

What strategies for creating jobs and increasing employment implemented in response to the Great Recession could potentially support employment during and after the COVID-19 pandemic?

The COVID-19 pandemic led to a sharp decline in economic activity, with unemployment rates more than tripling, from 3.5 to 14.6 percent, over the course of two months (U.S. Bureau of Labor Statistics, 2020), and the United States economy entering a recession in March 2020 (National Bureau of Economic Research Business Cycle Dating Committee, 2020). The Clearinghouse for Labor Evaluation and Research (CLEAR)² conducted this rapid evidence review to summarize the literature on interventions that appeared to improve labor market outcomes during the Great Recession of 2007 to 2009, and that potentially could be used to similarly improve employment during the pandemic-related economic downturn and subsequent recovery. Policy impacts could differ during deep and mild recessions, and the Great Recession was characterized by unemployment rates of up to 10 percent and a long recovery period during which unemployment remained high (Nicholson et al., 2014). Therefore, this review emphasizes results from studies of policies and programs implemented during this previous sharp economic contraction. However, it is important to note that the context of the Great Recession is different from that of the COVID-19 public health crisis that began in the United States in 2020. Thus, care should be used in applying the findings highlighted in this review to the COVID-19 context.

To the extent feasible, this review focuses on programs and strategies implemented in the United States during the Great Recession and its recovery period. However, it also draws on relevant evidence from other periods and countries.

CLEAR identified two types of strategies implemented in direct response to the Great Recession:

1. Infrastructure investments and fiscal stimulus
2. Unemployment compensation and reemployment programs

In addition, CLEAR identified three promising strategies to support workers in obtaining meaningful employment across economic recessions and expansions:

3. Transitional, subsidized employment
4. Career pathways and apprenticeship
5. Self-employment and entrepreneurship

This brief provides an in-depth summary of research on the first two strategies and a brief overview of research on the final three strategies, highlighting both what is known about these

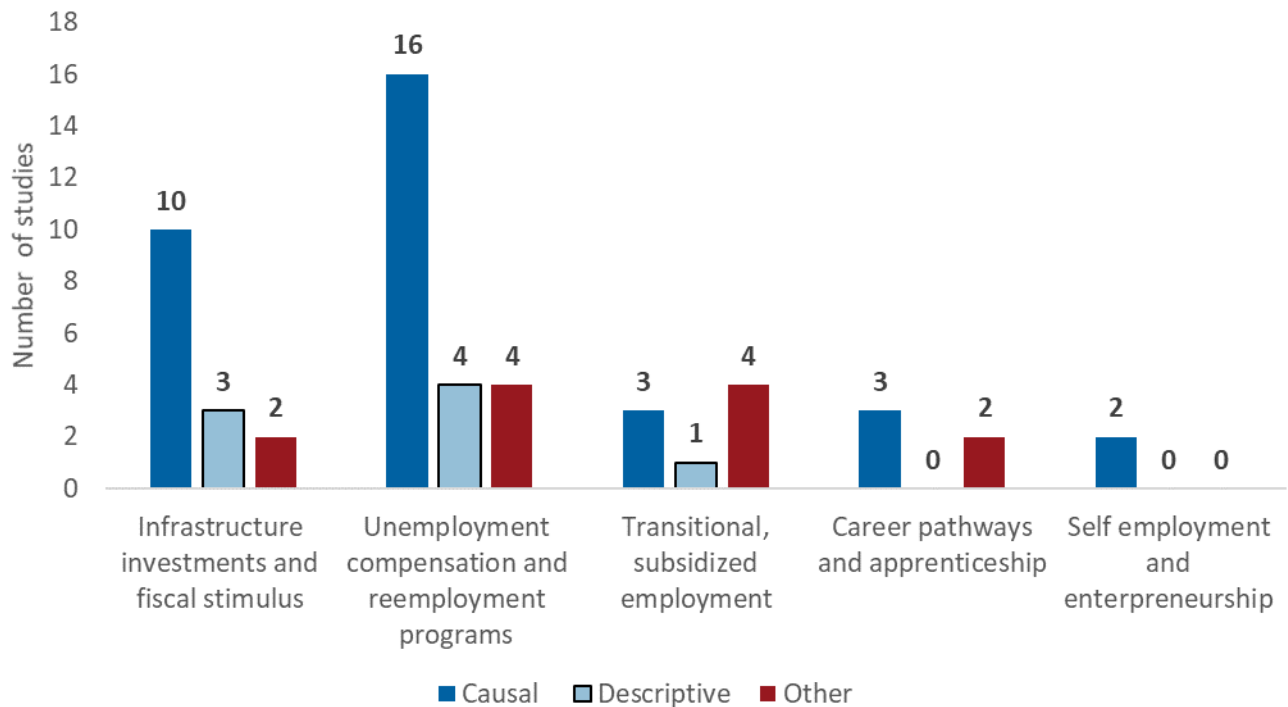
¹ This version includes literature published between January 1, 2007, and December 31, 2020. CLEAR continues to search for relevant literature and may update this synthesis as new research emerges.

² CLEAR is the U.S. Department of Labor's Clearinghouse for Labor Evaluation and Research. Its mission is to make research on labor topics more accessible to practitioners, policymakers, researchers, and the public to support evidence-informed decision making. CLEAR does this by conducting systematic evidence reviews, summarizing individual studies of programs, and synthesizing research across individual evidence bases. To date, CLEAR has summarized more than 1,000 studies.

strategies and gaps in the evidence. More information and details on specific studies of the final three strategies is provided in CLEAR’s rapid evidence review on emergency return-to-work strategies in response to COVID-19.³

The evidence presented here is based on CLEAR’s rapid review of 51 publications (see Figure 1), many of which summarize the findings from multiple studies. The review included causal studies, descriptive studies, and other relevant research.⁴ A supplement to this rapid evidence review synthesis provides citations with links to the included publications, further information about study findings, and details about how CLEAR conducted this rapid review.

Figure 1. Types of studies by topic



³ Available at https://clear.dol.gov/sites/default/files/documents/files/RapidEvidenceReviewReturnWork_0.pdf.

⁴ Some studies were of multiple types, so the total number of studies shown in Figure 1 exceeds 51.

1. Infrastructure investments and fiscal stimulus

► **Fiscal relief and fiscal stimulus packages can have positive impacts on employment.**

Federal spending in the form of direct purchases of goods and services, as well as transfers to state and local governments, employers, and individuals, can create jobs by increasing demand for products and services. Several studies (Chodorow-Reich et al., 2012; Conley & Dupor, 2013; Feyrer & Sacerdote, 2011; Wilson, 2012) used differences in ARRA stimulus payments across states to estimate the relationship between ARRA funds and employment. This research provides evidence that ARRA increased employment in both the public and private sectors. A review of these and other studies (Chodorow-Reich, 2019) further suggests that every \$100,000 of ARRA funding increased employment by 0.8 to 3.8 “job-years” (defined as one full-time job for one year). Put another way, the authors suggest that ARRA created one job-year for every \$25,000 to \$125,000 of funding, with the authors’ most preferred estimate being one job-year created per \$50,000 of funding. Studies on stimulus in other countries showed similar or stronger results. For example, one study found that about \$100,000 of German stimulus funding was associated with the creation of 3.4 job-years (Buchheim & Watzinger, 2017).

► **Infrastructure investments can have direct, indirect, and induced employment-promoting effects.** A mix of quasi-experimental and descriptive studies provide suggestive evidence on how ARRA-funded infrastructure investments influenced employment over several years following the Act. The Council of Economic Advisors (CEA) prospectively estimated that every \$92,000 of infrastructure investment under ARRA would increase employment by one job-year (CEA, 2009). (This is consistent with retrospective findings summarized in Chodorow-Reich 2019.) Of these projected job-years, 64 percent were expected to be from the direct effect of the funded infrastructure projects on employment and the indirect effect on employment in firms that provide materials, equipment, and services for those projects. The remaining 36 percent of jobs were attributed to increased spending that occurred as a result of the direct and indirect effects on employment. Applying these estimates to the \$48.1 billion allocated to the Department of Transportation for infrastructure investments as part of ARRA implies these

Fiscal relief refers to aid the federal government gives to state and local governments.

Fiscal stimulus refers to increases in government spending, or decreases in taxes, designed to bolster demand for goods and services in the economy.

Fiscal relief and fiscal stimulus can boost employment if people respond to government actions by increasing spending. Effects will be muted if people instead use the extra money to reduce debt or increase savings (or, for fiscal relief, if state and local governments do not use additional funds to increase spending or reduce taxes).

The **American Recovery and Reinvestment Act of 2009** (ARRA) was a major stimulus package developed in response to the Great Recession.

Infrastructure investments are a specific type of fiscal stimulus in which the government boosts spending by developing infrastructure (for example, building roads).

Government spending can affect employment in a variety of ways. Employment can increase at the firms from which the government purchases goods and services (the direct effect) and the firms from which those firms purchase goods and services (the indirect effect). In addition, these direct and indirect increases in employment can lead to increases in consumer spending, which can increase employment further (the induced effect).

investments directly and indirectly created about 335,000 job-years and induced a further increase of 188,000 job-years. In addition, Garin (2019) found that every dollar of ARRA construction funding increased construction payroll by 30 cents over five years, further suggesting the funding created jobs.

► **Fiscal relief and fiscal stimulus packages can stabilize economies.** Evidence from quasi-experimental studies further suggests that fiscal relief and fiscal stimulus packages can help to stabilize budgets and dampen economic downturns. A number of quasi-experimental studies (Chodorow-Reich et al., 2012; Chodorow-Reich, 2019; Klein & Staal, 2017; Staal, 2020) suggest that the fiscal relief provided through ARRA had a statistically significant and economically substantial, positive impact on overall economic activity. For example, Chodorow-Reich (2019) estimated that every \$1,000 of ARRA funding increased overall economic output by \$1,700 to \$2,000 over the course of several years. Other estimates are somewhat smaller but still suggest that every \$1,000 of ARRA spending improved economic output by at least \$600 (see Ramey [2019] for a review).

► **Some evidence suggests that the impacts of ARRA on job creation might not have been as large as expected.** These insights come from both causal and descriptive studies, including interviews with firms that received stimulus funding. Some estimates suggest that job creation was substantial in the public sector but more limited in the private sector. For example, in a causal study, Conley and Dupor (2013) estimated that ARRA increased state and local public sector employment by 369,000 jobs over the course of two years; however, the estimated effect on private-sector employment over the same period was not statistically significant. The authors also suggest that states may have used some ARRA funding to cover the spending the states would have made in the absence of ARRA, leading to smaller employment gains than those predicted by the CEA (2009). Another causal study by Cogan and Taylor (2012) further provides evidence that the impact of ARRA might have been lower than anticipated because states used some ARRA funds to reduce borrowing, rather than increase spending. Results from a survey conducted by Jones and Rothschild (2011) also suggest that the impact of stimulus on employment might be lower than was expected because, particularly for more skill-intensive jobs, the stimulus dollars led employers to hire individuals who already had jobs at other firms, rather than unemployed workers.

Researchers are also divided on whether the quasi-experimental methods used in many studies, which leverage state-by-state variation in stimulus funding, provide an accurate estimate of the national impacts of ARRA. Ramey (2019) suggests that these methods could overestimate the national impacts of ARRA, while Chodorow-Reich (2019) suggests the methods could result in impact estimates that are too low. If the latter is true, ARRA infrastructure spending might have had a larger impact on employment than that predicted by the CEA (2009).

2. Unemployment compensation and reemployment programs

► **Among unemployment insurance (UI) recipients, an increase in weekly UI benefits is associated with a longer duration of unemployment; the relationship might be due to reduced job search intensity, improved matching of workers to jobs, or both.** Tatsiramos and Ours (2014) reviewed several causal and descriptive studies and found some evidence suggesting that an increase in UI benefit amounts increases the length of time for which people receive benefits. They further found evidence indicating this increase is in part due to recipients searching longer for better jobs when more generous UI benefits alleviate the pressure to get a new job quickly. Another study (Landais, 2015) found that the relationship between UI benefits and job search behavior varies and is influenced by both liquidity effects and moral hazard effects (see text box). Finally, Krueger and Meyer (2002) suggest that the behavioral response to an increase in benefit generosity can vary based on context. This is particularly important in a recession, where people can face greater difficulty getting jobs (and people might be less likely to reduce job search in response to increased UI benefits; see Schmieder et al. [2012] and Kroft & Notowidigdo [2016]).

Unemployment insurance (UI) is a program that provides money to people who have lost their jobs due to reasons beyond their control (such as a layoff or business closure). **UI generosity** refers to the amount of money individuals can receive from UI, as defined by the amount of UI benefits individuals can receive per week and the length of time for which they can receive benefits.

Increasing UI generosity can provide important assistance to workers. But, it can also incentivize them to delay their return to employment. This may happen because of both **liquidity effects** (workers can afford to search longer for a more appropriate or desirable job due to more generous benefits) and **moral hazard effects** (workers might choose to reduce their job search efforts due to more generous benefits).

► **Extending the time that individuals are eligible to receive UI leads to increases in the duration of actual UI receipt, but differences might be small.** Several causal studies (including Rothstein [2011], Farber & Valletta [2015], and Marinescu [2017]) found that extensions in UI eligibility duration lead individuals to receive UI benefits for slightly longer periods. Moreover, a review by Nicholson et al. (2014) found that a one-week increase in the amount of time that an individual can receive UI is associated with a 0.02- to 0.05-week increase in the time the average individual actually receives benefits.

Other causal analyses suggest a stronger response. For example, based on a natural experiment in Missouri, Johnston and Mas (2018) concluded that a one-week increase in the amount of time an individual can receive UI leads to a 0.3- to 0.5-week increase in the actual duration of UI receipt. Using data from Austria, Lalive et al. (2015) also found large changes in duration of receipt of UI benefits in response to increases in the duration of UI eligibility. These results are echoed in analysis of Spanish data (Rebollo-Sanz & Planas, 2016).

Different researchers might come to different conclusions about the relationship between the durations of UI benefit eligibility and UI benefit receipt because of differences in the comparisons

made. For example, Rothstein (2011) and Farber and Valletta (2015) compared UI recipients to non-recipients. In contrast, Lalive et al. (2015) compared individuals who were eligible for UI to those who were not eligible for UI. These differences in methods could explain the differences in results.

Whether impacts are small or large, individuals might receive UI for a longer period in response to increased UI benefit availability because of decreases in job finding (that is, people find jobs less quickly, either because they search less intensively or become more selective about the jobs they will take) or decreases in exits from the labor force (that is, people are less likely to give up on their job search). Both channels are likely important. For example, Kuang and Valletta (2010), Rothstein (2011), and Farber and Valletta (2015) all argue that the majority of the increase in UI duration associated with longer UI eligibility stems from lower exit rates from the labor force, with a smaller share of the effect a result of reduced job finding. This suggests that increases in UI eligibility duration lead workers to be less likely to give up on searching for a job before they find one. Other research suggests that expanding UI leads individuals to search less intensively for jobs (Johnston & Mas, 2018; Lalive et al., 2015; Rebollo-Sanz & Planas, 2016). Moreover, research suggests that overall economic performance can influence which mechanisms drive the relationship. In particular, Kroft and Notowidigdo (2016) and Schmieder et al. (2012) provide evidence suggesting that individuals are less likely to reduce job search behavior in response to an extension in UI benefits during recessions than during expansions.

► **Despite the evidence that increasing UI benefit generosity slows UI recipients' transitions back to employment, some evidence suggests that increasing UI generosity could improve employment in the economy as a whole.** In a review, Nicholson et al. (2014) found evidence that the small increases in unemployment duration associated with increases in UI generosity might be offset on a macroeconomic level by UI recipients increasing their spending in response to the benefits, which in turn creates additional jobs. In particular, the authors state that the extended and emergency UI benefits payable in 2010 under ARRA could have increased gross domestic product (GDP) by more than \$150 billion, creating about 1.2 million job-years of employment. Another study (Marinescu, 2017) found that a reduction in employment-seeking behavior might have decreased job applications but not vacancies, thus reducing screening costs for employers and leading to quicker job placements and an increase in the job filling rate. Evidence from Spain (Rebollo-Sanz & García-Pérez, 2015) also suggests that more-generous UI benefits encourage job stability for temporary workers, not only by increasing subsequent job tenure but also by increasing the probability of transitioning to a permanent job. Therefore, even if increasing UI benefits increases unemployment durations, the macroeconomic effects of the more-generous benefits could lead to reductions in overall rates of unemployment. Research also suggests that extending UI could reduce the burden on other public assistance programs, but results are mixed (Mueller et al., 2016; Rothstein & Valletta, 2017).

Other research has suggested UI benefits might have little effect on macroeconomic conditions. Chodorow-Reich et al. (2019) found evidence that increasing UI benefit generosity slightly improves macroeconomic outcomes at best, while Chodorow-Reich and Coglianesse (2019) argued that UI benefits do not have a stabilizing effect on macroeconomic conditions.

Finally, some researchers have suggested that increasing UI generosity could weaken the economy as a whole. For example, Hagedorn et al. (2013) used economic theory to argue that increasing UI generosity can decrease vacancies and weaken overall economic conditions. Moreover, Rebollo-Sanz and García-Pérez (2015) did not find a significant relationship between the length of time individuals were eligible for benefits and overall employment stability (accounting for both subsequent job tenure and the probability of entering a permanent contract).

► **Programs designed to promote faster reemployment of UI recipients can increase employment.** The Reemployment and Eligibility Assistance (REA) programs likely boosted short- and long-term employment and earnings in the period following the Great Recession.⁵ A substantial body of evidence indicates that REA programs are effective (CLEAR, 2018; Michaelides & Mueser, 2019; Klerman et al., 2020). For example, based on an experimental evaluation of REA programs in four states, Klerman et al. (2020) estimated that REA reduces the length of time individuals receive UI benefits by 0.5 to 1.5 weeks and raises short-term employment and earnings by about 2 percent. Effects on employment more than one year after REA receipt were smaller, possibly because individuals in the comparison group, who received UI longer, were able to find better jobs (Klerman et al., 2020). In a synthesis of the evidence base, CLEAR (2018) further found that REA reduces the length of time individuals receive UI benefits by an average of 1.3 weeks with small increases in employment and earnings. Although evidence suggests that REA is low cost (averaging about \$100 per participant, see Michaelides & Mueser [2019]), more rigorous studies comparing program costs and benefits are needed to determine if REA programs are cost effective.

Reemployment programs provide job search and other assistance to help unemployed workers return to work. Studies of these programs are also discussed in CLEAR's rapid evidence review on [emergency return-to-work strategies in response to COVID-19](#) and in CLEAR's [reemployment systematic review](#).

More broadly, reemployment programs that include job search assistance strategies—such as provision of labor market information, development of an individual reemployment plan, resume reviews, job referrals, and registration with the state's job bank—have been shown to have favorable outcomes. For example, Black et al. (2003) used a randomized controlled trial to evaluate the impacts of job search and other light-touch employment services. The authors found that

⁵ In 2015, the Reemployment Services and Eligibility Assessment program replaced REA, supplementing REA program services by providing direct reemployment services. In 2019, the Bipartisan Budget Act of 2018, Public Law 115-123, amended the Social Security Act, creating a permanent authorization for RESEA and making it a tiered evidence program, which encourages states to use evidence-based interventions where they exist and conduct evaluations of other strategies.

random assignment to a group required to participate in services reduced UI benefit receipt by about 2.2 weeks and \$143, and increased earnings by \$1,050 over the course of a year. A randomized controlled trial of the REA/Reemployment Services program in Nevada found even larger effects of job search and job-counseling services. The examined reemployment program led to a reduction in UI benefit receipt of 1.9 weeks and \$1,145 (Michaelides & Mueser, 2018). But across the literature as a whole, impacts of job search assistance tend to be both small and to vary over study follow-up periods, with no apparent trends over time (CLEAR, 2018). Reemployment bonuses also appear to provide an incentive for the speedy return to work and can improve short-term employment outcomes (CLEAR, 2018); however, long-term effects are not known.

3. Transitional, subsidized employment

► **Transitional employment programs can improve employment and earnings in the short term.** The Department of Labor's Enhanced Transitional Jobs Demonstration and the Department of Health and Human Services' Subsidized and Transitional Employment Demonstration tested 13 subsidized employment programs. Models varied in their approaches to service provision and target populations of disadvantaged participants (populations included Temporary Assistance for Needy Families recipients, individuals who had been unemployed for a long period, and formerly incarcerated adults). The evidence from these evaluations suggests that the programs improved employment and earnings in the first two years following random assignment but longer-term results were mixed (Butler et al., 2012; Cummings & Bloom, 2020). Three of the eight programs Butler et al. (2012) studied increased employment, but only one had effects on employment for the full research sample that persisted over the four-year follow-up period. Cummings and Bloom (2020) looked at 13 programs and found that almost all improved employment and earnings in their first year of implementation, about half maintained those impacts through the first two years, and 4 of the 13 programs improved earnings after two years. This suggests that the short- and medium-term successes of transitional and subsidized employment models might fade over time as individuals lose access to subsidized jobs and must seek competitive employment in the labor market.

Subsidized employment programs provide job opportunities to unemployed individuals by using public funds to pay for all or part of their wages. These programs typically offer skill development and support services to help increase the employability of the long-term unemployed so that they can obtain jobs in the regular labor market after subsidy expires.

Transitional jobs are employment opportunities meant to reintegrate into employment those who have been out of the workforce. They are often subsidized. Transitional and subsidized employment programs can mechanically increase short-term employment by directly providing workers with jobs. After the programs are over, effects of program participation are less certain.

For further details on these strategies, see CLEAR's rapid evidence review on [emergency return-to-work strategies in response to COVID-19](#).

Public programs that provide paid summer jobs to young people may play an especially important

role in providing early work experiences for teenagers and young adults who would not otherwise have them. Youth are particularly vulnerable to unemployment, especially during recessions (Sironi, 2018), and could be well served by short-term employment opportunities. Research also suggests that entering the labor market during a recession has a negative impact on future earnings and job prospects (Oreopoulos et al., 2006).

One example of a study that found particularly large short-term impacts is the experimental evaluation of New York City’s Summer Youth Employment Program (Valentine, 2017). Compared to those in the control group, young people who gained access to the program through a lottery were 54 percentage points more likely to be employed, and earned \$580 more, during the summer following the initial application. However, the program had little to no impact on education, employment, or earnings in the five years beyond the initial summer program.

► **Hiring subsidies and credits may help support post-recession economic recovery.**

Evidence suggests that although tax credits for firms that hire disadvantaged workers have small or no employment effects, tax credits that target unemployed workers in an effort to create jobs can improve employment (Neumark, 2013). In particular, research suggests that short-term tax credits can be particularly beneficial for increasing employment during recessions. Moreover, the Hiring Incentive to Restore Employment Act appears to have increased employment among unemployed workers by about 2.6 percent in 2010, as the economy was emerging from the Great Recession (Farooq & Kugler, 2015). Evidence also suggests that specific types of hiring credits—including those targeting unemployed individuals, those that allowed states to recapture credits when job creation goals were not met, and those that were refundable—helped boost job growth during the Great Recession (Neumark & Grijalva, 2016).

4. Career pathways and apprenticeship

► **Career pathways programs typically improve educational attainment, but effects on employment and earnings vary.** Several recent studies have examined the effects of career pathways strategies for improving education, earnings, and employment outcomes. Schwartz et al. (2018) conducted a systematic review of 52

Hiring subsidies and credits exempt employers from taxes or Social Security contributions for new employees hired to encourage job creation. For further details on these strategies, see CLEAR’s rapid evidence review on [emergency return-to-work strategies in response to COVID-19](#).

Career pathways strategies include a series of connected education and training programs that enable individuals to secure a job or advance in a high-demand industry or occupation while receiving support services. Implementation of these programs and the types of jobs they target vary.

Apprenticeships are an organized or structured form of learning on the job, typically in a skilled trade, but typically not subsidized. **Registered apprenticeship** programs are specific programs have been recorded and validated by the U.S. Department of Labor or a state agency. For further details on these and other occupational, sectoral, and work-based training strategies, see CLEAR’s rapid evidence review on [emergency return-to-work strategies in response to COVID-19](#) and in CLEAR’s [apprenticeship and work-based training](#) and [community college](#) systematic reviews.

completed and ongoing studies of career pathways strategies. In total, 23 studies, including 12 causal studies, had been completed at the time of that review. Most of these reported findings over three or four years, with two reporting findings for more than four years. Both the career pathways programs examined, and their impacts were diverse. Nine of the completed causal studies examined effects on earnings, with 3 finding evidence of positive effects, 5 finding mixed or no effects, and 1 finding evidence of negative effects. Likewise, 10 completed causal studies examined effects on employment, with 4 finding evidence of positive effects and 6 finding mixed or no effects. Effects for educational attainment, examined in 10 completed causal studies, were more commonly positive.

Several studies included in this review were still in progress, highlighting the growing evidence base examining the effects of career pathways strategies. Moreover, ongoing research from the Health Profession Opportunity Grants 1.0 Impact Study and Pathways for Advancing Careers and Education Evaluation could provide valuable insights on the impacts of career pathways. Initial results from these evaluations suggest the examined career pathways programs improve educational attainment but have more varied effects on earnings (Peck et al., 2019; Gardiner & Juras, 2019).

Evaluations of Trade Adjustment Act Community College and Career Training (TAACCCT) programs also suggest career pathways strategies improve educational attainment but have mixed effects on employment and earnings. Initially created in response to the Great Recession by the U.S. Department of Labor, TAACCCT represents one of the largest recent investments in postsecondary education and workforce training. TAACCCT programs were varied, but many used core elements of career pathways strategies and provided training in a wide range of occupational fields, from manufacturing to health care to energy. In total, 729 colleges and universities were funded by TAACCCT between October 2011 and September 2018 to engage and enroll adult workers who had lost their jobs or who needed initial training or retraining to find employment. Based on a meta-analysis including findings from 36 quasi-experimental evaluations, Blume et al. (2019) concluded that the typical TAACCCT program had large positive effects on education and small positive effects on employment. The authors also reported that effects varied widely from program to program but did not analyze the reasons for this variation. In particular, the results for 7 of the 18 evaluations that examined employment or earnings suggest that some TAACCCT programs improved these outcomes, while 9 evaluations showed inconclusive evidence and 2 evaluations suggested that other TAACCCT programs worsened employment or earnings.

► **Apprenticeship programs appear to increase employment and earnings over one's career.** In particular, a large-scale quasi-experimental study of Registered Apprenticeship programs in ten states, including more than 20,000 apprentices, found that participation in a

Registered Apprenticeship was associated with an increase in earnings of \$98,718 over a participant's career (Reed et al., 2012). The study further estimated that program completion was associated with an increase in earnings of \$240,037 over a participant's career. In addition, in the ninth year following program enrollment (typically 2009 or 2010, during the height of the Great Recession), participants earned an average of \$5,839 more than similar nonparticipants. However, more rigorous, experimental evidence on Registered Apprenticeship programs is needed to confirm the findings of this quasi-experimental study.

5. Self-employment and entrepreneurship

► **Programs designed to increase self-employment encourage entrepreneurship, but the programs that have been examined in detail show only small or no effects on overall employment.** Two randomized controlled trials of programs to promote entrepreneurship

demonstrate this pattern. From 2003 to 2005, the Growing America Through Entrepreneurship Demonstration (Project GATE), a partnership of the U.S. Department of Labor and the Small Business Administration, offered business needs assessments, classroom training, one-on-one business counseling, and assistance in applying for business financing to people interested in starting or growing a business. A study of Project GATE showed the program increased small-business ownership but had no impact on employment within six quarters of program entry (Benus et al., 2008). From 2013 to 2017, the Self-Employment Training (SET) pilot program provided case management, customized training, technical assistance, and up to \$1,000 in seed capital to unemployed and underemployed workers to start a business. A study of SET found program participants were 12 percentage points more likely to be engaged in self-employment and 3 percentage points more likely to be employed overall (Hock et al., 2018).

For further details on programs to promote self-employment and support entrepreneurs, see CLEAR's [entrepreneurship and self-employment systematic review](#).

Where are the gaps in evidence on strategies for creating jobs and increasing employment implemented in response to the Great Recession?

Many questions remain on how strategies for creating jobs and increasing employment implemented in response to the Great Recession can help improve current and future employment. These include:

- **How do findings from past research apply in the context of COVID-19?** Both the causes and the effects of the COVID-19 recession are different from the Great Recession and other recent economic downturns. Therefore, caution should be used in applying findings about strategies implemented during the Great Recession and in other periods to the COVID-19 context. Specific considerations include:
 - 1. Public health needs affect worker needs.** Needs for reemployment services during and after the COVID-19 pandemic are different from those of past recessions. Many services implemented in response to the Great Recession relied on in-person interaction, which

might not be feasible or desirable in the context of the pandemic. Research on virtual employment services is more limited (see CLEAR's rapid review of remote service strategies).⁶

- 2. Differences in patterns of unemployment might change the need for, and response to, employment services.** At the beginning of the COVID-19 pandemic, economic activity quickly contracted, and the unemployment rate quickly rose. Moreover, new UI claims were almost ten times as high in March 2020 than during the height of the Great Recession (Federal Reserve Bank of St. Louis 2021). Conversely, unemployment rates fell throughout late 2020 and early 2021. By spring 2021, unemployment rates were comparable to those in 2014, about five years after unemployment peaked during the Great Recession. These different trends mean that caution should be used in applying existing findings and that specific strategies might need modifications to be helpful. In particular, research has shown that workers respond differently to UI changes when the unemployment rate is high and that the efficacy of reemployment programs varies during recessions and expansions (Kroft and Notowidigdo 2016, Schmieder et al. 2012, Card et al. 2018). Therefore, the different levels and trends of unemployment might lead to different responses to programs and policies.
- 3. Strategies to support recovery will likely vary by industry.** The effect of COVID-19 on the economy has been far from uniform across industries, states, and countries, and COVID-19 has shifted how and where many jobs are done (Brynjolfsson et al., 2020). Strategies that focus on particular industries might need to be altered in response to these differences. For example, additional content on social distancing and safety precautions might need to be added to training programs. The set of industries that have both high labor demand and desirable jobs might also need to be reevaluated. In particular, individuals might be wary of searching and training for jobs in sectors, such as health care, that could put them at greater risk of exposure to COVID-19.

Nevertheless, given that the Great Recession was previously the most severe, modern recession, evidence on the strategies implemented during this period is probably the most relevant for responding to the economic conditions caused by COVID-19.

- **How long does it take infrastructure investments to boost employment?** Although evidence largely suggests infrastructure investments boost employment, it is unclear how long investments take to realize these effects. Most research examining infrastructure investments estimated impacts over the course of multiple years, rather than trying to isolate more immediate effects. But capital planning, permitting, and budgeting must precede construction activity, leading to uncertainty about how long it takes for

⁶ Available at https://clear.dol.gov/sites/default/files/documents/files/RapidReviewSynthesis_RemoteServiceDelivery.pdf.

infrastructure investments to increase employment. Given the need for programs that immediately boost employment during the COVID-19 pandemic, more research is needed to determine the typical timing of the indirect and direct effects of infrastructure spending on employment and how to reduce lags. For example, event studies of specific infrastructure investments could reveal when construction companies increase employment and purchases after receiving a contract funded by federal stimulus.

- **Who is employed by stimulus dollars?** Evidence suggests stimulus relief packages supported employment and economic growth but does not provide clear information on who was employed by stimulus dollars. Evidence from a small study (Jones & Rothschild, 2011) found that 42 percent of survey participants hired had most recently been unemployed, while 47 percent were already employed and had been hired away from other organizations. This suggests that hiring might not be reflective of net job creation and that studies measuring the impacts of large fiscal relief packages should measure not only new jobs created but also hiring of unemployed workers. Future mixed-methods research could explore employer hiring practices during recessions. Such studies could also estimate unintended effects of stimulus, such as the cost to employers of losing employees hired into newly created positions.
- **How do strategies differently affect individuals based on race and ethnicity and gender?** Available research suggests that fiscal stimulus, fiscal relief, and UI and associated reemployment programs can support economic recovery. But there is little research on how these efforts might differently effect individuals based on gender, race and ethnicity, and other characteristics. Discriminatory hiring behaviors (for example, see Lahey & Oxley, 2018 and Bertrand & Mullainathan, 2004) could result in minority communities failing to benefit from strategies that improve outcomes for others. Minorities—particularly Black Americans—have also been disproportionately affected by the COVID-19 pandemic, with higher rates or both unemployment and illness (Lee et al., 2021; Stokes et al., 2020), further emphasizing the importance of ensuring equitable recovery. Women were also more likely to lose their jobs due to COVID-19 than men, with Black and Hispanic women affected most of all (Gezici & Ozay, 2020).
- **Why are some strategies successful?** More research is needed on why some strategies improve employment and earnings while other similar strategies do not. In particular, the research on transitional and subsidized employment and career pathways programs show that these interventions are only sometimes successful at improving employment and earnings. More research is needed on why this occurs, to help inform programs about how to potentially maximize success. In particular:
 1. **Future research could explore the program components that drive program success.** In most cases, employment programs include several components bundled

together in different ways across different sites. Some multi-site experimental and quasi-experimental studies have included implementation research to facilitate the comparison of program components. However, such analyses are typically qualitative. These analyses can help program designers and policymakers understand what those components look like, but additional research using causal methods could attempt to isolate the most effective components. Together, findings from these qualitative and quantitative analyses could help sites replicate or scale up programs with effective components. In turn, these implementations could be studied to understand whether favorable impacts persist in new settings. Where larger evidence bases exist, researchers could also design meta-analyses to explore whether successful programs share particular components and whether certain components are successful only when combined with others (for example, see Lipsey [2009]).

- 2. Researchers should consider whether their findings are likely to apply in other contexts.** When possible, research should be carefully designed to move beyond saying whether a program worked and toward determining whether a program *will work* when implemented again. In addition, to determine if favorable impacts persist in other settings, researchers could look for opportunities to study what happens when sites replicate or scale up promising programs or program components. However, designing and conducting these types of studies is complex and opportunities to do so are rare because programs or program components are rarely scaled up or replicated in new settings with fidelity. As a first step towards understanding whether research findings are likely to apply in other contexts, researchers should carefully consider the circumstances under which programs are tested. Careful and complete documentation of the context in which a program was implemented, and how actual implementation differed from plans, can provide useful insights for understanding the extent to which findings might apply to future implementations of similar programs.

Rapid Evidence Review Supplement: Citations and Further Information

March 2021

This supplement to the rapid review, “In response to the Great Recession, what strategies were effective for creating jobs and increasing employment?” provides citations and brief study summaries for the evidence summarized in the rapid review. The final section describes the approach used to create the rapid review.

CITATIONS AND STUDY SUMMARIES

This supplement presents the citations and summaries using the same organization as the rapid review. The subsections are as follows:

1. Infrastructure investments and fiscal stimulus
2. Unemployment compensation and reemployment programs
3. Transitional, subsidized employment
4. Career pathways and apprenticeship
5. Self-employment and entrepreneurship

1. Infrastructure investments and fiscal stimulus

Chodorow-Reich, G., Feiveson, L., Liscow, Z., & Woolston, W. G. (2012). Does state fiscal relief during recessions increase employment? Evidence from the American Recovery and Reinvestment Act. *American Economic Journal: Economic Policy*, 4(3), 118–145. Available at: <https://pubs.aeaweb.org/doi/pdfplus/10.1257/pol.4.3.118>

- Type of Research: Causal (instrumental variables)
- Summary: The study examined the effects on employment of Medicaid reimbursements given to states by the federal government through the **American Recovery and Reinvestment Act of 2009** (ARRA). The authors used states’ pre-recession Medicaid spending as an instrumental variable for ARRA Medicaid reimbursements and data from **Current Employment Statistics (CES)**. They addressed the threat to identification—that states that spent more money on Medicaid may be on different employment trends than states that spent less—in several ways, including by adding regional fixed effects and other control variables to regressions and conducting placebo tests. The study found evidence that an increase in state fiscal relief of \$100,000 increased employment by 3.8 jobs per year, with only 0.6 of these job-years in the government, health, and education sectors.

Conley, T., & Dupor, B. (2013). The American Recovery and Reinvestment Act: Solely a government jobs program? *Journal of Monetary Economics*, 60(5), 535–549. Available at:

<https://www.sciencedirect.com/science/article/pii/S0304393213000603?via%3Dihub>

- Type of Research: Causal (instrumental variables)
- Summary: The study examined the impact of **American Recovery and Reinvestment Act of 2009** (ARRA) spending on both private and government sector employment. The study used data from **BLS Establishment Survey** and **Federal Department of Transportation (DOT)** and an instrumental variables strategy, instrumenting for ARRA funding based on a measure of the extent to which a state's revenue is likely to change in response to the recession (that is, the amount of revenue from sources like sales on alcohol and cigarettes versus sources such as income tax). The authors found that average employment in state and local government sectors from April 2009 to March 2011 was 359,000 persons greater than it would have been without ARRA. In the private sector, average employment was 456,000 persons greater but this difference was statistically insignificant. The study estimated the cost per job-year of ARRA to be about \$202,000.

Feyrer, J. & Sacerdote, B. (2011). Did the stimulus stimulate? Real time estimates of the effects of the American Recovery and Reinvestment Act. Cambridge, MA: National Bureau of Economic Research. Available at: <https://www.nber.org/papers/w16759.pdf>

- Type of Research: Causal (time series analysis)
- Summary: The study examined the impact of the **American Recovery and Reinvestment Act** (ARRA) on employment. The study used data from to analyze stimulus spending. The study found that, after controlling for population characteristics, 0.59 jobs were created for every \$100,000 spent on ARRA.

Wilson, D. J. (2012). Fiscal spending jobs multipliers: evidence from the 2009 American recovery act. *American Economic Journal: Economic Policy*, 4(3). Available at: <https://pubs.aeaweb.org/doi/pdfplus/10.1257/pol.4.3.251>

- Type of Research: Causal (regression analysis)
- Summary: The article examined the effects of the **American Recovery and Reinvestment Act of 2009** (ARRA) on employment. The study used data from the **Bureau of Labor Statistics' (BLS) Current Employment Statistics (CES)**. The authors used a regression analysis to estimate the number of jobs created due to ARRA spending and found that about one job was created for every \$125,000 of spending.

Chodorow-Reich, G. (2019). Geographic cross-sectional fiscal spending multipliers: What have we learned?. *American Economic Journal: Economic Policy*, 11(2), 1-34. Available at: <https://www.aeaweb.org/articles?id=10.1257/pol.20160465>.

- Type of Research: Other (literature review)
- Summary: The article reviewed research on the impact of the **American Recovery and Reinvestment Act of 2009** (ARRA). The author examined multiple studies that calculated

cross-sectional fiscal spending multipliers (which measure how much GDP increases in response to a \$1 increase in government expenditure and investment.) The authors determine the most plausible estimate for the multiplier is 1.8.

Buchheim, L., & Watzinger, M. (2017). The Employment Effects of Countercyclical Infrastructure Investments. CESIFO Working Paper No. 6383. Available at:
https://www.cesifo.org/DocDL/cesifo1_wp6383.pdf

- Type of Research: Causal (instrumental variables)
- Summary: The study examined the impact of **German** infrastructure investments programs on employment at the German county level. The investment programs focused on making school buildings more energy efficient. The study found that creating one job for one year cost about 25,000 euros. Employment gains peaked about nine months after the program was implemented. However, employment gains returned to zero after the program was completed.

Council of Economic Advisors (CEA). (2009). Estimates of Job Creation from the American Recovery and Reinvestment Act of 2009. Washington, D.C. Available at:
<https://obamawhitehouse.archives.gov/administration/eop/cea/Estimate-of-Job-Creation>

- Type of Research: Descriptive (predictive modeling)
- Summary: The article proposes procedures to use when estimating job creation, reporting requirements for job creation, and the procedures the Council of Economic Advisers (CEA) will use to evaluate the job creation and retention benefits of the **American Recovery and Reinvestment Act of 2009** (ARRA). The CEA predicted that ARRA would increase employment by 3.5 million jobs. Further, estimates suggest that \$100 billion of government spending would create 1,085,355 job-years, or that it would cost \$92,136 to create one job-year.

Garin, Andrew, 2019. "Putting America to work, where? Evidence on the effectiveness of infrastructure construction as a locally targeted employment policy," *Journal of Urban Economics*, vol. 111(C), pages 108-131.

<https://ideas.repec.org/a/eee/juecon/v111y2019icp108-131.html>

- Type of research: Causal (difference-in-differences)
- Summary: This article examines the effectiveness of infrastructure investments in boosting employment in distressed local labor markets. Using **geographic payroll data**, the author constructed a **differences-in-differences model** to analyze the impact of infrastructure investments on employment rates in cities across the **United States**. Estimates suggest that highway funding significantly increased pay for workers at the county level, with every dollar of funding increasing the payroll of local construction companies by 30 cents over 5 years. These increases were strongest in smaller counties. Additionally, this increase was found to match the national labor share of construction revenue. These results suggest that

road construction investments were effective in areas with low mobility and did not overshadow other infrastructure investments, but that the variation was too small to impact jobs outside of construction.

Klein, B., & Staal, K. (2017). Was the American Recovery and Reinvestment Act an Economic Stimulus? *International Advances in Economic Research*, 23(4), 395–404. Available at <https://link.springer.com/article/10.1007/s11294-017-9655-7>.

- Type of Research: Causal (instrumental variables)
- Summary: This study examines the effect of the **American Recovery and Reinvestment Act of 2009** (ARRA) on states' economic growth. Using **data on states' gross domestic product (GDP) from the Bureau of Economic Analysis** between February 2009 and February 2010, the authors build a **regression model** controlling for regional or between-state differences that might affect states' economies. The authors also used the instrumental variables strategy described in Chodorow-Reich et al. (2012). When the authors account for gross state product growth between 2008 and 2009 in their regression model, they find ARRA funding was significantly associated with gross state product.

Staal, K. (2020). State-level Federal Stimulus Funds and Economic Growth: The American Recovery and Reinvestment Act. *International Advances in Economic Research*, 26(1), 33–43. Available at: <https://link.springer.com/article/10.1007/s11294-020-09772-6>

- Type of Research: Causal (instrumental variables)
- Summary: The study examined the impact of the **American Recovery and Reinvestment Act of 2009** (ARRA) on economic growth using **instrumental variables regressions**. The instruments were constructed based on the factors used to determine ARRA funding that the authors deemed unlikely to be related to post-ARRA economic conditions, such as miles driven on federal highways. The study used data from the **Bureau of Economic Analysis (BEA)** and **Bureau of Labor Statistics**. The authors found that ARRA had a positive and significant effect on economic growth.

Ramey, V. A. (2019). Ten Years after the Financial Crisis: What Have We Learned from the Renaissance in Fiscal Research? *Journal of Economic Perspectives*, 33(2), 89–114. Available at: <https://pubs.aeaweb.org/doi/pdfplus/10.1257/jep.33.2.89>

- Type of Research: Descriptive (theoretical) and other (literature review)
- Summary: The article describes theoretical innovations made in fiscal policy in the ten years following the global financial crisis. Key topics included sticky prices, consumer spending, lower bounds on policy interest rates, currency unions, different types of financing, and anticipation of the reactions of macroeconomic variables to fiscal policy. The article also described new empirical methods, including ways to identify exogenous variation in policy, standardization of methods for computing fiscal multipliers, and the incorporation of state dependence.

Cogan, John, and John Taylor. 2010. "What the Government Purchases Multiplier Actually Multiplied in the 2009 Stimulus Package." National Bureau of Economic Research (NBER) Working Paper 16505. Available at:

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1699605

- Type of research: Causal (time series analysis)
- Summary: This article examines the impact of the "government purchases multiplicand," defined in the study as "the change in government purchases of goods and services that the multiplier actually multiplies," on the effectiveness of stimulus packages. Using data from the **National Income and Products Accounts (NIPA)** database, the authors estimate time series regressions to analyze the impact of the multiplicand on federal, state, and local spending in the United States during the Great Recession. The article reports that the multiplicand accounted for only 2% of the total amount of funding (\$862 billion) in the **American Recovery and Reinvestment Act of 2009 (ARRA)**. Further, much of that spending took place at the federal level, while states and local governments mainly reduced borrowing and increased transfer payments to offset losses. These results suggest that ARRA did not substantially increase government spending on infrastructure investments and consumption, reducing the package's effectiveness.

Jones, G., & Rothschild, D. M. (2011). Did Stimulus Dollars Hire the Unemployed? Answers to Questions About the American Recovery and Reinvestment Act (SSRN Scholarly Paper ID 1920811). Social Science Research Network. Available at:

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1920811

- Type of Research: Descriptive (quantitative)
- Summary: This study examines how firms, non-profits, and local governments responded to **American Recovery and Reinvestment Act of 2009 (ARRA)** funding. Using data from a **survey fielded to about 1,300 organizations that received ARRA-funded contracts**, the authors asked organizations how new workers were hired, whether workers waited until unemployment insurance benefits were exhausted before accepting a job, and if prevailing wage laws forced the organizations to pay new hires above market wages. Survey responses suggest that, on average, organizations that received ARRA funds of about 10 percent of their annual revenue were able to retain or hire about 5 percent of their workforce. About half of new workers were hired from other organizations, suggesting the other half were unemployed. The authors reported that employers did not observe more individuals taking jobs right before their unemployment insurance benefits expired than usual. In addition, the survey revealed that 38 percent of organizations thought they could have hired workers at wages below prevailing wage laws.

Serrato, J. C. S., & Wingender, P. (2016). Estimating Local Fiscal Multipliers. Cambridge, MA: National Bureau of Economic Research. Available at:

<https://www.nber.org/papers/w22425>.

- Type of Research: Causal (regression analysis)
- Summary: The study examines how Census Shock affects federal spending, income, and employment growth. The study used county population estimates published by the Census Bureau from 1970 to 2009 and county-level births and deaths from the Vital Statistics of the U.S to generate estimates of county natural growth. Data from the County-to-County Migration Data Files from the IRS's Statistics of Income was used to estimate internal and international migration. The Consolidated Federal Funds Report (CFFR) was used determine federal spending and data on county personal income and employment came from the Bureau of Economic Analysis' Regional Economic Information System (REIS). The study found that there was a large effect of government spending on local economic outcomes. Both federal spending and economic growth were consistently impacted by the release of the Census count. The study also found that government spending provided higher returns in low-economic status counties

2. Unemployment compensation and reemployment programs

Tatsiramos, K., & Van Ours, J.C. (2014). Labor Market Effects of Unemployment Insurance Design. *Journal of Economic Surveys*, Vol. 28, Issue 2, pp. 284-311. Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2408824

- Type of Research: Other (literature review)
- Summary: The article summarizes recent literature and policy issues related to unemployment insurance (UI) design, such as structure of benefits, the advantages and disadvantages of a UI system that varies benefits throughout the business cycle, and the role of liquidity constraints. The article posits that, for a given length of unemployment and level of benefits, an increase in benefit duration can also extend duration of unemployment. They also note that the benefit level will affect unemployed workers differently depending on their unemployment durations. The article also discusses potential areas of future research.

Landais, C. (2015). Assessing the Welfare Effects of Unemployment Benefits Using the Regression Kink Design. *American Economic Journal: Economic Policy*, 7(4), 243–278. Available at <https://www.aeaweb.org/articles?id=10.1257/pol.20130248>

- Type of research: Causal (regression kink design)
- Summary: This study investigates the liquidity and moral hazard effects of Unemployment Insurance (UI) in the **United States**. Using a **regression kink design** and **UI records data from the Continuous Wage and Benefit History project**, the authors report that the relationship between UI benefits and job search behavior is influenced by both liquidity and moral hazard effects. The results reinforce previous research and suggest that workers' financial resources and exposure to risk are both important for understanding the relationship between UI benefits and job search behavior.

Krueger, A. B., & Meyer, B. D. (2002). Labor supply effects of social insurance. *Handbook of Public Economics*, 4, 2327-2392., Available at: <https://ideas.repec.org/h/eee/pubchp/4-33.html>.

- Type of research: Causal (regression analysis)
- Summary: This study investigates the effects of social insurance programs on labor supply. Based on **regressions** estimated using **social insurance expenditure data from the International Labour Organization**, the authors report that social insurance programs, specifically unemployment insurance (UI), workers' compensation (WC), disability insurance, and social security retirement, tend to increase the amount of time employees spend unemployed. This effect was reported to be greater for UI and WC programs, with disability insurance and social security retirement showing less conclusive effects. These results suggest it is problematic to use a universal set of labor supply elasticities to characterize different programs.

Schmieder, J. F., von Wachter, T., & Bender, S. (2012). The effects of extended unemployment insurance over the business cycle: Evidence from regression discontinuity estimates over 20 years. *The Quarterly Journal of Economics*, 127(2), 701–752. Available at: <https://academic.oup.com/qje/article-abstract/127/2/701/1825004>.

- Type of research: Causal (regression discontinuity design)
- Summary: This study examines the magnitude of the effects of extended unemployment insurance (UI) benefits on the duration of unemployment. Using **Social Security data**, the authors estimate a **regression discontinuity model** to analyze the differential effects of UI during booms and recessions, in the context of the **German** UI system. The authors' findings suggest that individuals are less likely to reduce job search behavior in response to an extension in UI benefits during recessions than during expansions, suggesting the moral hazard effect of UI is lower in recessions than in economic booms.

Kroft, K., & Notowidigdo, M. J. (2016). Should unemployment insurance vary with the unemployment rate? Theory and evidence. *Review of Economic Studies*, 83(3), 1092–1124. Available at: <https://academic.oup.com/restud/article-abstract/83/3/1092/2461292>.

- Type of research: Descriptive (theoretical)
- Summary: This study examines the variation of Unemployment Insurance (UI) benefit levels over the business cycle, specifically the give-and-take between the moral hazard effect on job search (distortions on marginal incentives to search for jobs) and consumption smoothing (ensuring a proper balance between spending and saving in response to income). Using a **simulations** accounting for unemployment duration elasticity, the insurance effect, and conditions in the labor market, the authors found the moral hazard effect to be procyclical (lower when the unemployment rate is higher), while the consumption smoothing effect of UI is acyclical (not related to the state of the economy).

Rothstein, J. (2011). Unemployment insurance and job search in the Great Recession. Cambridge, MA: National Bureau of Economic Research. Available at: <https://www.nber.org/papers/w17534>

- Type of research: Causal (regression analysis)

Summary: This study examines the effects of UI benefit extensions on job search behavior during the **Great Recession** using a **quasi-experimental approach**, comparing ineligible job seekers to eligible unemployed workers in the same state and month. Calculating unemployment exit hazard rates using data from the **Current Population Survey**, the author reports small, negative effects of benefit extensions on the probability of leaving unemployment, particularly among the chronically unemployed. The results suggest the extension of UI benefits increased the unemployment level in early 2011, but only by a small amount.

Farber, H. S., & Valletta, R. G. (2015). Do Extended Unemployment Benefits Lengthen Unemployment Spells? Evidence from Recent Cycles in the U.S. Labor Market. *Journal of Human Resources*, 50(4), 873–909. Available at: <http://jhr.uwpress.org/content/50/4/873.short>.

- Type of research: Causal (regression analysis)
- Summary: This article examines the impact of Unemployment Insurance (UI) extensions on the unemployment exit rate. Using data from the **Current Population Survey (CPS)**, the authors construct a **discrete-time hazard model** to analyze the duration of unemployment in the United States as it relates to UI extensions resulting from the **Great Recession**, comparing data from January 2000 to February 2005 to data from January 2007 to October 2012. The results show that unemployment duration was significantly higher from January 2007 to October 2012 than from January 2000 to February 2005, and both the average and median duration increased during the former period. These results suggest extended benefits can lead to significant increases in unemployment duration.

Marinescu, I. (2017). The general equilibrium impacts of unemployment insurance: Evidence from a large online job board. *Journal of Public Economics*, 150, 14–29. Available at <https://www.sciencedirect.com/science/article/pii/S0047272717300348>

- Type of research: Causal (regression discontinuity design)
- Summary: This study examines the effects of Unemployment Insurance (UI) benefit extensions on job search behavior in the context of the **Great Recession**. Using a **regression discontinuity approach** and **job application and vacancy data from CareerBuilder.com**, the author analyzes the effects of the 73-week extension of UI benefits given to **U.S.** workers in the aftermath of the Great Recession. The author reports that the increases in the duration of UI benefits was associated with a decrease in state-level job applications but had no relationship with job vacancies. The author argues that

this implies that, although increasing UI benefits led to a decrease in employment seeking behavior, the increase may have also reduced screening costs for employers, leading to an increase in the job filling rate during the Great Recession.

Nicholson, W., K. Needels, and H. Hock (2014). Unemployment compensation during the Great Recession: Theory and evidence, *National Tax Journal* 67(1):187-218, available at <https://ntanet.org/NTJ/67/1/ntj-v67n01p187-218-unemployment-compensation-great-recession.pdf?v=%CE%B1>

- Type of research: Other (literature review)
- Summary: This article examines the effect of increased Unemployment Compensation (UC) availability on the length of unemployment spells among eligible individuals. The authors conduct a review of theoretical and empirical literature to analyze the effects of long UC extensions during the **Great Recession**, mainly in **the United States and Europe**. The article reports moderate positive effects of UC availability on duration of unemployment, with estimates ranging from 0.02 to 0.05 extra weeks of unemployment for each extra week of potential UC. The authors also report a U.S. CBO estimate that extended and emergency benefits payable in 2010 increased GDP by more than \$150 billion, creating about 1.2 million job-years of employment. These results suggest that extensions of UC can increase the length of unemployment and increased benefits, if spent on goods and services, can increase GDP.

Johnston, A. C., & Mas, A. (2018). Potential Unemployment Insurance Duration and Labor Supply: The Individual and Market-Level Response to a Benefit Cut. *Journal of Political Economy*, 126(6), 2480–2522. Available at: <https://www.journals.uchicago.edu/doi/abs/10.1086/699973>.

- Type of research: Causal (regression discontinuity design)
- Summary: This study investigates the effects of reducing Unemployment Insurance (UI) duration on the search behavior of UI recipients, as well as the labor market. **Using state administrative employment data**, the authors use a **regression discontinuity model** to analyze the effects of a 16-week cut in UI benefits on the search behavior of UI recipients in **Missouri**. The authors estimate that the reduction in benefits resulted in an average decrease in UI benefits receipt of 8.7 weeks, with a 23.6 percent decrease in the probability of an unemployment spell lasting 60 weeks. These results suggest that a reduction in UI benefits can lead to decreased unemployment rates.

Lalive, R., Landais, C., & Zweimüller, J. (2015). Market Externalities of Large Unemployment Insurance Extension Programs. *American Economic Review*, 105(12), 3564–3596. Available at: <https://pubs.aeaweb.org/doi/pdfplus/10.1257/aer.20131273>.

- Type of research: Causal (difference-in-differences)
- Summary: This study examines the effects of unemployment insurance (UI) on the labor

market by examining the Regional Extension Benefit Program (REBP) in **Austria**. This program extended the duration of UI benefits for some eligible workers in selected regions. The authors use data from the **Austrian Social Security Database** to compare eligible workers in selected regions to similar ineligible workers in the same labor markets. The authors report higher rates of job finding, less time spent unemployed, and a decreased risk of chronic unemployment among workers who were not eligible for UI under the REBP. The authors suggest using the rules to optimize UI policy.

Rebollo-Sanz, Y. F., & Planas, N. R. (2016). When the Going Gets Tough... Financial Incentives, Duration of Unemployment and Job-Match Quality (16.11; Working Papers). Universidad Pablo de Olavide, Department of Economics. [When the Going Gets Tough... Financial Incentives, Duration of Unemployment and Job-Match Quality](#)

- Type of research: Causal (difference-in-differences and regression discontinuity designs)
- Summary: This study examines the effect of the **Spanish** government's efforts to reduce the unemployment insurance (UI) replacement rate (RR) on the ability of workers to find jobs in Spain in the aftermath of the **Great Recession**. Using **Social Security data** and **differences-in-differences** and **regression discontinuity designs**, the authors analyze whether reducing the RR from 60 percent to 50 percent improved employment outcomes for Spanish workers. The authors found evidence that reducing the RR improved workers' chances of finding a job by 41 percent relative to workers not included in the reform efforts, lowering the average expected time receiving UI by 5.7 weeks. While the reforms had no effect on wages, the authors reported a 26 percent overall increase in the job-finding rate, as well as a 16 percent decrease in unemployment insurance expenditures.

Kuang, K., & Valletta, R. (2010). Extended unemployment and UI benefits. Federal Reserve Bank of San Francisco. Available at: <https://www.frbsf.org/economic-research/publications/economic-letter/2010/april/extended-unemployment-insurance-benefits/>

- Type of Research: Descriptive (quantitative and theoretical)
- Summary: The study examined the impact of extended Unemployment Insurance (UI) on unemployment duration and the unemployment rate using data from the **Current Population Survey (CPS)**. The authors considered the increase in unemployment duration in 2008 and 2009 when UI extensions were implemented. The authors used the "expected unemployment duration" concept developed by Valletta (2005) to measure the overall duration of unemployment spells and changes. The study found that extended UI benefits can account for about 0.4 percentage points of the 6 percentage point increase in the national unemployment rate in 2008 through 2009.

Rebollo-Sanz, Y. & J. García-Pérez (2015). "Are unemployment benefits harmful to the stability of working careers? The case of Spain," *SERIEs: Journal of the Spanish Economic*

Association, vol. 6(1), pages 1-41.

- Type of research: Causal (regression analysis)
- Summary: This article attempts to characterize the degree to which workers' careers may be enhanced or worsened due to unemployment insurance (UI) benefits. Using employment history data from **Spanish Social Security records**, the authors construct **duration models** to analyze the working careers of adult men in the Spanish labor market from 1995-2007, comparing the career histories of insured and non-insured workers. The article reports that while non-insured workers experienced faster transitions from unemployment to employment, UI benefits increased both job tenure and the likelihood of accepting permanent employment. These results suggest that UI benefits encourage job stability, especially among temporary workers transitioning from unstable employment.

Chodorow-Reich, G., Coglianesi, J., & Karabarbounis, L. (2019). The Macro Effects of Unemployment Benefit Extensions: A Measurement Error Approach. *Quarterly Journal of Economics* 134 (1): 227-279. Available at: <https://academic.oup.com/qje/article-abstract/134/1/227/5076383?redirectedFrom=fulltext>.

- Type of Research: Causal (instrumental variables)
- Summary: The study examines how extension in unemployment insurance (UI) affect macroeconomic and employment outcomes, accounting for measurement error. The study used data from the **Current Employment Statistics, Department of Labor (DOL) reports, Conference Board Help Wanted Print Advertising Index, and the Conference Board Help Wanted Online Index**. Leveraging variation caused by measurement error, The study found that increasing UI benefits had little impact on state-level macroeconomic outcomes, such as unemployment, employment, vacancies, and wages. In particular, the study also found that UI benefit increases during the Great Recession contributed at most 0.3 percentage point to the increase in the unemployment rate.

Mueller, A. I., Rothstein, J., & Von Wachter, T. M. (2016). Unemployment insurance and disability insurance in the Great Recession. *Journal of Labor Economics*, 34(S1), S445-S475. Available at: <https://www.journals.uchicago.edu/doi/10.1086/683140>.

- Type of Research: Causal (Regression analysis)
- Summary: The study examines how UI exhaustion affects the uptake of **Social Security Disability Insurance (SSDI)**. The study used data from three sources, **Social Security Administration (SSA) data from August 2004 to December 2012, the SSA Disability Research File, and the Annual Social and Economic Supplement (ASEC) to the Current Population Survey (CPS)**. Leveraging variation in UI benefits from extensions during the **Great Recession**, the study found no significant relationship between UI exhaustion and uptake of SSDI benefits. The study indicates that SSDI savings do not contribute to the cost of UI extensions.

Rothstein, J., & Valletta, R. G. (2017). Scraping by: Income and program participation after the loss of extended unemployment benefits. *Journal of Policy Analysis and Management*, 36(4), 880-908. Available at: <https://onlinelibrary.wiley.com/doi/full/10.1002/pam.22018>

- Type of Research: Descriptive (quantitative)
- Summary: The study examines outcomes for unemployment insurance (UI) recipients during the **2001 and 2007 to 2009 recessions** who exhausted their benefits prior to finding a job. The study describes household income, program participation, and health-related outcomes for six months after UI benefit exhaustion using **Survey of Income and Program Participation (SIPP) panel data**. The study found that UI exhaustees that remain unemployed experience substantial declines in income. These workers participated in other safety net programs, but those programs served as a small supplement of the lost UI income. Poverty rates for UI exhaustees also spiked and were more pronounced for less advantaged groups, such as single parents and households with initially low income.

Chodorow-Reich, G., & Coglianesi, J. (2019). Unemployment Insurance and Macroeconomic Stabilization. *Recession Ready: Fiscal Policies to Stabilize the American Economy*, edited by Heather Boushey, Ryan Nunn, and Jay Shambaugh, 153-179. Washington, D.C. Brookings Institution. Available at:

https://www.hamiltonproject.org/assets/files/CRC_web_20190506.pdf.

- Type of Research: Other (literature review)
- Summary: The article examines the role of unemployment insurance (UI) as a macroeconomic stabilizer. The regular UI program provides benefits to short-term unemployed workers and emergency extensions of benefits, or Extended Benefits (EB), cover long-term unemployed workers. The paper points out reciprocity rates in the regular UI program are quite low and EB has no impact on providing countercyclical stimulus. The paper also proposes several changes to the UI system that would increase UI benefits during recessions and increase UI's role as a macroeconomic stabilizer.

Hagedorn, M., Karahan, F., Manovskii, I., & Mitman, K. (2013). Unemployment benefits and unemployment in the Great Recession: The role of macro effects. NEBR Working Paper No. 19499. Available at: <https://www.nber.org/papers/w19499>

- Type of research: Descriptive (theoretical)
- Summary: This study uses a modified labor search model, which accounts for responses of both firms and workers to unemployment benefit extensions. Based on the model, the authors predict that benefits extensions will lead to a rise in unemployment and a strong contraction in vacancy creation.

CLEAR (2018). Research Synthesis: What do we know about the effectiveness of reemployment initiatives? U.S. Department of Labor, Washington, DC, available at

https://clear.dol.gov/sites/default/files/ResearchSynthesis_Reemployment_0.pdf

- Type of research: Other (systematic review)
- Summary: This **synthesis** examines research on the impact of reemployment interventions on employment, earnings, and receipt of Unemployment Insurance (UI) benefits. The authors conducted a literature review of 43 publications, including 50 studies with a high or moderate causal evidence rating. The article reports that: (1) the Reemployment and Eligibility Assistance (REA) program boosted short- and long-term employment and earnings; (2) some Job Search Assistance interventions had favorable impacts on employment or earnings in the short or long term but, in most cases these impacts did not appear in all time periods examined (that is, they were effective in the short- or long-term, but not both); and (3) reemployment bonuses appear to work in the short term, but their long-term effects are not known.

Michaelides, M, & Mueser, P (2019). The Labor Market Effects of US Reemployment Policy: Lessons from an Analysis of Four Programs during the Great Recession. *Journal of Labor Economics*, 38(4), 1099–1140. <https://www.journals.uchicago.edu/doi/full/10.1086/706485>

- Type of research: Causal (randomized controlled trial)
- Summary: This article examines the effectiveness of Unemployment Insurance (UI) programs in improving labor market conditions during the **Great Recession**. Using **state UI claims data**, the authors estimate regression models to compare the effectiveness of four UI programs in the United States that were subject to **random assignment**: **Florida's** Worker Profiling and Re-employment Services (PREP) and Re-employment and Eligibility Assessment (REA) program, the **Idaho** REA, and the **Nevada** REA/Re-employment Services (RES). The article reports that all four programs reduced UI spells, produced savings that exceeded the costs of the programs, and increased employment rates. Florida PREP was found to have the smallest effects, Florida REA and Idaho REA had moderate effects, and Nevada REA/RES was found to have the greatest effect in reducing UI spells. These results suggest that eligibility review and job-counseling services, working in tandem, were effective means of transitioning workers to stable employment.

Klerman, J., C. Saunders, E. Dastrup, Z. Epstein, D. Walton, T. Adam, and B. Barnow (2020). Evaluation of impacts of the Reemployment and Eligibility Assessment (REA) program: Final report. Abt Associates, Cambridge, MA, available at <https://www.dol.gov/sites/dolgov/files/OASP/evaluation/pdf/REA%20Impact%20Study%20-%20Final%20Report.pdf>

- Type of research: Causal (randomized controlled trial)
- Summary: This article evaluates the effectiveness of the Reemployment and Eligibility Assessment (REA) Program, funded by the U.S. Department of Labor (DOL) to reemploy workers and prevent improper Unemployment Insurance (UI) payments. The authors used **random assignment** to assign nearly 300,000 UI claimants in 4 states (**Indiana, New York,**

Washington, and **Wisconsin**) into multiple treatment arms. The authors found that REA cut UI benefit duration, but the effect varies across the states from 0.5 to 1.5 weeks. REA also increased employment and earnings, but the magnitude of the earnings impact was only about 2 percent, on average. These results suggest that the REA program had a modest impact on the duration of unemployment.

Black, D. A., Smith, J. A., Berger, M. C., & Noel, B. J. (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. Available at: <https://www.aeaweb.org/articles?id=10.1257/000282803769206313>.

- Type of Research: Causal (randomized controlled trial)
- Summary: The study examines the impact of the Worker Profiling and Reemployment Services (WPRS) system on unemployment insurance (UI) outcomes, including the amount of benefits received, the fraction of claimants exhausting benefits, and earnings in the quarters following initiation of a UI claim. The study uses **administrative data from the Kentucky Department of Employment Services** and a sample including 745 claimants **randomly assigned** in the control group and 1,236 claimants randomly assigned to the treatment group. The WPRS provides services to UI claimants, including job search assistance, counseling, job search workshops, testing, job referrals and placements, or if needed, referral to more intensive services, like training. The study found that the WPRS reduced mean weeks of UI benefits receipt by about 2.2 weeks, reduced mean UI benefits received by about \$143, and increased earning by over \$1,050.

Michaelides, M., & Mueser, P. (2018). Are reemployment services effective? Experimental evidence from the Great Recession. *Journal of Policy Analysis and Management*, 37(3), 546-570. Available at: <https://onlinelibrary.wiley.com/doi/full/10.1002/pam.22063>.

- Type of Research: Causal (Randomized control trial)
- Summary: This study examined the impact of a reemployment program implemented in **Nevada** during the **Great Recession** on UI benefits and employment outcomes. The reemployment program provided job-search and job-counseling services. The treatment group had to meet with a counselor in order to continue UI benefits, unless they had already found a job or participated in other services before the meeting. The control group was not required to meet with a counselor. The study used **Nevada UI claims data**. In total, 31,793 participants were **randomly assigned**, 4,673 to the treatment group and 27,120 to the control group. The study found that the reemployment program led to a 10 percentage point reduction in the likelihood of exhausting regular UI benefits. The program also led to a reduction in UI benefit duration of 1.9 weeks and a reduction in total UI benefits received of \$1,145.

3. Transitional, subsidized employment

Butler, D., Alson, J., Bloom, D., Deitch, V., Hill, A., Hsueh, J., Valentine, E. J., Kim, S., McRoberts, R., & Redcross, C. (2012). What Strategies Work for the Hard-to-Employ? Available at <https://www.mdrc.org/publication/what-strategies-work-hard-employ>

- Type of Research: Other (synthesis)
- Summary: This report summarizes the effectiveness of the Enhanced Services for the Hard-to-Employ demonstration, funded by the U.S. Department of Health and Human Services and the U.S. Department of Labor. The study included details on **eight experimental impact studies** of strategies to help the hard-to-employ succeed in the labor market. Findings from the evaluations suggest subsidized jobs programs provide temporary connections to employment for long-term welfare recipients and ex-prisoners, however, the impacts are mostly attributable to the subsidized jobs themselves. Welfare-to-work programs were found to be associated with longer-term increases in employment and reductions in the amount of cash assistance received by participants over a four-year period. However, five (of eight) programs did not demonstrate any impacts on employment or related outcomes.

Cummings, D., & Bloom, D. (2020). Can subsidized employment programs help disadvantaged job seekers? A synthesis of findings from evaluations of 13 programs. (OPRE Report 2020-23.). Office of Planning, Research, and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services, Washington, DC. Available at https://www.acf.hhs.gov/sites/default/files/documents/opre/sted_final_synthesis_report_fe_b_2020.pdf

- Type of Research: Other (synthesis)
- Summary: This report summarizes the employment and earnings findings of both the U.S. Department of Health and Human Services funded Subsidized and Transitional Employment Demonstration (STED) and the U.S. Department of Labor funded Enhanced Transitional Jobs Demonstration (ETJD). The analysis draws on information from **12 randomized controlled trials** of 13 subsidized employment programs in the **United States** to determine whether the programs achieved the desired employment and earnings impacts. The programs served a variety of populations in different contexts and the findings were mixed. Of the 13 programs included in the report, findings suggest that almost all improved employment and earnings in their first year of implementation, about half of the programs maintained those impacts through the first two years, and four of the 13 programs maintained earnings improvements beyond the second year. Increases in employment and earnings were typically observed for individuals facing significant barriers to employment, such as those who were out of the workforce longer, at higher risk of recidivism, and those without a high school diploma or equivalent.

Valentine, E. J., Anderson, C., Hossain, F., & Unterman, R. (2017). An Introduction to the World of Work A Study of the Implementation and Impacts of New York City's Summer Youth Employment Program. Available at:

<https://www.dol.gov/sites/dolgov/files/OASP/legacy/files/SYEP-Full-Report.pdf>

- Type of Research: Causal (randomized controlled trial)
- Summary: The study examines the impact of **New York City's** Summer Youth Employment Program (SYEP) on young people's education, employment, and earnings. The sample included about 265,000 young people who applied to SYEP from 2006 to 2010. Access to the program was rationed via a **lottery**. The study found that young people who were eligible to participate in SYEP were 54 percent more likely to be employed and earned about \$580 more during the summer of program application. However, the program had little effect on long-term outcomes, such as education, employment, or earnings beyond the initial summer.

Neumark, D. (2013). Spurring Job Creation in Response to Severe Recessions: Reconsidering Hiring Credits. *Journal of Policy Analysis and Management*, vol. 32, no. 1, pp. 142-171.

Available at: <https://onlinelibrary.wiley.com/doi/full/10.1002/pam.21665>.

- Type of Research: Other (literature review)
- Summary: This paper examines whether the use of hiring credits and worker subsidies could be effective in increasing employment during recessions. The paper uses **previous research** to argue that using hiring credits to increase job creation is ineffective when targeted at the disadvantaged but more effective when used for net job creation. The authors suggest that federal and state governments should enact permanent hiring credits with more aggressive rewards for hiring unemployed workers during economic downturns.

Farooq, A., & Kugler, A. D. (2015). What factors contributed to changes in employment during and after the Great Recession? *IZA Journal of Labor Policy*. Available at

<https://izajolp.springeropen.com/articles/10.1186/s40173-014-0029-y>

- Type of Research: Other (literature review), descriptive (quantitative) and causal (difference-in-differences)
- Summary: This paper presents three analyses to examine whether changes in unemployment during the **Great Recession** and the associated recovery period were due to cyclical or structural factors. First, the authors used previous research to examine cyclical versus structural unemployment during the Great Recession and recovery period and found that most of the increases in unemployment were explained by cyclical factors. Secondly, the authors used a counter-factual exercise to argue that there would have been 72,000 fewer individuals employed per month without the **American Recovery and Reinvestment Act of 2009** (ARRA). Lastly, the authors conducted **difference-in-differences analyses**, the findings from which suggest that (1) Work Opportunity Tax

Credits increased employment for disconnected youth by about 5 percent, but were ineffective for disabled and unemployed veterans; (2) the HIRE Act appears to have increased employment by about 3 percent for those who were unemployed for more than two months; and (3) the Reemployment and Eligibility Assessments appear to increase employment among the long-term unemployed by 6 percent.

Neumark, D., & Grijalva, D. (2017). The Employment Effects of State Hiring Credits. *ILR Review*, 70(5). Available at <https://journals.sagepub.com/doi/pdf/10.1177/0019793916683930>.

- Type of Research: Causal (difference-in-differences)
- Summary: This paper uses a **difference-in-differences** approach to examine the effects of state hiring credits on job growth. The authors use data on overall and industry-specific employment from the **Quarterly Census of Employment and Wages (QCEW)** and an **author-created hiring credits database** with information on job creation programs from **all 50 states** implemented from 1969 to 2012. The results suggest that hiring credits implemented between 1995 and 2011 were associated with a small increase in employment of 0.01 percent. Estimates for hiring credits implemented between 2007 and 2011, however, suggest that hiring credits with recapture provisions increased employment by 0.82 percent and those targeting the unemployed increased employment by 1.16 percent one year after they were implemented.

4. Career pathways and apprenticeship

Schwartz, D., Strawn, J., & Sarna, M. (2018, February). Career Pathways Research and Evaluation Synthesis: Career Pathways Design Study. Bethesda, MD: Abt Associates. Available at: <https://www.dol.gov/sites/dolgov/files/OASP/legacy/files/1-Career-Pathways-Design-Study-Findings-in-Brief.pdf>

- Type of Research: Other (synthesis)
- Summary: The report provides **summaries of studies** related to career pathways strategies, including information on research relevant to career pathways approaches, the implementation of existing and past career pathways initiatives, and the potential for career pathways approaches in early care and education. Specifically, the report focuses on the type, scope, and setting of completed and ongoing research on career pathways initiatives and findings from career pathways evaluations. The report includes 52 studies. Of these, 42 studies included assessments of outcomes, with 38 studies examining at least one employment outcome and 29 studies examining at least one education outcome. Nine of the studies examined effects on earnings, with three finding evidence of positive effects, five finding mixed results, and one finding evidence of negative effects. Effects for educational attainment were more commonly positive.

Peck, L. R., D. Litwok, D. Walton, E. Harvill, and A. Werner. (2019). Health Profession Opportunity Grants (HPOG 1.0) Impact Study: Three-Year Impacts Report. Washington, DC: Office of

Planning, Research, and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services. <https://www.acf.hhs.gov/opre/project/health-profession-opportunity-grants-hpog-impact-study-2011-2018>.

- Type of Research: Causal (randomized controlled trial)
- Summary: This report summarizes the three-year impacts of the first round of Health Profession Opportunity Grants (HPOG 1.0). In total, 32 organization received grants to provide education and training to low-income people. Programs used career pathways approaches to help individuals train for and obtain employment in well-paid jobs within the healthcare industry. The study used a **randomized controlled trial** to estimate program effects. After three-years, individuals randomly assigned to the treatment group eligible to participate in an HPOG program had earnings similar to individuals assigned to the control group. In addition, treatment group members were 1 percentage point more likely to be employed than comparison group members. A long-term follow-up study is in progress to assess effects of the HPOG programs after six years.

Gardiner, K., and R. Juras (2019). Pathways for Advancing Careers and Education (PACE): Cross-program implementation and impact study findings. Washington, DC: Office of Planning, Research, and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services. <https://www.acf.hhs.gov/opre/report/pathways-advancing-careers-and-education-pace-cross-program-implementation-and-impact>.

- Type of Research: Causal (randomized controlled trial)
- Summary: This report summarizes the early impacts from the nine career pathways programs participating in the Pathways for Advancing Careers and Education (PACE) evaluation. Each program was evaluated separately using a **randomized controlled trial** including 500 to 2,400 participants. Programs targeted a range of career pathways, industries, and low-income populations. Early results suggest that these programs improved educational outcomes but longer-term follow-up periods are needed to determine effects on employment and earnings.

Blume, G., Meza, E., Bragg, D., & Love, I. (2019). Estimating the Impact of Nation's Largest Single Investment in Community Colleges: Lessons and Limitations of a Meta-Analysis of TAACCCT Evaluations. New America. Available at <https://eric.ed.gov/?id=ED599754>

- Type of Research: Other (meta-analysis)
- Summary: This paper uses meta-analysis to assess the average estimated effects of participation in a program funded by a Trade Adjustment Assistance Community College and Career Training (TAACCCT) grant on program completion, credential attainment, post-training employment, and wage increases using data from **36 quasi-experimental design studies** conducted between 2016 and 2018. The authors use a random effects model to

standardize the effects for education and employment outcomes across the 36 studies. The findings suggest TAACCCT participation had a positive effect, on average, on education and employment outcomes.

Reed, D., Liu, A. Y.-H., Kleinman, R., Mastri, A., Reed, D., Sattar, S., & Ziegler, J. (2012). An Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States [Mathematica Policy Research Reports] Available at https://wdr.doleta.gov/research/FullText_Documents/ETAOP_2012_10.pdf

- Type of Research: Causal (matched comparison group)
- Summary: This study examined the effectiveness of Registered Apprenticeship programs implemented in **10 states** on participants' earnings and employment outcomes, as well as the cost-effectiveness of such programs. Using the **Employment and Training Administration's Office of Apprenticeship administrative database, Registered Apprenticeship Partners Information Data System, and state Unemployment Insurance wage record data**, the authors compare outcomes of those who participated in a Registered Apprenticeship program to a similar group of individuals who did not. Findings suggest Registered Apprenticeship program participants earned an average of \$5,839 more than nonparticipants in the ninth year after program enrollment. Findings from the cost-benefit study suggest the societal benefits of Registered Apprenticeship programs outweigh societal costs by more than \$49,000.

5. Self-employment and entrepreneurship

Benus, J., S. McConnell, J. Bellotti, T. Shen, K. Fortson, and D. Kahvecioglu (2008). Growing America Through Entrepreneurship: Findings from the Evaluation of Project GATE. Columbia, MD: IMPAQ International. Available at: https://wdr.doleta.gov/research/FullText_Documents/Findings%20from%20the%20Evaluation%20of%20Project%20GATE%20Report.pdf

- Type of research: Causal (randomized controlled trial)
- Summary: This article summarizes the evaluation of Project GATE (Growing America Through Entrepreneurship), a program funded by the U.S. Department of Labor (DOL). Using **participant tracking data, site visit data, survey data, and Unemployment Insurance (UI) administrative data**, the authors conduct a **randomized controlled trial and implementation analyses** of Project GATE in three states (**Maine, Minnesota, and Pennsylvania**). The authors found that Project GATE significantly increased small business ownership but had no significant effect on overall employment. Moreover, intervention group members reported earning an average of \$1,800 less than control group members across the entire study period, and the program had no effect on self-employment earnings. These results suggest that business ownership might not lead to increased earnings or employment, at least in the short-term.

Hock, H., M.A. Anderson, and R. Santillano (2018). Supporting Self-Employment as a Reemployment Strategy: Impacts of a Pilot Program for Dislocated Workers After 18 Months. Washington, DC: Mathematica.
https://www.dol.gov/sites/dolgov/files/OASP/evaluation/pdf/SET_Pilot_Program_Final_Impact_Report.pdf.

- Type of research: Causal (randomized controlled trial)
- Summary: This article evaluates the Self-Employment Training (SET) pilot program funded by the U.S. Department of Labor (DOL). Using **survey data** collected 18 months after enrollment in 2013, the authors conducted **experimental impact and implementation analyses** to examine the effectiveness of the program in four U.S. cities (**Chicago, Cleveland, Los Angeles, and Portland**). The article reports that SET increased self-employment by 56 to 68 percent and had small, positive effects on employment, with Cleveland and Portland reporting the strongest employment effects. However, the program did not significantly improve total earnings.

6. Additional research cited

Brynjolfsson, E., Horton, J. J., Ozimek, A., Rock, D., Sharma, G., & TuYe, H. Y. (2020). COVID-19 and remote work: An early look at US data. Cambridge, MA: National Bureau of Economic Research. Available at: <https://www.nber.org/papers/w27344>.

Card, D., Kluve, J., & Weber, A. (2018). What works? A meta analysis of recent active labor market program evaluations. *Journal of the European Economic Association*, 16(3), 894-931.

Gezici, A. & Ozay, O. (2020). How Race and Gender Shape COVID-19 Unemployment Probability. Amherst, MA: University of Massachusetts Amherst, Political Economy Research Institute. Available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3675022.

Federal Reserve Bank of St. Louis. (2021). Unemployment Insurance Weekly Claims Report. Available at <https://fred.stlouisfed.org/release?rid=180>.

Lahey, J. N., & Oxley, D. R. (2018). Discrimination at the intersection of age, race, and gender: Evidence from a lab-in-the-field experiment. Cambridge, MA: National Bureau of Economic Research. Available at <https://www.nber.org/papers/w25357>.

Lee, S. Y. T., Park, M., & Shin, Y. (2021). Hit harder, recover slower? Unequal employment effects of the COVID-19 shock. Cambridge, MA: National Bureau of Economic Research. Available at <https://www.nber.org/papers/w28354>.

Lipsey, M. W. (2009). The primary factors that characterize effective interventions with juvenile offenders: A meta-analytic overview. *Victims and offenders*, 4(2), 124-147.

- Oreopoulos, P., Wachter, T. von, & Heisz, A. (2006). The short- and long-term career effects of graduating in a recession: Hysteresis and heterogeneity in the market for college graduates. Cambridge, MA: National Bureau of Economic Research. Available at: <https://doi.org/10.3386/w12159>
- National Bureau of Economic Research Business Cycle Dating Committee. (2020). Business Cycle Dating Committee Announcement June 8, 2020. Available at: <https://www.nber.org/news/business-cycle-dating-committee-announcement-june-8-2020>
- Sironi, M. (2018). Economic conditions of young adults before and after the Great Recession. *Journal of Family and Economic Issues*, 39(1), 103–116. Available at: <https://doi.org/10.1007/s10834-017-9554-3>.
- Stokes, E. K., Zambrano, L. D., Anderson, K. N., Marder, E. P., Raz, K. M., Felix, S. E. B., ... & Fullerton, K. E. (2020). Coronavirus disease 2019 case surveillance—United States, January 22–May 30, 2020. *Morbidity and Mortality Weekly Report*, 69(24), 759.
- U.S. Bureau of Labor Statistics. (2020). Employment Situation Summary. Washington, DC: US Department of Labor.

ABOUT THE RAPID REVIEW

CLEAR’s rapid review of evidence on programs to create jobs and increase employment was created by Mathematica under the CLEAR contract with the U.S. Department of Labor (DOL), Chief Evaluation Office (CEO). The review was created for internal use at DOL, although the review or a revised version may be made available on the CLEAR website in the future. The contents of the review do not represent the views or policies of DOL. Due to the rapid turnaround for this review, the evidence scan did not follow CLEAR’s documented systematic approach. The evidence scan for this review had four components. First, CLEAR conducted a literature search using Google Scholar and the following websites: Abt Associates, Center for Budget and Policy Priorities, CLEAR, Congressional Budget Office, Congressional Research Service, Council of Economic Advisors, DOL, DOL Employment and Training Administration, Department of Transportation, IMPAQ, Jobs for the Future, Mathematica, MDRC, National Association of State Workforce Associations, National Bureau of Economic Research, and Upjohn Institute. This search covered research released since 2007. The search terms used for each strategy are provided in Table 1. Second, CLEAR reached out to 10 experts in labor-related fields to seek input on programs and studies to include in the review. Third, citations from relevant studies were used to identify additional studies for review. Finally, CLEAR has conducted weekly searches to identify additional research released since the initial drafting. This version of the brief was last updated with literature published before January 2021.

Table 1. Keywords used in database searches by strategy

Strategy	Topic search terms ^a
Infrastructure investment and fiscal stimulus	<p>“Stimulus” OR “Investment” OR “Infrastructure” OR “fiscal” OR “fiscal stimulus” OR Infrastructure investment”</p> <p>AND</p> <p>“Recession” OR “depression” OR “downturn” OR “ARRA” or “Financial crisis”</p>
Reemployment programs	<p>“return to work” OR “return-to-work” OR “employment” OR “re-employment” OR “reemployment” OR “unemployment” OR “economic recovery” OR “compensation”</p> <p>AND</p> <p>“Recession” OR “depression” OR “downturn” OR ARRA or “Financial crisis”</p>
Transitional or subsidized employment	<p>“subsidized” OR “Transitional employment” OR “subsidized employment” OR “job retention” OR “payroll funding” OR “protect jobs” OR “job protection” OR “save jobs” OR “Paycheck Protection” OR “Payroll protection”</p> <p>AND</p> <p>“Recession” OR “depression” OR “downturn” OR ARRA or “Financial crisis”</p>
Career pathways apprenticeship	<p>“Career” OR “Apprenticeship” OR “Training” OR “Career pathways”</p> <p>AND</p> <p>“Recession” OR “depression” OR “downturn” OR ARRA or “Financial crisis”</p>
Self-employment and entrepreneurship	<p>“Self-employment” OR “entrepreneurship” OR</p> <p>AND</p> <p>“Recession” OR “depression” OR “downturn” OR ARRA or “Financial crisis”</p>

^a Topic search terms are searched in title, abstract, subject, and keyword fields in the Business Corporate Plus searches.

CLEAR screened the abstracts of studies to identify those that examined specific strategies implemented in direct response to the Great Recession (infrastructure investments and fiscal

stimulus and unemployment compensation and reemployment programs), as well as promising strategies to support workers in obtaining meaningful employment across economic recessions and expansions (transitional, subsidized employment; career pathways and apprenticeship; and self-employment and entrepreneurship). The review covers 51 publications, many of which summarize the findings from multiple studies.

Due to the rapid nature of this review, studies identified for review were not assessed according to CLEAR's causal evidence guidelines. Instead, reviewers used a short rubric to summarize information for each study. Each citation is classified by study type: causal, descriptive, or other. **Causal** research can assess the effectiveness of a strategy—in other words, whether there is a cause-and-effect relationship between the strategy and the results or impacts. High quality causal research (impact studies) can produce the most credible type of evidence. **Descriptive** research does not determine cause-and-effect relationships but uses quantitative methods to identify trends, correlations, projections, and costs and benefits of actions taken. CLEAR also categorized qualitative studies under the descriptive category for the purposes of this rapid review. CLEAR's rapid reviews also summarize **other** types of evidence and research that describe how, where, and why strategies are implemented, and includes opinion pieces by subject matter experts (SMEs). This type of research does not aim to identify cause-and-effect relationships or use quantitative or qualitative methods but can be useful to identify emerging strategies potentially worthy of future replication and additional study. For more information on how CLEAR reviews and rates different types of studies, see CLEAR's reference documents at <https://clear.dol.gov/about>.

More information about CLEAR can be found here: <https://clear.dol.gov/about>.

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