Government Employment and Training Programs: Assessing the Evidence on their Performance

The Council of Economic Advisers

June 2019

Executive Summary
June 2019

For the first time since the Government began tracking job openings nearly 20 years ago, there are more job openings in the United States than unemployed people looking for work. In fact, there are over 1.6 million more job openings than unemployed people. Because of the Trump Administration's pro-growth policies, the American worker is in great demand. In a 2019 survey by the National Federation of Independent Businesses, a quarter of small businesses reported that their single most important problem is finding workers with the skillset employers need. In an effort to address this issue, the Trump Administration is striving to connect job seekers with the resources and tools necessary to find employment. This includes ensuring that those seeking employment have the skills and training necessary to fill available jobs. In an effort to satisfy employer needs, the Trump Administration has launched initiatives like the Pledge to America's Workers. In less than a year since introducing the Pledge, companies and trade groups have committed to provide almost 10 million Americans with education and training opportunities over the next five years and close the skills gap that currently exists in the American labor market.

In accordance with the Executive Order Establishing the President's National Council for the American Worker, the Council of Economic Advisers has prepared this report examining the evidence available on the effectiveness of government employment and training programs. According to the Office of Management and Budget, the Federal Government has 47 different employment and training programs spread across 15 different government agencies. Aggregate spending on these programs totaled $18.9 billion in 2019 alone.

This report sets out to assess how effective public programs are at increasing the wages and employment rates among program participants, but unfortunately, few rigorous evaluations exist to measure the success of government-funded training programs. Until recently, many job training programs frequently failed to track metrics that allow researchers to evaluate program returns to taxpayer dollars expended. Many public training programs have not undergone rigorous evaluation and therefore a framework needs to be established for evaluating trainee success, both by incorporating randomized control trials into program design and by improving data collection and long-term tracking of participant outcomes.

Among the training programs with available data and rigorous impact studies, the evidence shows that most government training programs are not effective at securing higher paying jobs for participants. For example, in an evaluation of the Workforce Investment Act training program using administrative data, two years after receiving training, workers who received intensive job search assistance had quarterly earnings that were $310 above that for workers

who did not receive the intensive assistance. Yet in the first two years, no further wage gains were achieved among those who also were offered job training. While the benefits of services like job search assistance and career guidance are important, these services alone will not help workers who require new skills to compete in today's economy. With the exception of the Registered Apprenticeship program, government job training programs appear to be largely ineffective and fail to produce sufficient benefits for workers to justify the costs. This highlights the importance of efforts such as those of the National Council for the American Worker to work with both public and private organizations to update and improve the nature of America's job training programs as well as their evaluations.

The National Council for the American Worker is not only addressing these issues, but has set out to go even further by connecting State and local government resources with those of the Federal government. Enhanced transparency regarding outcomes will allow job seekers, policymakers, and program administrators to better understand which programs are working. Additionally, with better data, there are opportunities to learn from the successes and failures across public programs and shift resources to the types of programs that show the greatest returns.

With the creation of the National Council for the American Worker, the Trump Administration remains committed to developing a National strategy for training and retraining the workers needed across high-demand industries. The following report assists decision makers as they seek to ensure that America's workers are well-equipped with the skills and training needed to excel in our nation's booming economy.

Introduction

Today's economy is one of great strength. The job market is booming, with May 2019 having marked the 104th month of positive job growth – the longest streak of growth on record. The national unemployment rate in May 2019 was 3.6 percent, matching the lowest unemployment rate since December 1969. The unemployment rate has been at or below 4 percent for 15 consecutive months. Wages are also rising, with 10 straight months of year-over-year nominal average hourly wage gains that were at or above 3 percent. There is also evidence that real wages are growing year over year, which means Americans are able to purchase more goods and services with their bigger paychecks. The benefits of a robust economy and the historic trends in job growth are being felt across demographic groups.

The Trump Administration's pro-growth and pro-worker policies are also pulling individuals off the sidelines. The prime age (25-54) labor force participation rate has increased by 0.7 percentage points since the President was elected, and the prime age employment to population ratio has increased by 1.6 percentage points over the same time period. Even with the increase in labor force participation, many workers remain on the sidelines who could potentially benefit from reskilling. In May 2019, there were 5 million people who were out of the labor force who reported wanting to work in addition to 5.9 million people who were unemployed (who are considered as part of the labor force).

With a tightening labor market – continued job growth and low unemployment rates – there is evidence that employers are struggling to find employees with suitable skillsets. Last year, for the first time since the Bureau of Labor Statistics began tracking job openings in 2000, there were more job openings than unemployed workers. April 2019, when there were 7.4 million job openings, was the 14th consecutive month during which the number of vacancies exceeded the number of unemployed persons. The high number of unfilled positions, combined with anecdotal evidence from businesses, signals that employers are having trouble finding skilled workers. The evolving nature of work and changing skill needs of American employers are transforming the labor market, while providing new and different opportunities for American workers.

In a previous report, "Addressing America's Reskilling Challenge" (CEA 2018), we outlined the issue of the skills gap that is emerging in our ever-changing economy. The skills gap refers to the skills of available workers not matching the skills needed by employers. Even in a booming economy, the lack of necessary skills can prevent some individuals from enjoying the benefits of a robust labor market. Our previous report highlighted the importance of addressing this issue, as well as the challenges facing workers and firms in doing so. In this report, we examine the existing infrastructure of Federal worker training programs and review the evidence regarding their effectiveness. Overall, we find that the evidence of government job training

programs on improving labor market outcomes is mixed. They may have small positive effects overall, but may be more effective for particular groups of people and at certain times in the business cycle. The large number of programs and the heterogeneity in the types of programs make it difficult to establish a single general conclusion, but rather suggests that some programs are effective whereas others are failing to live up to their hoped-for potential. The Trump Administration is responding and has taken action to address the limitations of existing programs to close the skills gap. Workers and firms need innovative solutions to worker training due to the findings of mixed effectiveness of existing government-funded worker training/reskilling programs, and the need to respond to employers' struggles to find skilled workers and to enable more people on the sidelines to benefit from the booming economy. This report concludes with a discussion of the steps taken by the Administration to meet the skills needs of a modern economy.

Role of Government in Worker Training

Employers have incentives to recruit and train the workers they need, particularly in a tight labor market. Spending by employers on formal and informal worker training greatly exceeds spending by the Federal government (Carnevale, Gulish, and Strohl, 2015). However, there are economic reasons why employers may provide less than the optimal amount of worker training, namely that if one employer spends money training a worker only to lose them to a rival, they may be reluctant to invest in the training.

Economists define human capital as the knowledge and skills that increase the productivity of workers. Human capital that can be applied at a range of firms is called general human capital, whereas human capital that can only be applied at a single firm (or a small set of firms) is called specific human capital. Learning a firm's proprietary computing system is an example of specific human capital, as it increases the worker's productivity but only at that specific firm. On the other hand, learning a commonly used computer programming language is an example of general human capital.

Investing in training is potentially risky from the perspective of any particular firm because it incurs an upfront cost to train a worker who may leave the firm before the cost is recovered through the higher productivity of the worker. Investments in general human capital are riskier for the firm because general human capital makes the worker more attractive to other firms, which have an incentive to free-ride on the investment by hiring trained workers rather than incurring the cost and risk of providing the training themselves. Due to the risk of losing newly trained workers, firms may be reluctant to provide training that leads to an increase in general human capital. Skills gaps that are related to general human capital are traditionally viewed as unlikely to be bridged by private sector training, as employers do not individually have the incentive to fully bridge the gap in general skills.

However, there is some evidence suggesting that training could actually help increase retention. Flaherty (2007) finds that participation in a tuition reimbursement program increases employee retention. Dietz and Zwick (2016) use matched employer-employee data and find that training increases employee retention. However, the retention effects are reduced for more general forms of training and for training that has greater external visibility (e.g. training that leads to a certificate).Yousuf and Siddiqui (2019) also find that training may increase employee retention rates though they did not distinguish between general and firm-specific human capital. This suggests that employer-provided training could create goodwill towards an employer.

Although in a simple model, firms do not have an incentive to provide general training, there are situations in which firms will provide training that develops general human capital. Acemoglu and Pischke (1998) show that when labor markets are imperfectly competitive, it can be beneficial for firms to provide general training. In order to cover the cost of the training, the firm must raise wages by less than the increase in productivity due to the training, which is possible with an imperfectly competitive labor market. In a perfectly competitive labor market, the worker can receive an outside offer if the firm pays the worker less than the marginal productivity of the worker. In a tight labor market, firms may also provide general training in an effort to retain workers.

An alternate model for worker training is for workers to pay for their training independently. To the extent that training is an investment in one's own future employment potential and raises future wages, workers should have an incentive to pursue such training. In the framework of general and specific human capital, self-funded training is most advantageous for developing general human capital that will make the worker desirable to a range of employers. For several reasons, however, workers may underinvest in their own human capital. This includes the potential positive spillovers from the additional productivity, such that the worker may obtain the optimal human capital to maximize their personal net-benefits while falling short of the level of human capital that would maximize societal net-benefits. These positive spillovers may result in a role for government intervention in order to incentivize workers to attain the optimal level of general human capital.

Another argument in favor of government intervention is that individuals who would benefit from training may be credit constrained. Even if worker incentives are structured to obtain the optimal level of training, some may be unable to afford the cost of training or may not be able to stop working long enough to go through training. Although training may be beneficial to the individual and society in the long term, these short-term constraints may prevent the individual from participating in training. A similar argument is often used to justify government-subsidized higher education (Lochner and Monge-Naranjo, 2011).

Overview of Federal Worker Training Programs in the U.S.

History of workforce training programs in the US

The first large-scale Federal workforce development programs began in response to the Great Depression.[1] The Wagner-Peyser Act (1933) established the Employment Service (ES), which still operates today. The ES provides labor exchange services, such as job search assistance, to job seekers.

The next major piece of legislation addressing worker training programs was the 1962 Manpower Development and Training Act (MDTA), which provided large-scale training to workers. Mostly run by the Federal government, the MDTA included classroom and on-the-job training. MDTA was replaced by the Comprehensive Employment and Training Act (CETA) in 1973, which was designed to give States and local governments greater authority.

The Job Training Partnership Act of 1982 (JTPA) replaced CETA and gave States more control and responsibility for monitoring local programs and encouraged partnerships with the private sector in developing those local programs. It was replaced by the Workforce Investment Act of 1998 (WIA), which integrated services (one-stop delivery system), increased individual choice through Individual Training Account (ITA) vouchers, gave universal access to core employment-related services, and gave greater flexibility to target programs to local labor market needs. WIA was replaced by the Workforce Innovation and Opportunity Act of 2014 (WIOA). States were given a larger administrative role and tasked with developing unified strategic planning across programs. WIOA requires uniform performance measures and evaluation of data by third parties. The law requires further integration of workforce development programs within the ES offices, which are now called American Job Centers. The one-stop delivery model is designed to simplify the system from the point of view of the user and increase awareness and enrollment in eligible services.

Current organization

In 2019, the Government Accountability Office (GAO) released a comprehensive report on government employment and training programs. They identified 43 different employment and training programs across nine different agencies in Fiscal Year 2017.[2] The U.S. Department of Labor (DOL) has the most employment and training programs (19), followed

[1] For a more detailed history of workforce training legislation see Barnow and Smith (2015).

[2] GAO excludes programs where the "program objectives do not explicitly include helping job seekers enhance their job skills, find job opportunities, or obtain employment." Some programs that are excluded include Adult Education grants, the Federal Pell Grant Program, and Federal Student Aid programs. There is no clear distinction between training and education programs since they both seek to increase human capital, and we therefore view the GAO count as a lower bound on the number of employment and training programs.

by the U.S. Department of Education (ED), and the U.S. Department of Health and Human Services (HHS), with 7 programs each. Overall, these 43 programs served approximately 10.7 million people in 2017, although the number of unique individuals is lower, as some could have participated in multiple programs. Many of the largest programs in terms of number of people served and budget are in DOL. These programs include the WIOA Adult and Dislocated Worker programs, WIOA Youth Activities, the Employment Services, and Job Corps. ED runs a large grant program related to vocational training for people with disabilities. There are also job training programs associated with two large welfare programs: Temporary Assistance for Needy Families (TANF), which is run by HHS, and Supplemental Nutrition Assistance Program (SNAP), which is run by the U.S. Department of Agriculture (USDA).

Table 1. Largest Government Employment and Training Programs, based on GAO (2019)

Program	Agency	2017 Budget (Millions)	Number Served 2017 (Thousands)
State Vocational Rehabilitation Services Program	Education	$2,899.6	975.4
Temporary Assistance for Needy Families	Health and Human Services	$2,152.6	190.1
Job Corps	Labor	$1,623.9	48.3
Vocational Rehabilitation Services	VA	$1,400.0	132.2
WIOA Dislocated Worker Program	Labor	$1,017.2	467.5
WIOA Youth Program	Labor	$867.2	150.4
WIOA Adult Program	Labor	$812.8	1,108.2
Wagner-Peyser Act Employment Service	Labor	$666.2	5,414.8
Senior Community Service Employment Program	Labor	$561.2	60.0

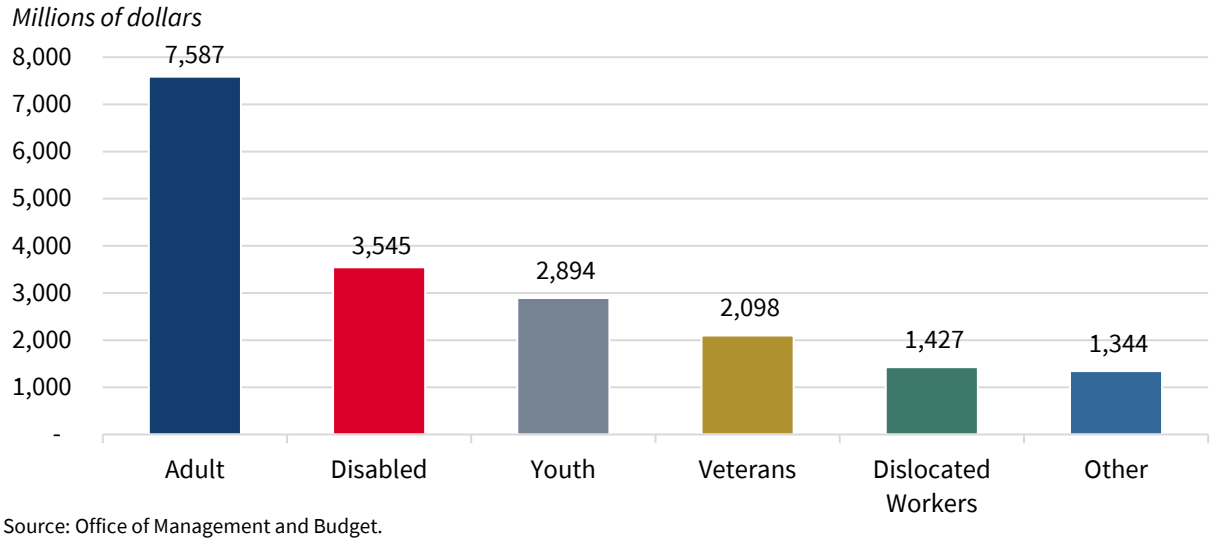
Source: GAO (2019).

Note: The total served for some programs is for 2016 if 2017 data were not available. Programs are omitted if they did not provide budget information to GAO.

Table 1 presents the largest programs based on the 2017 Budget (enacted appropriations) as well as the number of individuals served by the program. The program spending amounts only represent the portion of the overall program that goes towards employment and training services. Table 3 in the Appendix provides a description and a summary of research findings of all of the programs discussed in this report. Many of the programs tend to be targeted to specific groups (e.g., disadvantaged adults, at-risk youth, or dislocated workers). Figure 1 shows the percent of spending targeted to each group. Programs targeting general (and disadvantaged) adults comprised the largest share of spending at 36 percent, followed by

individuals with disabilities (20 percent) and youth (16 percent). The programs targeting dislocated workers (including those dislocated due to trade) accounted for 9 percent of total spending on employment and training programs.

Figure 1. Government Spending on Job Training by Recipient Type, 2019



Source: Office of Management and Budget.
Note: Adult includes programs for disadvantaged adults and programs with no specific target group. Other category includes all programs not explicitly contributing to the assorted types. Categories are not mutually exclusive, but each program is assigned to only a single category.

Table 2. Number of Employment and Training Programs Providing a Specific Service by Target Population, 2017

Service Category	General Population	Native Americans	Veterans and Transitioning Service members	Youth
Employment Counseling and Assessment	8	8	5	5
Job Referrals	8	8	5	4
Job search/placement	7	8	6	5
Occupational training	7	8	4	5
Adult Literacy or Remedial English	5	6	3	5
Total Number of Programs	8	8	7	5

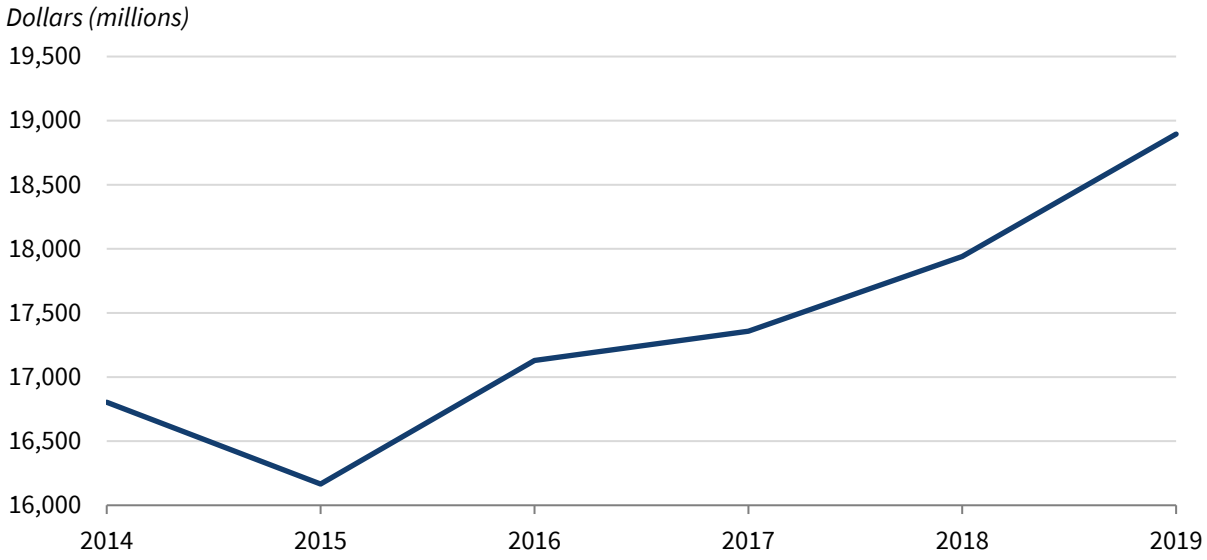
Source: GAO (2019).

The GAO report found that there was significant overlap between the various programs and, although there has been some consolidation in recent years, little has been done to evaluate whether efforts at consolidating programs have led to better outcomes for participants. Table 2 shows the number of employment and training programs that provide a specific service for certain target populations. Of the eight total programs that target the general adult population, all eight provide employment counseling and assessment as well as job referrals.

Almost all of the programs provide job search/placement services and occupational training. For other target populations like Native Americans, Veterans, and youth, there is a similar amount of overlap in the services provided by different programs with the same target population. However, this overlap is not evidence that the different programs are purely duplicative, as a given individual in any of these target groups is unlikely to qualify for every program due to differences in eligibility requirements for the different programs.

The 2019 GAO report was an update of an earlier report which included program information for fiscal year 2009 (GAO 2011). GAO identified 47 employment and training programs that were operational in 2009. Spending on employment and training programs increased during the Great Recession due to special appropriations as a part of the stimulus package, which has since expired. Figure 2 shows the nominal spending on employment and training programs since 2014. The decline from the expiration of the stimulus has since reversed and spending has increased since 2015. This increase has been smaller in real terms, however, and real spending in 2018 is nearly unchanged from the 2014 levels. The increase in spending has also been less than the overall growth in the economy and spending on employment and training programs has been declining as a percentage of GDP (from 0.096 percent in 2014 to 0.088 percent in 2018).

Figure 2. Total Government Spending on Job Training, 2014–19



Source: Office of Management and Budget.

Evaluating the Effectiveness of Government Employment and Training Programs

Although government worker training programs have a long history, it can be difficult to evaluate whether or not they are effective. Until recently, randomized impact studies of these

programs were not common. GAO (2011) found that only five of the employment and training programs had conducted impact studies to evaluate program effectiveness. With non-random selection into participation in a program, it can be difficult to isolate the effects of the program. It is not possible to tell whether or not a program is effective by simply comparing outcomes of those who participate with those who do not because individuals who choose to participate can differ from nonparticipants in difficult to observe ways that affect later outcomes. If individuals who participate in a program would have had better outcomes anyway even if they had not participated, then the difference in outcomes would not have been caused completely by the program. In this case, comparing participants with nonparticipants would cause one to overstate the benefits of the program and could lead one to attribute a positive effect when the true effect is zero.

The simplest way to estimate the causal effect of a program is to randomize who participates in the program. With a randomized control trial (RCT), individuals are randomly assigned to a treatment and control group. If you can randomly assign individuals to a job training program (treatment), then the causal effect of the program is the difference in outcomes between the treatment and control groups (called the average treatment effect or ATE). RCTs are not without their own issues, as some individuals assigned to treatment will not participate or complete the treatment, they are expensive to conduct, and the results may not generalize beyond the population studied. Furthermore, control/treatment group comparison issues may arise if the control group has access to other services in the community, a methodological problem that is particularly pronounced in service-rich environments. Therefore, the estimated treatment effect is not the effect of the program versus no treatment, but the effect of the program versus other services that can potentially serve as substitutes. So, the estimates of program effectiveness are conditional on the other services available.

Recognizing that RCTs are not always feasible, the field of economics has developed a number of techniques to estimate the causal effect of worker training programs with non-random assignment to treatment. The ability of these methods to estimate the true effect of job training programs has been under debate for many decades. The seminal paper by LaLonde (1986) compared the estimates from a randomized study of a job training program to those from non-random methods and found that the non-random methods were not able to replicate the results of the RCT.[3] Hence, where available, we focus here on the results from randomized trials to limit these concerns.

[3] Non-random methods of data analysis for estimating program effectiveness have improved substantially since LaLonde (1986). Some of the most popular methods for conducting analysis with non-random assignment such as Instrumental Variables, Regression Discontinuity, and Difference-in-Difference have not been widely used to study government employment and training programs. See Barnow and Smith (2015) for a discussion of the limitations of these methods in this context.

There are other issues that arise in evaluating the effect of training programs. The goal of worker training programs is to improve labor market outcomes such as employment and wages. After a disruption, workers who go through a training program may return to the labor force less quickly due to the time it takes to complete the training. If the program is evaluated based on short-term outcomes, it may look as if the training causes worse outcomes. The benefit to the individual depends on how long it takes for the returns to training to materialize and the amount of time left before retirement. If the labor market returns to training are small, or don't materialize for many years, it may not be worth it for the individual to leave the labor force to undergo training, particularly for older workers who do not have many remaining working years before retiring.

Evaluating the effectiveness of training programs also requires accurate data. For labor market outcomes, data can come from surveys or from administrative sources. Survey data suffer from non-response bias and recall bias. Non-response bias will arise if the individuals who participate in the survey differ in their labor market outcomes from those who do not participate. Recall bias refers to individuals reporting the data with less accuracy due to the reliance on memory and likely increases as they are asked to recall information after longer periods of time. Administrative data such as tax or other government data are thought to measure formal labor market earnings better than survey data since they are not subject to recall or non-response bias. The downside of administrative data is that it excludes informal labor market activity, which may be an important source of income depending on the population studied.

In addition to labor market outcome data, evaluating the effectiveness of training programs requires accurate data and records from the administrators of the program on the individuals being trained. In a recent report, the Office of Inspector General of the Department of Labor concluded that Job Corps was not capable of demonstrating beneficial outcomes due to poor recordkeeping by the center operators who administer the program (DOL 2018). They took a random sample of 324 Job Corps participants from July 2010 to June 2012. Out of this sample, 123 were employed prior to program participation. Yet, records document only 50 of the 123 participants' employment history. In addition, Job Corps center operators were unable to demonstrate their assistance in employment placement for 94 percent of the sample, even though contractors are required to provide that assistance.

Evidence on Program Effectiveness

In this section, we present an overview of the available evidence on government employment and training programs. We focus on the most recent studies and on programs that are still in existence.

Programs for disadvantaged adults and displaced workers

The WIOA Adult and Dislocated Worker Programs fund three types of services, which used to be available under WIA. Core services are mostly self-directed access to resources and information and require little assistance from staff. The Core services can be accessed online or at resource rooms at the American Job Centers.[4] Intensive services involve more staff assistance and include workshops and one-on-one assistance. The Core and Intensive services are primarily job search assistance programs and are designed to help match workers to available jobs given their current skills.[5] WIOA can also pay for job training programs. The WIOA Adult and WIOA Dislocated Worker programs provide the same services but have different eligibility requirements. The WIOA Adult services prioritizes low-income adults. The Dislocated Worker services are available to those who are laid off due to a plant closure or downsizing, workers who were laid off and unlikely to find a job in their previous occupation, and some other groups of dislocated workers.

Overall, the consensus of studies into these programs suggests that training may have small positive effects on earnings in the adult worker program, but there is not a significant effect on earnings from training for dislocated workers. As a result, while intensive services have a positive net benefit, once considering the costs of the program, the additional WIOA Training services have a negative net benefit.

The most comprehensive study into the WIA/WIOA training program was funded by DOL and conducted by Mathematica, which administered a large randomized study of the WIA adult and dislocated worker training programs.[6] Mathematica published results after 15 months and after a follow-up period of 30 months (McConnell et al. 2016, Fortson et al. 2017). Individuals who were eligible for intensive services were randomly assigned into one of three treatment groups (Core only, Core and Intensive only, and full WIA, which included training if they were eligible for it as well as Core and Intensive services). Earnings were measured through follow-up surveys at 15 and 30 months after random assignment and with administrative records. The administrative earnings records are from the National Directory of New Hires, which contains data on quarterly earnings and is collected by State unemployment agencies. The administrative data include information on a larger sample of individuals, including individuals who did not respond to the survey. Although the administrative data are not subject to

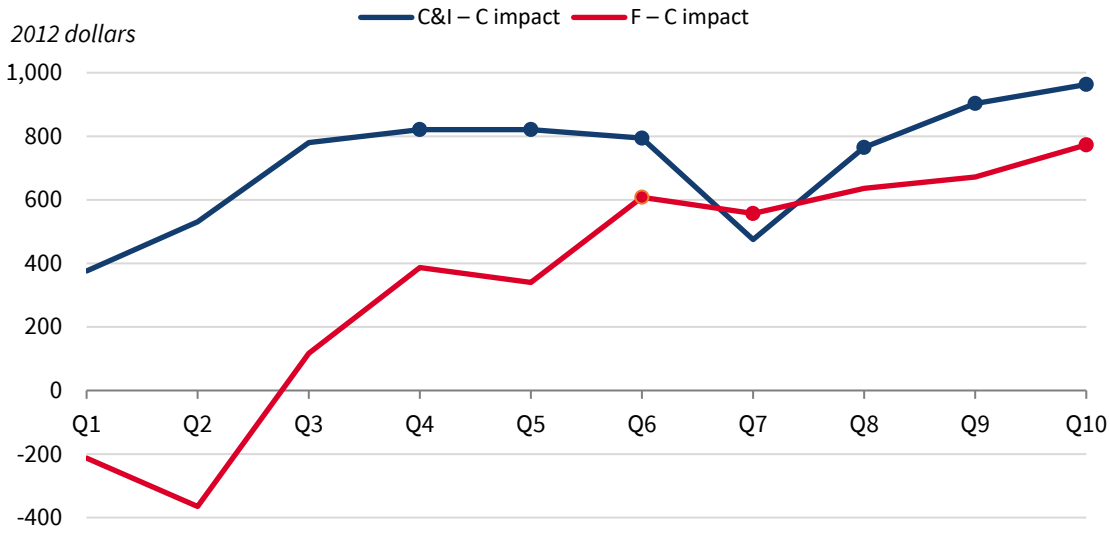
[4] WIA made access to core services available to everyone.

[5] WIOA combined Core and Intensive services into a single tier of service.

[6] The impact study was conducted under WIA, however, the Adult and Displaced worker programs were reauthorized under WIOA with some minor modifications that were implemented after the study period that may impact current effectiveness.

sampling or nonresponse bias, the administrative data do not include self-employment, agricultural work, or under-the-table work.

Figure 3. Survey Data Results from 30-Month WIA Impact Report



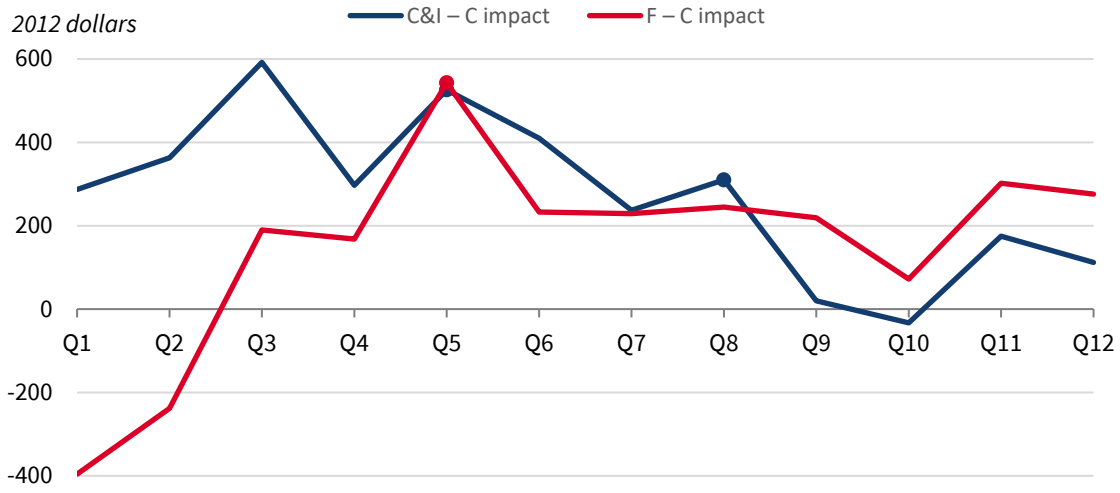
Source: Mathematica Policy Research.
Note: C&I - C = Core and Intensive - Core only. F - C = Full WIA - Core only. Line markers signify statistical significance at the 5 percent level.

Providing some evidence for the value of additional services beyond just the core offerings, the survey based findings on earnings for the Full WIA and the Core and Intensive-only groups were significantly higher than the Core-only group after 30 months. Figure 3 presents the impact by quarter for the Core and Intensive-only compared to the Core-only and the Full WIA compared to the Core only. In the first quarter after random assignment, the Core and Intensive-only earned about $400 more than the Core-only group. These gains persisted and even grew over the remainder of the follow-up period. The Full WIA group saw slightly lower earnings than the Core-only group in the first couple of quarters, due to the lock-in effects of training. By the third quarter following random assignment, the Full WIA had higher earnings than the Core-only group and the earnings gains of the Full WIA group grew over the remainder of the follow-up period. In the tenth quarter after random assignment, compared to the Core-only group, the Core and Intensive group earned $963 more and the full WIA group earned $773 more when measuring earnings with the survey data.

However, using administrative data, these results are less optimistic, as seen in Figure 4. Initially, the pattern is the same as in the survey data. The earnings of the Core and Intensive-only is higher than the Core-only group and the Full WIA has lower earnings than the Core-only group in the first couple of quarters. Towards the end of the follow-up period, the impact estimate of the Core and Intensive-only declines. The earnings difference between the groups

in the tenth quarter after random assignment is not statistically different from zero when using the administrative data.

Figure 4. Adminstative Data Results from 30 Month WIA Impact Report



Source: Mathematica Policy Research.
Note: C&I - C = Core and Intensive - Core only. F - C = Full WIA - Core only. Line markers signify statistical significance at the 5 percent level.

In summary, there was no effect of training (Full WIA) on earnings when combined with Core and Intensive services for either Adult or Dislocated workers for either earnings data source. The cost-benefit analysis using the survey data showed that intensive services had a positive net benefit to society as a whole but that training had a negative net benefit.

Although a randomized trial is preferable for evaluating the effectiveness of job training programs, several studies that used non-random and quasi-random selection have found positive effects of WIA. Andersson et al. (2016) use administrative data to evaluate the impact of WIA training in two States. They find modest positive effects on earnings and employment for adults and no effect for displaced workers. Heinrich et al. (2013) also find a moderate positive effect on employment and earnings for those in the Adult program with a smaller effect for dislocated workers. They find a positive effect of training for those in the Adult program and no effect of training for dislocated workers. They use administrative data for 12 States and a matching strategy that compares program participants to similar nonparticipating individuals. A couple of single State studies also find evidence of a positive impact of WIA on employment and earnings in Indiana (Hollenbeck 2009) and Missouri (Heinrich and Mueser 2014). The positive effect of intensive services is consistent with prior research that finds that mandatory participation in job search assistance programs as a condition for receiving Unemployment Insurance is effective at reducing the length of unemployment (Klepinger et al. 2002, Black et

al. 2003).[7] Decker et al. (2000) find that job search assistance is effective at getting individuals back to work (increases employment in the short run), but that the benefits do not generally persist beyond 1 year.

In addition to the WIA, the Trade Adjustment Assistance (TAA) program provides temporary benefits to workers who are laid off due to foreign trade. Workers in industries facing rising import competition can be displaced and unable to find similar work. Autor, Dorn, and Hanson (2013) estimated that one quarter of the manufacturing jobs lost between 1990 and 2007 were due to rising import competition from China. TAA provides assistance to these workers to allow them to retrain and find a job in a different industry. The training and job search assistance provided by TAA is similar to what is available through WIA, so studies on TAA can offer additional evidence on the effectiveness of government-provided training. Workers displaced due to trade are also eligible for cash assistance while in training, relocation assistance, and a period of wage subsidization if reemployed at a lower wage. Schochet et al. (2012) estimated the effect of TAA using a matching method that compared TAA participants with similar individuals in the Unemployment Insurance claims files. They found that outcomes started to improve over a 4-year period but had generally not yet caught up to the control group due to the long period of training. This suggests that if there are positive effects of training, the returns to training are not large. Hyman (2018 WP) looks at the initial implementation of TAA in the '70s and '80s and finds that TAA is effective at increasing earnings 10 years out. Reynolds and Palatucci (2012) found no impact of TAA on employment on average, but did find some positive effects on employment from participants in the training component.

Overall, the studies on the effectiveness of the WIA Intensive and Training services are in agreement that there is not a significant effect on earnings for training through the WIA Dislocated Worker program, but there are mixed results for the Adult program, which may result in a small positive effect on earnings. However, the positive effects of training in the Adult program are only found in smaller scale, non-random studies. The Intensive services appear to be effective at increasing earnings. In terms of the net benefits, the studies suggest that Intensive services have a positive net benefit and that Training services have a negative net benefit.

One potential reason for the negative net benefit of Training services in the WIA is the approach to administering this training. Training in WIA is primarily conducted through vouchers in Individual Training Accounts (ITA). The voucher-based system provides individuals with a lot of freedom to choose the direction of their training as they can spend the voucher at any qualified training provider. However, if there are large information frictions and information

[7] Black et al (2003) find that the job search assistance services themselves have the effect of reducing unemployment duration but that making participation mandatory produces an even larger effect. This implies that some of those collecting Unemployment Insurance delay returning to work.

asymmetries, individuals may make training decisions that lead to worse long term outcomes (as they lack the information needed to make an informed training choice). Individuals have to select from a list of eligible training providers and have access to some information on provider quality. A 2011 study on ITAs found that training programs that followed a guided choice model (determined more by the counselors but individualized to the customer) and had a higher spending cap were more effective than leaving the training choices up to the individual (Perez-Johnson et al. 2011). A 2012 meta-analysis of voucher training studies found that voucher-based training may have a very small positive effect on employment and earnings (Negoita et al. 2012).

Welfare-to-work programs

There are large employment and training programs associated with some of the welfare programs. Temporary Assistance for Needy Families (TANF) provides block grants to States. The States use some of this money to provide employment and training services in order to assist beneficiaries in returning to work. The Employment Retention and Advancement Project was a randomized study of different strategies for promoting employment stability and advancement. The study included 16 different program models in 8 states. The study launched in 1999 and collected data over a three or four year follow-up period. A limitation of the study is that each of the study sites implemented a different treatment. Therefore, it is difficult to tell whether the effect would be observed in other settings. Hamilton and Scrivener (2012) report the results of this study and find that among the 12 programs targeted at the most employable group, only 3 were able to show increases in employment retention and advancement. The effective strategies included providing conditional financial incentives, using a for-profit provider for assistance with job-to-job transition, and using individualized services from a community-based organization.

Programs for at-risk youth

Job Corps is the largest Federal job training program (by cost) for at-risk youth and young adults (ages 16 to 24). It provides education and job training in a residential setting. DOL conducted a randomized treatment study of Job Corps in the 1990s, finding that Job Corps increased schooling, reduced arrests, and increased earnings (Schochet et al. 2001). However, Schochet et al. (2008) combine the survey data from the initial report with tax data and find that the initial earnings gains did not persist except for the older students (20- to 24-year olds). Later papers estimated that there is a small positive effect after controlling for selection into different lengths of treatment (Flores et al. 2012) and non-compliance (Chen and Flores, 2015). A 20-year follow-up study that uses administrative tax records (Schochet 2018) also found that the earnings gains for the older students (20- to 24-year olds) persisted but did not grow over the longer period. For the full sample there were still no long-run earnings gains. Overall, based

on the outcomes over 20 years, the report concludes that the program's benefits do not outweigh the costs except for the older students.

The WIA Youth program was not included in the Mathematica study of the WIA Adult and Dislocated worker programs. However, there was a randomized study of the Youth program under JTPA, the predecessor to WIA. Bloom et al. (1997) present the results of this study. They find no earnings effect for those in the youth treatment group, and negative net benefits overall for youth.

There are other smaller programs for at-risk youth. YouthBuild is a program that provides educational and vocational training services (primarily in construction) while building or renovating low-income housing in their neighborhood. A 2018 DOL-funded randomized study found that YouthBuild led to improved educational and labor market outcomes (Miller et al. 2018). Similar to the WIA impact study, the labor market gains after 48 months are only seen in the survey data and not in the administrative data. The cost-benefit analysis found that the positive impacts would need to persist long term for the societal benefits to outweigh the costs. YouthBuild has a relatively high cost per participant given the high fixed costs associated with the program and the relatively small number of participants.

Apprenticeships

Apprenticeships are a particular model of on-the-job training where individuals work while learning a particular trade over an extended period of time. The apprenticeship model has the potential to be mutually beneficial to apprentices and firms (Lerman 2014). The firm gains from the work output of the apprentice during the time of training. The worker benefits from not having to pay the cost of training up front (as is the case with traditional 4-year college) and is able to earn a paycheck while participating in training. In the United States, apprenticeship programs are most common in the construction industry. The apprenticeship model is more commonly used in Europe; apprenticeships were not a core focus of Federal job training initiatives until recently. The 2016 President's Budget was the first to include regular funding for grants to promote and expand apprenticeship programs, with DOL setting standards for Registered Apprenticeship programs. To be registered with DOL, the programs must combine on-the-job and classroom training, and last at least a year.

There is some evidence that apprenticeships are effective at increasing earnings potential. A 2012 study of Registered Apprenticeships in 10 States found that they had a large positive effect and a positive net societal benefit (Reed et al. 2012). Individuals who completed their training earned an average of $240,037 more over their lifetime than nonparticipants after controlling for demographic differences at the time of enrollment. The net social benefits were conservatively estimated to be more than $49,000 over the course of the apprentice's career.

The limitation of this study is that it compares those who go through an apprenticeship to individuals who appear similar based on their observable characteristics. Without the benefit of a randomized study, these studies will generally not be able to control for differences in unobserved factors that also affect outcomes. Consequently, this suggests a need for additional research using a randomization approach in order to assess the robustness of these positive findings on the effectiveness of apprenticeships. Also, the existing studies focus on Registered Apprenticeships, and little is known about the effectiveness of other types of apprenticeships.

Tax credits and employment subsidies

As discussed in CEA (2018), employers play a major role in providing worker training. Carnevale et al. (2015) estimated that $1.1 trillion was spent on postsecondary education and worker training in 2013. Of that amount, $177 billion was spent by employers on formal training and an additional $413 billion was spent on informal training, which is a little over half of the total spent on education and training.[8] An alternative to having the government directly train workers is to incentivize private businesses to provide more of it, which can either be in the form of tax credits that cover training expenses or through employment subsidies to encourage firms to hire workers who may require additional training. One challenge in designing these programs is that firms will claim the tax credits for training they would have done anyway or for people they would have hired anyway (Hamersma and Heinrich 2008).

The Work Opportunity Tax Credit (WOTC) is a Federal tax credit for firms that hire someone from a group that has higher barriers to employment such as those with criminal records or on public assistance. Additionally, many States have tax credits to encourage greater employer training. Hamersma (2008) finds some evidence of short-term gains for employer tax credits but no evidence of improved outcomes long term. While tax credits and hiring subsidies are more common in Europe, the evidence of their effectiveness is mixed. Leuven and Oosterbeek (2004) looked at the effect of a Dutch tax credit for training workers over 40. They found that employers just delay the training of workers under 40, and that the tax credit does not increase overall training or wages. Since the benefits of training depend on the number of years remaining before retirement, the benefits will be low for workers near retirement. Some European countries offer tax credits for firms hiring older workers to increase employment opportunities that would not require retraining. Boockmann et al. (2012) found limited effects of hiring subsidies for older workers in Germany.

[8] The employer training estimates project forward the costs estimated from the last comprehensive survey on employer training programs in 1995. Given the lack of data since the 1995 survey, these amounts should be interpreted with some caution.

Effectiveness of employer-provided training

Evaluating the effectiveness of private sector training can help to inform whether government money is more effectively spent by providing training directly or by incentivizing the private sector to provide the training. The returns to employer-provided training have been studied extensively by economists. Similar to evaluating government training programs, those who are selected for, or who choose, training differ in unobserved ways from those who do not, and these differences, and not the training, could cause a difference in the observed outcome. Unlike government employment and training programs, non-random methods of causal inference have been more successfully applied to studying the returns to employer-provided training, as there is variability both across firms and within firms over time that can be exploited in order to estimate a causal effect. The estimates of the effectiveness of employer-provided training will differ depending on whether the outcome variable is productivity (output) or wages and the type of training being considered. If the employer is providing training for specific human capital, we would expect productivity to rise and wages not to rise. For general training, we would expect both productivity and wages to rise, although wages may not rise by as much as productivity.

The wage and productivity returns to employer-provided training have been studied in a wide variety of contexts and countries. Studies consistently, but not unanimously, show positive and significant effects of employer-provided training. The magnitude of the effects varies widely across studies from no significant effect (Goux and Maurin, 2000; Leuvan and Oosterbeek, 2008) to very large positive effects. For example, Frazis and Loewenstein (2005) find that 60 hours of formal training is associated with a wage increase of 3-4 percent and an annualized rate of return on investment of as much as 50 percent once direct costs of training are taken into account. Almeida and Carneiro (2009) find that a 10-hour increase in training is associated with an increase in productivity of between 0.6 and 1.3 percent. Konings and Vanormelingen (2015) find that a 10 percentage point increase in the share of trained workers in a firm increases productivity by 1.7-3.2 percent and wages by 1.0-1.7 percent. De Grip and Sauermann (2012) conduct a field experiment by providing a training program to a random group of workers in a firm. They find that the training program causes a 10 percent increase in performance, and that there are spillover effects on workers who did not receive the treatment.

Direct comparison between the results of employer-provided and government training programs requires some caution. The individuals in government training programs differ greatly from individuals who are employed and who either choose to participate in training or are selected by the employer for training. Government-provided training seeks to provide training that is socially beneficial, but is not optimal for employers to provide given the incentives they face. The relevant question is whether employer-provided training would be more effective (or would lead to a similar effectiveness at a lower cost) for those currently

participating in government training programs if the government could design incentives to get employers to train those individuals.

Other programs

There are a number of other smaller programs that tend to be targeted to specific populations that have historically been disadvantaged in the labor market. These include programs for Native Americans, people with disabilities, veterans, refugees, active duty military transitioning to civilian employment, and institutionalized individuals reentering society. The effectiveness of these programs has not been widely studied by outside researchers or within government.

One exception is a 2016 DOL-commissioned study of the Reintegration of Ex-Offenders (RExO) program (Wiegand and Sussell 2016). RExO provides a variety of services to prisoners reentering society. These include mentoring, job training, job search assistance, case management, and supportive services. The evaluation study randomly assigned individuals to RExO. The study found no evidence of positive impact of RExO on either recidivism or on labor market outcomes.

International evidence

Card et al. (2015) conduct a meta-analysis of more than 200 studies in a cross-country context that evaluate the effectiveness of active labor market policies. The majority of the included estimates of program effectiveness are for employment and training programs in European countries. The studies show that the programs significantly increase the probability of employment and that the effects become stronger over time. Job search assistance programs are more effective at increasing employment in the short term, but training programs are more effective at increasing employment longer term. The only type of program that showed no evidence of effectiveness is public sector employment programs, and they may even have a negative effect. Employment and training programs also appear to have a larger effect during recessions. Another meta-analysis from a larger set of studies generally finds similar results, but does not find significant long-term employment gains for training programs (Vooren, et al. 2019).

The international evidence agrees with studies for the United States that find that job search assistance is effective at getting workers into jobs more quickly and shortening the length of unemployment. Even if training programs were more effective in other countries, the United

States spends a much smaller share of its GDP on government employment and training programs than many other OECD countries. The average OECD country spent 0.54 percent of GDP on active labor market programs in 2016. The United States spent 0.11 percent of GDP on active labor market policies (2016).[9] To achieve the OECD average of spending on employment and training programs as a share of GDP, the United States would have had to spend an additional $80.44 billion in 2016. However, even if this additional spending improved outcomes, it would take a large improvement for the benefits to outweigh the higher costs.[10]

Summary of research findings

There is mixed evidence on the effectiveness of current government employment and training programs. Table 3 in the Appendix summarizes the research on the effectiveness of the various programs discussed in this report. Although the research on these programs is not conclusive, and many of the programs have not been rigorously studied, many studies find small employment and earnings effects. Additionally, many studies find no effect or only an effect for a specific subgroup or in certain macroeconomic conditions. Job search assistance programs appear to be the most successful, while job training programs (with the exception of apprenticeships) appear to be largely ineffective. It is an open question whether the cumulative benefits of these various programs are sufficient to justify their costs. More could be done to divert resources to programs that have shown effectiveness, and away from programs that are ineffective or are not sufficiently effective given their costs. Many of the programs were designed to alleviate general cyclical disruptions in the labor market or specific structural problems (e.g., an industry disrupted by trade). It is not clear whether they are able to address the general structural changes in the labor market that have resulted from the increase in automation and the adoption of new technologies (such as A.I.). The OECD (2019) estimates that 10.2 percent of jobs in the United States are at high risk of automation (greater than a 70 percent chance of being automated). An additional 27 percent of jobs are at risk of significant change due to automation. In CEA (2019), we argue that these new technologies are likely to be complementary to human labor and that the total number of jobs should not decrease due to A.I. However, the types of tasks and jobs and the skills needed to perform them will be different and a potentially large number of people will need to be reskilled.

[9] All active labor market programs is a broader category than the training program spending reported in Figure 2, which accounted for approximately 0.092% of GDP in 2016.

[10] In the absence of large public investments, the private sector has taken a leading role in worker training in the U.S. Increasing public spending on employment and training programs will likely replace some training that would have otherwise occurred, causing the total increase in training to rise by less than the increase in publicly funded training.

Trump Administration Initiatives and Proposals

The Trump Administration has a number of initiatives and proposals to address the issue of worker training programs. The initiatives include increasing government and private sector coordination in addressing the skills gap, increasing the use of apprenticeships, expanding alternatives to 4-year colleges, and reorganizing and consolidating the various government employment and training programs.

In June 2017, President Trump signed an executive order to expand the use of apprenticeships.[11] As discussed earlier, there is some evidence supporting the effectiveness of apprenticeships as a model for worker training. Existing studies suggest that apprenticeships can improve employment outcomes, although there have not been any randomized studies. The executive order established a task force to develop strategies to expand the use of apprentices, which included representatives from government, labor, and business.

The apprenticeship task force issued a report in May 2018 with a number of recommendations for expanding apprenticeships. The report identified a number of ways that the government can help with expanding these programs, such as pursuing strategies that lower the cost of technical education, eliminate duplicative training programs and curriculum, and streamline industry interaction with the government. The government can also play a role in increasing transparency and reducing information frictions by publishing data about sectors with skills shortages as well as long-run outcome data for apprentices and training programs. As part of the Administration's apprenticeship expansion initiative, the Department of Labor is now working to stand up a new Industry Recognized Apprenticeship Program, which will offer a less bureaucratic avenue for industry to stand up new programs.

Another initiative of the Administration is to support alternatives to-4 year colleges. Many professions require workers with more than a high school degree, but less than a 4-year college degree (or more specialized training than what one would get at a 4-year college program). The Administration is proposing to expand Pell Grant eligibility to include shorter-term certificate training programs.[12] The Administration also issued an executive order that will provide students with program-level outcome data, which will allow students to make more informed decisions when making their career choices.[13]

As a part of the overall government reorganization package, the Administration proposed streamlining the Federal employment and training program layout by consolidating programs

[11] https://www.whitehouse.gov/presidential-actions/3245/
[12] https://www.whitehouse.gov/wp-content/uploads/2019/03/HEA-Principles.pdf
[13] https://www.whitehouse.gov/briefings-statements/president-donald-j-trump-is-improving-transparency-and-promoting-free-speech-in-higher-education/

and reducing the number of agencies involved in their administration (OMB 2018). The GAO recommended consolidating programs in their 2011 report to reduce program overlap and to remove duplicative administrative procedures. The proposal merges ED and DOL into a single agency that would be tasked with ensuring that American workers develop the skills necessary to succeed in the workplace. Many of the employment and training programs would be merged. The WIOA Adult and Dislocated Worker programs, the Employment Service, and Jobs for Veterans State grants would be merged into a single funding stream for Adult Workforce Development. The three programs targeting Native Americans would be replaced with a set-aside from this new program. Overall, the number of separate employment and training programs would go from more than 40 to 16 under the proposal. Removing redundant administrative structures would allow more program funding to be spent on the core mission of training workers.

Another strategy of the Administration is to better coordinate government efforts with training initiatives and the skills needs of the private sector. In July 2018, President Trump signed an executive order that established the National Council for the American Worker, which is composed of leaders across the executive branch who will work to develop a plan to address the skills gap.[14] The goal of the Council is to develop a national workforce strategy to close the skills gap. The executive order also established the American Workforce Policy Advisory Board which includes representatives from State governments, the private sector, and educational institutions. The Board is tasked with advising the Council for the American Worker on steps that can incentivize private employers' and educational institutions' efforts to address the skills gap.

Conclusion

Technology and automation will continue to restructure jobs and the nature of employment in the coming years. The challenge for businesses and the government is how to transition from the skills of the present workforce to those that will be needed in the future, while also providing opportunities for those on the sidelines to gain the skills needed to reenter the workforce. While the government offers a wide range of employment and training programs, the findings on their effectiveness is mixed, and additional research is needed to identify the characteristics that contribute to the success of the most effective programs in order to ensure that workers are fully benefiting from this spending. Job search assistance programs appear to be the most successful, but they only seek to get individuals back to work quickly rather than provide them with new skills and training. Government job training programs (with the exception of apprenticeships) appear to be largely ineffective. Improvements in government

[14] https://www.federalregister.gov/documents/2018/07/24/2018-15955/establishing-the-presidents-national-council-for-the-american-worker

workforce and training programs are needed in order to effectively reskill dislocated workers as well as to provide opportunities for those currently employed to gain additional skills to prevent them from becoming dislocated as technological change occurs.

References

Acemoglu, D., J. Pischke. 1998. "Why Do Firms Train? Theory and Evidence." Quarterly Journal of Economics 113 (1). 79-119.

Almeida, R. and P. Carneiro. 2009. "The Return to Firm Investments in Human Capital." Labour Economics 16 (1). 97-106.

Andersson, F., H. Holzer, J. Lane, D. Rosenblum, and J. Smith. 2016. "Does Federally-Funded Job Training Work? Nonexperimental Estimates of WIA Training Impacts Using Longitudinal Data on Workers and Firms." CESifo Working Paper No. 6071.

Autor, D., D. Dorn, and G. Hanson. 2013. "The China Syndrome: Local Labor Market Effects of Import Competition in the United State.," American Economic Review 103 (6). 2121-2168.

Barnow, B, and J. Smith. 2015. "Employment and Training Programs." NBER Working Paper No. 21659. http://www.nber.org/papers/w21659

Black, D., J. Smith, M. Berger, and B. Noel. 2003. "Is the Threat of Reemployment Services More Effective than the Services Themselves? Evidence from Random Assignment in the UI System." *American Economic Review* 93 (4). 1313-1327.

Bloom, H., L. Orr, S. Bell, G. Cave, F. Doolittle, W. Lin., and J. Bos. 1997. "The Benefits and Costs of JTPA Title II-A Programs: Key Findings from the National Job Training Partnership Act Study." *The Journal of Human Resources* 32, no. 3 (1997): 549-576.

Boockmann, B., A. Ammermuller, T. Zwick, and M. Maier. 2012. "Do Hiring Subsidies Reduce Unemployment Among Older Workers? Evidence from Natural Experiments." *Journal of the European Economic Association* 10 (4). 735-764.

Card, D., J. Kluve, and A. Weber. 2015. "What Works? A Meta-Analysis of Recent Active Labor Market Program Evaluations." NBER Working Paper No. 21431.

Carnevale, A.P., J. Strohl, A. Gulish. 2015. "College is Just the Beginning: Employers' Role in the $1.1 Trillion Postsecondary Education and Training System." *Center on Education and the Workforce.* https://files.eric.ed.gov/fulltext/ED558166.pdf.

CEA (Council of Economic Advisors). 2018. "Addressing America's Reskilling Challenge."

––—2019. “The Economic Report of the President.”

Chen, X., and C. A. Flores. 2015. “Bounds on Treatment Effects in the Presence of Sample Selection and Noncompliance: the Wage Effects of Job Corps.” *Journal of Business and Economic Statistics* 33.

De Grip, A. and J. Sauermann. 2012. “The Effects of Training on Own and Co-worker Productivity: Evidence from a Field Experiment.” *Economic Journal* 122 (560). 376-399.

Decker, P., R. Olsen, L. Freeman, and D. Klepinger. 2000. “Assisting Unemployment Insurance Claimants: The Long-Term Impacts of the Job Search Assistance Demonstration.” *Mathematica Policy Research.*

Dietz, D., and T. Zwick. 2016. “The Retention Effect of Training – Portability, Visibility, and Credibility.” Center for European Economic Research. Discussion Paper No. 16-011.

DOL (Department of Labor) Office of Inspector General. 2018. “Job Corps could not Demonstrate Beneficial Job Training Outcomes.” no. 04-18-001-03-370. https://www.oig.dol.gov/public/reports/oa/04-18-001-03-370.pdf

Flaherty, C. 2007. “The Effect of Employer-Provided General Training on Turnover: Examination of Tuition Reimbursement Programs.” Stanford Institute for Economic Policy Research (SIEPR), Discussion Paper No. 06-25.

Flores, C., A. F. Lagunes, A. Gonzalez, and T. Neuman. 2012. “Estimating the Effects of Length of Exposure to Instruction in a Training Program: The case of Job Corps.” *Review of Economics and Statistics* 94 (1). 153-171.

Fortson, K., D. Rotz, P. Burkander, A. Mastri, P. Schochet et al. 2017. “Providing Public Workforce Services to Job Seekers: 30-month Impact Findings on the WIA Adult and Dislocated Worker Programs.” *Mathematica Policy Research.*

Frazis, H. and M. Loewenstein. 2005. “Reexamining the Returns to Training: Functional Form, Magnitude, and Interpretation.” *Journal of Human Resources* 40 (2). 453-476.

GAO (Government Accountability Office). 2011. “Multiple Employment and Training Programs: Providing Information on Colocating Services and Consolidating Administrative Structures Could Promote Efficiencies.” GAO-11-92. https://www.gao.gov/assets/320/314551.pdf

––—2019. “Employment and Training Programs: Department of Labor Should Assess Efforts to Coordinate Services Across Programs.” GAO-19-200. https://www.gao.gov/assets/700/698080.pdf

Goux, D. and E. Maurin. 2000. "Returns to Firm-Provided Training: Evidence from French Worker-Firm Matched Data." *Labour Economics* 7. 1-19.

Hamersma, S. 2008. "The Effects of an Employer Subsisdy on Employment Outcomes: A Study of the Work Opportunity and Welfare-to-Work Tax Credits." *Journal of Policy Analysis and Management* 27 (3). 498-520.

Hamersma, S., and C. Heinrich. 2008. "Temporary Help Service Firms' Use of Employer Tax Credits: Implications for Disadvantaged Workers' Labor Market Outcomes." *Southern Economic Journal* 1123-1148.

Hamilton, G., and S. Scrivener. 2012. "Increasing Employment Stability and Earnings for Low-Wage Wage Workers: Lessons from the Employment Retention and Advancement (ERA) Project." MDRC.

Heinrich, C., and P. Mueser. 2014. "Training Program Impacts and the Onset of the Great Recession." Unpublished manuscript, University of Missouri.

Heinrich, C., P. Mueser, K. Troske, K. Jeon, and D. Kahvecioglu. 2013. "Do Public Employment and Training Programs Work?" *IZA Journal of Labor Economics* 2:6.

Hollenbeck, K. 2009. "Return on Investment Analysis of a Selected Set of Workforce System Programs in Indiana." Report submitted to the Indiana Chamber of Commerce Foundation, Indianapolis, Indiana. http://research.upjohn.org/reports/15.

Hyman, B. 2018. "Can Displaced Workers be Retrained? Evidence from Quasi-Random Assignment to Trade Adjustment Assistance." Unpublished Manuscript.

Klepinger, D., T. Johnson, and J. Joesch. 2002. "Effects of Unemployment Insurance Work-Search Requirements: The Maryland Experiment." *ILR Review* 56 (1). 3-22.

Konings, J. and S. Vanormelingen. 2015. "The Impact of Training on Productivity and Wages: Firm-Level Evidence." *Review of Economics and Statistics* 97 (2). 485-497.

LaLonde, R. 1986. "Evaluating the Econometric Evaluations of Training Programs with Experimental Data." *American Economic Review* 76 (4). 604-620.

Lerman, R. 2014. "Do Firms Benefit from Apprenticeship Investments?" IZA World of Labor. https://wol.iza.org/articles/do-firms-benefit-from-apprenticeship-investments/long.

Leuven, E., and H. Oosterbeek. 2004. "Evaluating the Effect of Tax Deductions on Training." *Journal of Labor Economics* 22 (2). 461-488.

––—2008. “An Alternative Approach to Estimating the Wage Returns to Private-Sector Training.” *Journal of Applied Econometrics* 23. 423-434.

Lochner, L. and A. Monge-Naranjo. 2011. “The Nature of Credit Constraints and Human Capital.” *American Economic Review* 101 (10). 2487-2529.

McConnell, S., K. Fortson, D. Rotz, P. Schochet, P. Burkander et al. 2016. “Providing Public Workforce Services to Job Seekers: 15-month Impact Findings on the WIA Adult and Dislocated Worker Programs.” *Mathematica Policy Research*.

Miller, C., D. Cummings, M. Millenky, A. Wiegand, and D. Long. 2018. “Laying a Foundation: Four-Year Results from the National YouthBuild Evaluation.” MDRC.

Negoita, M., J. Salzman, and A. Wiegand. 2012. “Meta-Analysis of Voucher-Based Employment and Training Programs.” *Social Policy Research Associates*.

OECD (Organisation for Economic Co-operation and Development). 2019. *OECD Employment Outlook 2019: The Future of Work.* https://doi.org/10.1787/9ee00155-en.

OMB (Office of Management and Budget). 2018. “Delivering Government Solutions in the 21st Century: Reform Plan and Reorganization Recommendations. https://www.whitehouse.gov/wp-content/uploads/2018/06/Government-Reform-and-Reorg-Plan.pdf

Perez-Johnson, I., Q. Moore, and R. Santillano. 2011. “Improving the Effectiveness of Individual Training Accounts: Long-Term Findings from an experimental Evaluation of Three Service Delivery Models.” *Mathematica Policy Research*.

Reed, D., A. Yung-Hsu Liu, R. Kleinman, A. Mastri, D. Reed, S. Sattar, and J. Ziegler. 2012. “An Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States.” *Mathematica Policy Research*.

Reynolds, K., and J. Palatucci. 2012. “Does Trade Adjustment Assistance Make a Difference?” *Contemporary Economic Policy* 30, no. 1: 43–59.

Schochet, P. 2018. “National Job Corps Study: 20-Year Follow-Up Study Using Tax Data.” *Mathematica Policy Research.*

Schochet, P., J. Burghardt, and S. McConnell. 2008. “Does Job Corps Work? Impact Findings from the National Job Corp Study.” *Econometrica*.

Schochet, P., R. D'Amico, J. Berk, S. Dolfin, and N. Wozny. 2012. "Estimated Impacts for Participants in the Trade Adjustment Assistance (TAA) Program Under the 2002 Amendments." *Mathematica Policy Research*.

Schochet, P., J. Burghardt, and S. Glazerman. 2001. "National Job Corps Study: The Impact of Job Corps on Participants' Employment and Related Outcomes." *Mathematica Policy Research*.

Vooren, M., C. Haelermans, W. Groot, and H. M. van den Brink. 2019. "The Effectiveness of Active Labor Market Policies: A Meta-Analysis." *Journal of Economic Surveys* 33 (1). 125-129.

Wiegand, A., and S. Sussell. 2016. "Evaluation of the Re-Integration of Ex-Offenders (RExO) Program: Final Impact Report." Social Policy Research Associates.

Yousuf, S., and D. Siddqui. 2019. "Factors Influencing Employee Retention: A Karachi Based Comparative Study on IT and Banking Industry." *International Journal of Human Resource Studies* 9, no 1: 42-62.

Appendix

Table 3. Government Employment and Training Programs Overview

Program	Agency	2017 Budget (Millions)	Number Served 2017 (Thousands)	Decription	Evaluation Outcome	Note
State Vocational Rehabilitation Services Program	Education	2,899.6	975.4	This program helps individuals disabilities to prepare for, obtain, maintain, or regain employment.	*	
Temporary Assistance for Needy Families	Health and Human Services	2,152.6	190.1	This program provides grant funds to states and territories to help provide financial support and other services to families. Other services include childcare assistance, job preparation, and work assistance.	Hamilton and Scrivener (2012) evaluate 12 variations of of the TANF employment program targeted at the most employable group. They found that only 3 were able to show increases in employment retention and advancement.	
Job Corps	Labor	1,623.9	48.3	This program offers job training and residential educational services for youth and young adults (ages 16 to 24).	Schochet, et al (2001) found that Job Corps initially increased schooling, reduced arrests, and increased earnings. Schochet, et al (2008) find that the initial earnings gains did not persist except for the older students (20- to 24-year olds). Flores et al (2012) and Chen and Flores, 2015) estimated a small positive effect after controlling for selection into different lengths of treatment. Schochet (2018) found that the earnings gains for the older students (20- to 24-year olds) persisted but did not grow over the longer period. For the full sample there were still no long-run earnings gains. Overall, based on the outcomes over 20 years, the report concludes that the program's benefits do not outweigh the costs but is cost effective for the older students and from the perspective of the participants.	DOL (2018) found that an accurate evaluation of this program would be difficult due to poor record keeping.
Vocational Rehabilitation Services and Employment Program	VA	1,400.0	132.2	This program offers a wide range of services to veterans. These include job training, skills coaching, and resume writing.	*	
WIOA Adult and Dislocated Worker Programs	Labor	1,017.2 for Dislocated Worker Program 812.8 for Adult Worker Program	467.5 for Dislocated Worker Program 1,108.2 for Adult Worker Program	The WIOA Adult and WIOA Dislocated Worker programs provide the same services but have different eligibility requirements. The WIOA Adult services prioritizes low income adults. The Dislocated Worker services are available to those who are laid off due to a plant closure or downsizing, workers who were laid off and unlikely to find a job in their previous occupation, and some other groups of dislocated workers. Both offer job search assistance programs and are designed to help match workers to available jobs given their current skills, and can also pay for job training programs.	No significant effect on earnings from training for dislocated workers in any of the studies. Forston, et al (2017) find that earnings for the Full WIA and the Core and Intensive-only groups were significantly higher than the Core-only group after 30 months. Using administrative data, the difference in earnings of the Core and Intensive-only the Full WIA is not as large after 30 months.There was no effect of training (Full WIA) on earnings when combined with Core and Intensive services for either Adult or Dislocated workers for either earnings data source. The cost-benefit analysis using the survey data found that intensive services had positive net benefit to society as a whole but that training had negative net benefit. Andersson, et al (2016) find modest positive effects on earnings and employment for adults, but no effect dor displaced workers. Heinrich, et al (2013) find a moderate positive effect on employment and earnings for those in the Adult program with a smaller effect for dislocated workers. They find a positive effect of training for those in the Adult program and no effect of training for dislocated workers. Hollenbeck (2009) finds evidence of a positive impact of WIA on employment and earnings in the one state studied (Indiana).	These evaluations assess WIA, which was replaced by WIOA.

Table 3 (continued). Government Employment and Training Programs Overview

Program	Agency	2017 Budget (Millions)	Number Served 2017 (Thousands)	Decription	Evaluation Outcome	Note
WIOA Youth Program	Labor	867.2	150.4	This program assists both in-school and out-of-school youth with barriers to emoployment, helping them attain additional education and training and helping them prepare for employment. Services include tutoring, paid and unpaid work experience, on-the-job training, and mentoring.	Bloom, et al (1997) find no earnings effect for those in the youth treatment group, and negative net benefits overall for youth.	This evaluation assesses the Youth program under JPTA, the predecessor to WIA (and WIOA).
Wagner-Peyser Act Employment Service	Labor	666.2	5414.8	This program establishes a nationwide system of public employment offices known as Employment Service centers.	*	
Senior Community Service Employment Program	Labor	561.2	60.0	This program offers part-time employment opportunities for low-income persons aged 55+. Employment opportunities including work at community and government agencies. Participants can also receive training services.	*	
Trade Adjustment Assistance program	Labor	391.4	43.6	This program provides assistance to workers who lose their jobs or whose hours of work and wages as a result of international trade. In addition to providing employment and training services, individuals may also be eligible for income support, relocation expenses, and job search allowances.	Findings from Schochet, et al (2012) suggests that if there are positive effects of training, the returns to training are not large. Hyman (2018 WP) finds that TAA is effective at increasing earnings 10 years out. Reynolds and Palatucci (2012) found no impact of TAA on employment on average, but did find some positive effects on employment from participants in the training component.	
Youthbuild	Labor	157.7	6.9	This program provides educational and vocational training services (primarily in construction) while building or renovating low-income housing in their neighborhood.	Miller, et al (2018) found that the program led to improved educational and labor market outcomes, though the labor market gains after 48 months are only seen in the survey data and not in the administrative data. The cost-benefit analysis found that the positive impacts would need to persist long term for the societal benefits to outweigh the costs.	
Reintegration of Ex-Offenders Program	Labor	78.3	12.8	This program helps provide training and employment services for court-involved youth and adults, as well as ex-offender adults.	Wiegand and Sussell (2016) find no evidence of positive impact of RExO on either recidivism or on labor market outcomes.	

Sources: GAO (2019); Youth.gov; Department of Labor; Workforce GPS; Department of Veteran Affairs; Benefits.gov; Job Corps.
Note: * signifies that CEA has not reviewed evaluations for these programs. The total served for some programs reflects 2016 if 2017 data are unavailable.

ABOUT THE COUNCIL OF ECONOMIC ADVISERS

The Council of Economic Advisers, an agency within the Executive Office of the President, is charged with offering the President objective economic advice on the formulation of both domestic and international economic policy. The Council bases its recommendations and analysis on economic research and empirical evidence, using the best data available to support the President in setting our nation's economic policy.

www.whitehouse.gov/cea

June 2019