs over time.

To encourage more lasting plans, states would have to generate plans to sustain their efforts over time, using other public and private sources of funds.

The new program should leverage other recent and current funding efforts, especially if the states can indicate how they are building on the progress generated from those other efforts. For instance, besides TAACCCT, the proposed fund could complement activities funded by the U.S. Department of Labor through recent competitive grant programs such as the High Growth and Emerging Industries Job Training Initiative and the Workforce Innovations for Regional Economic Development (WIRED) grants to regions. It could also complement the efforts of several national foundations, such as the National Fund for Workforce Solutions; and others aimed at community colleges and/or states to improve degree completion rates as well as career pathways to local labor markets, such as "Achieving the Dream," "Shifting Gears" and "Breaking Through."[15] It would build on activities already begun in many states (NGA Center for Best Practices, op. cit.) to more closely link their education and workforce activities (including those funded by WIA) to economic development, and also on major new workforce initiatives like the No Worker Left Behind program recently implemented in Michigan. That program provided training funds to dislocated workers who were being trained in community colleges for jobs in industries where high future growth is expected.

Most importantly, the grants would hopefully encourage much better use of the enormous sums of federal money recently invested in the Pell grant program by the Obama Administration, and of very large state subsidies to public colleges as well, by raising certificate or degree completion rates among grant recipients that are well-matched to good jobs in the labor market. As such, this program would not reinvent the wheel or duplicate other efforts, but would build on them. The grants would encourage states to

[14] Low-income students may not be eligible for Pell grants if they get training from a provider that is not an accredited 2-year or 4-year college. Other reasons for disqualification include felony drug convictions.
[15] The National Fund has been established by the Annie E. Casey, Ford, Hitachi and other foundations. It now includes 300 funders for sectoral training projects in 24 communities. The "Achieving the dream," "Shifting Gears" and "Breaking Through" programs have been funded by the Gates, Lumina, Joyce and other foundations . None of these efforts have been rigorously evaluated to date.

combine currently disparate and uncoordinated funding efforts into more effective education and workforce systems, better matched to state and local labor market demand.

Private funding sources should be leveraged as well. Indeed, since employers would benefit to some extent from these programs, they should be willing to contribute some modest funding, perhaps through their industry associations or through dedicated funds from state payroll taxes.[16]

Implemented in this fashion, the program would hopefully generate the kinds of lasting systemic changes at the state level that have apparently been induced by other federal grant programs recently, like the Race to the Top fund in K-12 education or the expansions of Unemployment Insurance (UI) eligibility under the Unemployment Insurance Modernization Act (UIMA) provisions in the recent federal stimulus bill.

Evidence Base and Evaluation

The criteria provided above are in part based on the evidence about what creates a successful training program, but the state plans should explicitly indicate the extent to which their proposals reflect evidence of cost-effectiveness based on rigorous research analysis, such as the best studies cited above.

The capacity to conduct rigorous evaluations of their own programs at both the institutional and state levels would be required as a condition of receipt of funding. Where specific programs are being set up or expanded, experimental evaluations based on randomized controlled trials would be considered most appropriate. Alternatively, states could also generate nonexperimental evaluations using appropriate methods, either for specific programs and policies or for their overall efforts more broadly.[17] The ability of grant applicants to conduct evaluations should be verified by the contractor selected by the Departments of Labor and Education to conduct the evaluation. Renewal of these grants would at least partly depend on the extent to which evaluation evidence indicates success in expanding employment opportunities and earnings for the targeted groups.

IV. Expected Costs and Benefits

What kinds of broader impacts might we expect from the kind of policy initiative described above? The potential impacts are extremely hard to gauge, since our program would provide direct payments for limited amounts of new services while also heavily leveraging others that are already being made in very large amounts (like Pell grants and current state subsidies to community college students) to render them more effective. Any such estimates are quite speculative about the numbers served directly (by receiving services funded under the grants) or indirectly (by receiving services already funded that

[16] These taxes have been used to fund incumbent worker training programs in a variety of states (Hollenbeck, 2008).

[17] For instance, states could propose to use difference-in-differences (DD) or regression discontinuity designs (RDD) across institutions or regions that have implemented different kinds of specific policies and practices. Analysis at the state level could be performed, for instance, using interrupted time series methods.

are now more effectively delivered) and how many would be positively affected by the program.

Subject to these caveats, I have calculated the likely costs of the program and the benefits to the nation in higher earnings associated with this proposal, using two different approaches and some different assumptions within each. Table 3 presents the estimates associated with the first approach, which I regard as the stronger of the two (in terms of the evidence based for the calculations provided). Details of all of the calculations used to generate these estimates appear in the technical appendix to this paper.

The table presents estimates of benefits from the program under different assumptions for rates of program completion and "fade-out" (which is the rate at which earning gains from the program decay over time). The estimates use the average cost of the training programs from the Sectoral Employment Impact Study described previously, as well as estimated earnings gains generated there.

The first set of cost and benefit estimates focuses on the training services provided directly to workers. I assume that $1.5B of the grant money is spent per year on direct services at an average cost of $6,000 per trainee, implying that up to 250,000 individuals might be directly served by this program in any given year. Thus, if the program lasts five years, as many as 1.25 million individuals could cumulatively receive services over time. In the case where gains fade out at 5 percent per year and 50 percent of participants complete the program (column 1), the present value of total benefits for a year of such program would be 5.75 billion dollars, implying a benefit-to-cost ratio of 3.8. Even with the conservative assumptions of 20 percent fade-out and 50 percent completion, the benefits of the program still exceed the cost. Of course, since these calculations assume no effects (either on costs or benefits) of other expenditures that might generate other services and reforms in how community colleges and local workforce systems operate, they are likely lower bounds to the true impacts of the program. Since we presume that changes in community colleges and other parts of the education and workforce systems in states would be much broader in scope, those served both directly and indirectly could number much higher than this.

Alternatively, I also have made some calculations (described in the appendix) that assume we could increase the rate of credential attainment by 10 percentage points either among all community college students or Pell grant recipients, enabling them to at least earn labor market certificates that generate the kinds of impacts that were estimated in SEIS (but, on average, less than associates degrees). I also assume that a competitive program of this magnitude could award grants to 10 states of average size, covering up to one-fifth of the nation's postsecondary population, especially in community colleges.

A program of this magnitude, if successfully implemented over a number of years, could generate positive impacts in earnings that are very cost-beneficial. The estimates of total and net benefits from assuming higher rates of certification attainment among community college or Pell recipients respectively, are larger than the estimates that use the cost of providing sectoral training directly. Using the baseline assumption of 5 percent fade-out

and 50 percent completion, the present value of total benefits associated with a 10 percentage point increase in certificate attainment would be over $11B in the former and over $8B in the latter case; the benefit-to-cost ratios would be 5.7 and 4.1 respectively.

It is important to note that the benefits associated with these programs would likely accrue not only to private individuals and their employers, but to the public sectors at all levels (federal, state and local) as well. For instance, if the earnings of disadvantaged and dislocated workers could be raised, it would likely raise income tax revenues at these levels; and it would reduce poverty-related public expenditures over time associated with the high unemployment, high crime rates and poor health of these populations (Belfield and Levin, 2007; Holzer et al., 2007; Holzer, 2010a).[18] Specifically, successful efforts to raise employment and earnings for these populations should reduce currently high expenditures in Medicaid, Unemployment Insurance and the funding of criminal justice systems for these populations. By raising tax revenues and reducing public expenditures in these areas, the new federal expenditures for these grants would be at least partly offset, and state budget deficits might be reduced.

Given the high job vacancy as well as unemployment rates that currently exist, we would expect these efforts to reduce unemployment rates by enabling more workers to be matched both to jobs that are now being created and to new ones. For instance, one can imagine that perhaps one-tenth of a percentage point of the unemployment rate could be eliminated by the higher credentials achieved by students and workers under this program per year, and up to one-half of a percentage point after five years**.**[19] If at least some grants are awarded within the first year, and because many of the certificates supported can be earned with training of fairly short duration, impacts should begin to be observed within two years of the program start date.

Thus, at least the potential exists for some quite small but effective expenditure of funds to have major impacts on the employment and earnings of the nation's disadvantaged workers, as well as on the productivity outcomes that underlie them.

V. Questions and Concerns

One of the first questions that might be asked about the proposal described above is the extent to which it overlaps with or duplicates efforts funded now by the Workforce Investment Act (WIA). This legislation now funds state and regional workforce investment boards (or WIBs), which in turn fund employment services at local One-Stop offices as well as limited amounts of job training. The WIBs currently engage in some state and local planning, and sometimes cooperate with community colleges and other educational institutions in meeting local labor demand (Besharov and Cottingham, 2011).

While there is some overlap between what now exists and what we propose, some key differences exist as well. For instance, the new grants would explicitly call for plans to be

[19] This calculation assumes that up to 150,000 of those earnings credentials because of the new program can fill job slots that are vacant at any point in time.

built around targeting underserved populations for jobs in key economic sectors. They would fund many more services than are now generally allowable or available under WIA.[20] They would more actively and directly engage state and local higher education institutions, and would incent these and other institutions to be more responsive to trends in labor demand than they are now.

But it would also be important *that any new grants programs not be used to reduce formula funding right now for WIA.* Given the extent to which WIA funds have already been drastically cut over the past years and decades, and how tight those resources are for the cost-effective local employment services and training that they now fund, it is important that these new grants constitute a net new addition of resources, and not further cannibalize some important existing programs.[21]

Another question involves the extent to which the Departments of Education and Labor can jointly implement a grants program, at the federal level as well as the state and local levels. Some precedent exists for such efforts, such as the administration of funds to local areas under the School to Work Opportunities Act (STWOA) of the mid-to-late 1990s, and many more recent examples of cooperation between the two agencies (as well as the Department of Health and Human Services). But the grants program would also create new opportunities for local "silos" to be opened up and more comprehensive systems to be built. Indeed, the new grants would create incentives for this to occur, and states would be awarded grants at least partly on the basis of the extent to which such systems are built. Renewal of the grants would also be an opportunity to judge which states have generated effective partnerships between workforce and education agencies on the ground.

As usual, one of the concerns about such a proposal would be the extent to which successful smaller efforts in the past can be replicated and scaled up nationally. While this concern is valid, the fact that grants will be awarded competitively, and that there are strong models to be replicated that have themselves already achieved some significant scale, give us somewhat greater confidence on this issue.

Another concern is *whether or not the more specific occupational or sectoral skills in which prospective workers are being trained will generate long-term labor market rewards for them*, especially after they leave the job in question. More broadly, one might also wonder whether the occupational training provided would be too narrow – in other words, should we invest significant resources in specific sectoral training, given the likelihood of unexpected shifts over time in the composition of labor demand in a very technologically dynamic world, or only more general training?

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[21] See Holzer (2009) for evidence that WIA has been cut by nearly 90 percent in real terms since 1980,while the scope of its services has expanded and while the workforce has grown by roughly half. O'Leary et al. (2004) report that funding for employment and training services in the U.S., as a percent of GDP, lags behind that of almost every other industrial country. On the other hand, some uses of the workforce innovation funds now being allocated in WIA might now be subsumed under the new grants program.

While this concern is certainly valid, the extent of the potential problem can be limited in a number of ways. First, all workers at community colleges should get some mix of more general skills as well as those that are more narrowly tailored to a particular occupation or sector; to the extent that workers move across jobs and sectors over time, at least some of the skills would thus be transferable, depending on how far from the original sector their mobility takes them. The same is true if labor demand shifts away from sectors where such demand is now strong and where such training is readily provided.

Second, a more effective education and workforce system should itself lead to more effective employer adaptations to such shifts in demands for skills. If, for instance, employers need welders, but mostly of a different type than they currently find among prospective workers (as Louis Uchitelle of the *New York Times* has recently suggested), a more effective workforce system should make it easier for employers to modestly retool their incumbent or prospective workers, and this would limit the difficulties associated with specific skills training.

Another concern is whether the current fiscal environment will allow for even the kinds of modest new expenditures that have been proposed above. With proposals for large cuts in federal discretionary nondefense spending, and in particular for job training, now being generated, it might not be a very auspicious time to propose some increases. On the other hand, recent evidence suggests that expenditures in education are not quite as vulnerable to cuts at the federal level; and those tied to job creation and employer needs might be less vulnerable to cuts, if they enjoy some bipartisan support (especially from major employers and industry associations).

It might be possible to reallocate some of these funds from other employment and training funds. [22] One possible source of funding for new competitive grants is revenues from H-1B visa fees. H-1B visas are visas for high-skill workers. The revenues from these visas are intended to be used for training American workers.

If alternate funding is not available, the cost of the program might be scaled back initially and ramped up more slowly as successes become more apparent and political support grows over time.

It is also important that assistance be targeted primarily on students and workers with the greatest need – in other words, disadvantaged youth and adults (who are capable of being effectively trained and can handle more technical material when necessary) as well as dislocated workers. Economic development efforts at the state level might be used to provide public assistance to employers or middle-class workers who want a "free ride" but who could afford to pay for the relevant education and training themselves. While these efforts may not reach the hardest-to-employ populations (such as those with the poorest numeracy and literacy skills and other barriers to work), they should be judged at least partly on their targeting of groups in need, as well as the other criteria listed above.

[22] A recent report by the U.S. Government Accountability Office (USGAO, 2011) indicates several dozen small federal employment and training programs that overlap, to some extent, with WIA and might produce significant savings if carefully consolidated.

Finally, we need to note the overall weakness of the US job market, both in the short-term and the longer-term. Insufficient aggregate demand and uncertainty seem to be limiting overall job creation and our recovery from the Great Recession, while new technologies and global forces might do so over the longer term as well (Blinder, 2006; Freeman, 2007; McKinsey Global Institute, 2011). This proposal is not designed to address a broader set of problems that seem to be deterring employers from creating large numbers of jobs, as they did in the 1980s and 1990s.

On the other hand, the need for enhancements in worker skills and the quality of jobs created remains, and perhaps becomes even stronger, in a tepid labor market. And the ability of these markets to absorb workers with higher skill levels and higher pay over the longer term should not be doubted, even when aggregate employment outcomes are disappointing.

VI. Conclusion

To raise employment levels and earnings in the US, I propose a new set of grants to fund more effective education and workforce systems at the state level, which would especially be more supportive of firms that create good-paying jobs, hopefully encouraging them to create even more. The grants would fund partnerships of employers, training providers and intermediaries at the state and local levels, as well as a range of specific services and activities. Criteria have been laid out for the awarding of grants, including the extent to which they target underserved populations and growing sectors, the extent of services provided, the extent to which other sources of public and private funding are leveraged, and plans for rigorous evaluation of outcomes and impacts.

The proposal builds on a body of existing research that indicates the success and potential for further targeting training towards firms and sectors that create good-paying jobs. The proposal does not reinvent the wheel or duplicate existing programs, but is specifically designed to build on efforts that are already underway in many places.

I believe that, if effectively designed and implemented, such a grants program could significantly improve the employment rates as well as earnings of targeted groups over the next few years and beyond as well.

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Table 1											
Distribution of Employment (Percentages) across Job Quality Quintiles, 1992 versus 2003											
	1992						**2003**				
	Job Quality Quintile (1=Highest)						**Job Quality Quintile (1=Highest)**				
	1	**2**	**3**	**4**	**5**		**1**	**2**	**3**	**4**	**5**
Worker Skills Quintile											
1	63,6	26,3	8,0	1,9	0,3		67,7	22,4	7,6	1,8	0,6
2	25,8	34,1	23,2	13,0	3,9		24,9	38,6	24,4	9,9	2,2
3	9,3	25,7	33,7	21,9	9,4		10,5	25,6	33,7	22,4	7,8
4	2,4	12,6	25,5	37,9	21,6		3,7	6,8	24,2	40,0	25,4
5	0,2	1,6	10,2	26,8	61,1		2,4	2,5	7,8	27,2	60,1

Note: Rows sum to 100%. Job Quality and Worker Skills are measured as firm and worker fixed effects using longitudinal data from the LEHD program, US Census Bureau. From Holzer et al. 2011

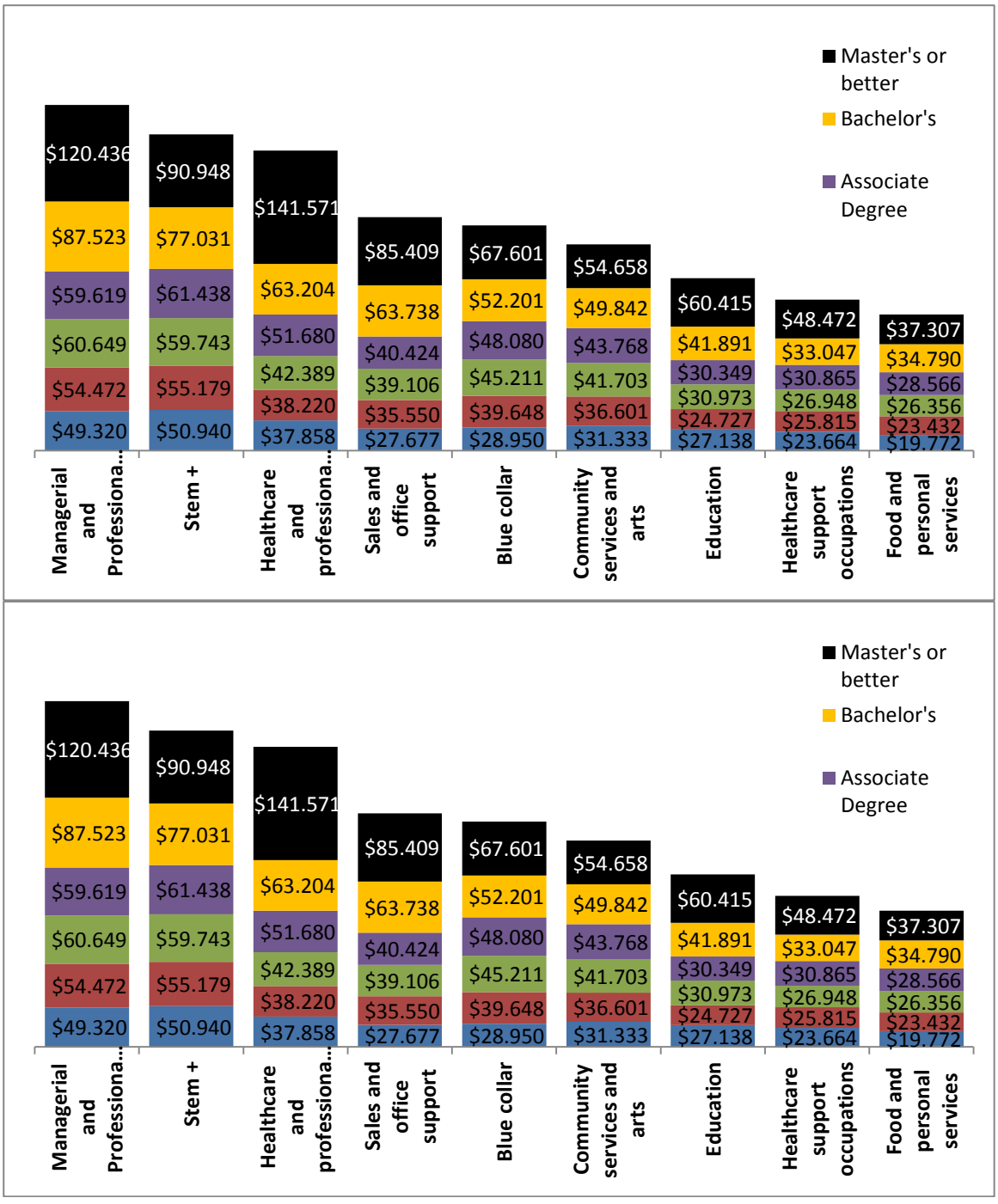
Table 2

Distribution of Employment (Percentages) within Job Quality Quintiles, 1992 versus 2003

	1992					2003			
	Job Quality Quintile (1=Highest)					Job Quality Quintile (1=Highest)			
	1	2	3	4	5	1	2	3	4
Industry									
Agriculture	0,2	0,6	0,8	1,2	6,0	0,2	0,5	0,7	1,1
Mining	0,9	0,3	0,2	0,2	0,1	0,5	0,2	0,1	0,1
Utilities	3,2	1,4	0,3	0,1	0,0	2,3	1,0	0,2	0,1
Construction	5,9	4,9	3,1	2,2	1,7	6,7	5,6	3,9	2,7
Non-Durable Manufacturing	12,5	13,7	9,4	5,9	6,4	9,2	9,9	6,3	4,1
Durable Manufacturing	24,0	12,6	7,7	5,5	3,4	15,2	9,3	6,0	4,1
Wholesale Trade	7,0	5,6	4,4	2,7	2,1	7,8	5,7	4,8	2,6
Retail Trade	4,3	4,7	12,4	21,4	15,5	5,8	5,8	14,7	21,4
Transportation	2,4	4,9	4,2	3,3	3,1	2,6	4,5	4,2	3,5
Services									
Information	7,9	2,4	1,7	1,6	1,6	7,8	3,1	1,4	1,2
Finance	6,2	9,6	6,3	3,2	0,5	8,1	9,6	4,4	2,4
Real Estate	1,1	0,9	1,1	1,0	1,3	1,4	1,1	1,3	1,2
Professional Services	11,0	3,5	2,1	1,2	2,1	13,5	3,8	2,1	1,5
Management	1,6	1,1	0,4	0,3	0,2	1,5	1,3	0,5	0,2
Administrative	2,5	2,2	3,3	6,9	10,3	4,2	3,6	4,8	9,0
Education	0,2	2,8	12,3	19,7	12,5	0,6	2,7	12,9	21,2
Health Care	2,8	15,8	17,5	8,0	6,8	4,5	16,7	18,4	8,5
Entertainment	0,4	0,4	0,8	1,8	2,8	0,6	1,0	1,2	2,0
Accommodation & Food	0,6	1,1	3,3	9,4	18,9	1,1	1,6	3,1	8,3
Other	1,5	1,3	1,4	2,0	3,0	1,5	1,5	1,6	1,8
Public Administration	3,7	10,2	7,1	2,6	1,7	5,0	11,5	7,4	2,8

Note: Columns sum to 100%. Job Quality is measured on the basis of firm fixed effects using longitudinal data from the LEHD program, US Census Bureau.
Source: Holzer et al., 2011.

Figure 1: Earnings of US Workers by Educational Attainment Within Occupation/Industry Groups



Source: A. Carnevale et al. (2010)

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Table 3
Predicted Costs and Benefits of the Proposal

	5% Annual Fade-Out		10% Annual Fade-Out		20% Annual Fade-Out	
Program Completion Rate	50%	75%	50%	75%	50%	75%
Benefit For Each Program Completer (Net Present Value)	$45,817	$45,817	$26,360	$26,360	$15,143	$15,143
Total Program Benefit (Net Present Value)	$5,746,971,760	$8,600,645,139	$3,314,823,012	$4,952,422,018	$1,912,729,969	$2,849,282,454
Annual Cost	$1,500,000,000	$1,500,000,000	$1,500,000,000	$1,500,000,000	$1,500,000,000	$1,500,000,000
Benefit-to-Cost Ratio	**3.8**	**5.7**	**2.2**	**3.3**	**1.3**	**1.9**

Note: The program is estimated to cost $6000 per participant. Assuming that $1.5 million will be used for sectoral training programs, the program can serve 250,000 participants.

Technical Appendix

The estimates in Table 3 assume that most of the grant money (i.e., $1.5 out of $2B) is spent directly on training services for individuals, and estimates the costs and benefits of this spending based on the Sectoral Employment Impact Study (SEIS). Since these estimates include no impacts (on costs or benefits) associated with broader changes to the education and workforce systems of the relevant states, and since it uses many conservative assumptions, the estimates should be regarded as lower bounds to the likely effects. For example, these estimates do not take into account the benefits to students from community college support services or reforms in the college financing or workforce development systems, which could provide significant spillovers to students and are much cheaper to provide on a per-student basis.

The other estimates in the cost-benefit section use an alternative approach: instead of focusing on individuals who are trained, it estimates the total effects of systemic changes as reflected in higher credential completion rates (which we assume will be 10% due to the program) among community college students or Pell grant recipients respectively in those states.

The cost of the training program in Table 3 is assumed to be $6000 per participant, which is the average cost of the 3 programs in SEIS. For the $1.5B spent on these services, 250,000 individuals could be served annually. We look at total benefits assuming that 75% of individuals finish the program, the completion rate in SEIS. We also provide a more conservative estimate, assuming that 50% of individuals served finish the program and receive a credential, well below the completion rate of SEIS. We also assume that those who do not finish the program obtain no benefit from it.

On the other hand, we transform the second-year individual impact estimate reported for SEIS so that it only applies to program completers. The impact on annual earnings per program participant reported in SEIS is $4,011.[23] This is an "intent-to-treat" (or ITT) estimate, based on *all* participants randomly assigned to receive services from the training program (treatment group) relative to those not receiving them (control group). This estimate thus applies to anyone offered treatment, even if they did not complete the program or earn the certification. To apply it only to program completers, we transform it into the "treatment effect on the treated" (or TOT) estimate of $5348 (i.e., 4011/.75) for SEIS, which we now apply only to the smaller percentage of trainees whom we expect to finish treatment in our broader program.

To predict the impact of larger changes to the community college system, we must estimate the numbers of individuals who might benefit from systemic changes rather than those receiving treatment directly. Nationally, the number of students who attending community college (12.4 million) or the total number of Pell Grant recipients in 2010-11 (8.9 million) serve as the target populations. Assuming that ten states of average

[23] This was the average positive impact of 3 sectoral employment training programs analyzed in the Sectoral Employment Impact Study - the Jewish Vocational Service in Boston, Wisconsin Regional Training Program in Milwaukee, and Per Scholas in New York City.

population size might receive grants, one-fifth of these relevant student populations (2.48 million community college attendees and 1.78 million Pell Grant recipients) could be affected by this competitive program. And, if 10% of these groups can gain additional certification through the job training programs, a total of 248,000 community college attendees or 178,000 Pell Grant recipients could acquire additional relevant job certification. Note that both estimates fall short or approximate the 250,000 individuals whom we assume to be directly serviced in the table, but with much higher completion rates here (as we assume that all of these individuals will gain new certifications). I apply the same TOT estimate of earnings gains (based on SEIS) to all such individuals in these examples as in the earlier one.

In all of these examples, I assume that all spending outlays are realized at the beginning of the first year and that earnings gains for program completers are realized towards the end of that year (in Table 3) or at the start of the second year (i.e. after program completion).[24] The costs of foregone earnings (based on SEIS estimates) are also included in the first year estimates in Table 3 but not in the estimates based on community college or Pell Grant populations, as the latter examples assume that students are already enrolled in college before the program is implemented and there is no further loss of earnings.[25] Once the earnings gains appear, I assume that they decay over time at an annual rate of 5% until they disappear, and I discount future earnings using a real rate of 3%.[26]

The estimates presented in Table 3 based on all of these assumptions show the benefits and costs associated with expenditures for just one year. Assuming the program operates for each of five or ten years, one could simply multiply the listed costs and net benefits by five or ten to derive expected total impacts.

[24] The training in the SEIS programs lasted six months or less, and thus benefits began to accrue to trainees in the second half of the first year. In contrast, we assume that those in community college will need the full year to complete their programs or degrees.

[25] Since these calculations focus on the existing college population, they also ignore disadvantaged or dislocated individuals who would benefit by new entrance to college or other training programs. This is one more very conservative assumption that I have made.

[26] Some program evaluation studies, like that of the Job Corps or the Job Training Partnership Act, show significant fadeout over time of program impacts (Holzer, 2009), while others (e.g., Heinrich et al., 2009) do not find them. Assuming a 5% annual rate of decay is a reasonable compromise based on the findings of these studies.