#### DIR Issue Brief Evaluation of the Supplemental Job Displacement Benefit (SJDB) Program Available to Workers with Permanent Disability in the California Workers' Compensation System October 2018

In February 2018, Senator Ricardo Lara (33rd District) requested that the Commission on Health and Safety and Workers' Compensation (CHSWC) gather data and conduct a study on the efficacy of the Supplemental Job Displacement Benefit (SJDB) program for injured workers in California.<sup>1</sup> The Commissioners directed the CHSWC staff, in collaboration with DIR, to examine the program in detail and present findings and recommendations. On June 7, 2018, we presented preliminary findings to the Commission at a public meeting.<sup>2</sup> We briefed the Commission on the final study on September 27, 2018.<sup>3</sup>

This issue brief provides a summary of the study. We analyzed demographics and injuries associated with benefit recipients, reviewed the training and credentialing requirements, assessed the literature on empirical support for vocational education, and examined the efficacy of the program through a survey of eligible injured workers. The brief concludes with a discussion of options that may better serve these workers.

### Background

An employee injured on or after January 1, 2013, whose employer does not offer suitable regular, modified, or alternative work within 60 days of receipt by the claims administrator of a medical treatment or medical evaluation report that the employee's injury caused permanent partial disability may also qualify for the SJDB. The benefit comes in the form of a non-transferrable \$6,000 voucher, which is worth \$6,000, regardless of the level of permanent disability. The voucher can be used for training at a public school in California or any other provider on the list of the state's eligible training providers.<sup>4</sup> It can also be used to pay licensing or certification and testing fees, to purchase tools required by a training course, to purchase computer equipment valued at up to \$1,000, and to reimburse up to \$500 in miscellaneous expenses. As much as 10 percent of the value of the voucher can be used for vocational and return-to-work counseling.

<sup>&</sup>lt;sup>1</sup> <u>https://www.dir.ca.gov/chswc/Meetings/2018/Letter-Sen-Lara-RE-SJDB-2-5-18.pdf</u>

<sup>&</sup>lt;sup>2</sup> <u>https://www.dir.ca.gov/chswc/Meetings/2018/SJDB-Voucher-Program-Assessment.pdf</u>

<sup>&</sup>lt;sup>3</sup> <u>https://www.dir.ca.gov/chswc/Meetings/2018/SJDB</u> assessment.pdf

<sup>&</sup>lt;sup>4</sup> California's Eligible Training Provider List (ETPL) was established in compliance with the Workforce Investment Act (WIA) of 1998 and amended by the Workforce Innovation and Opportunity Act (WIOA) of 2014 to provide customer-focused employment training resources for adults and dislocated workers. For the CalJobs list: <u>https://www.edd.ca.gov/Jobs\_and\_Training/Eligible\_Training\_Provider\_List.htm</u>

In his request for a study, Senator Lara elevated concerns about the efficacy of the SJDB program, citing reports from stakeholders that suggest the program's goals "have not been fully reached." We examined the program in detail to address the anecdotal issues and specific questions raised.

### Insight from Claims Data: Demographics and Injuries Associated with Workers Eligible for SJDB

### Data Sources for Workers' Compensation Claims

California's Workers' Compensation Information System (WCIS) uses electronic data interchange (EDI) to collect comprehensive information from claims administrators to help the DIR oversee the state's workers' compensation system, in accordance with Labor Code section 183.6. There are limitations to using these data because, per regulatory requirements, not all workers' compensation claims are reported into the system. Despite limitations, the WCIS remains the most comprehensive source of information about injured workers in California and is thus used for this analysis.

For the purpose of this analysis, the staff used data from the WCIS extracted in March 2018 for claims reported with a date of injury between January 1, 2011, and December 31, 2017. To isolate SJDB-related claims, any claim with a payment reported for SJDB was included in the dataset.

Claim information obtained from the WCIS included age, gender, the nature of injury, the cause of injury, any associated injured body part, the claim duration, the geographic distribution of claims, and the amount of benefits paid.

In addition, findings from a recent RAND <u>study</u> on the RTWSP were included in this analysis, which examined WCIS data for years of injury between 2011 and 2014.

### Findings

The share of workers with permanent partial disability with any paid SJDB has increased, indicating that the program has expanded since 2011, doubling from 1,513 workers in 2012 to 3,579 workers in 2013 (see Table 1).

	Percentage with Paid SJDB (All	Percentage with Paid SJDB (PPD	All injuries (unweighted N	PPD Injuries (unweighted N
Year of Injury	Injuries)	Injuries)	with PPD)	with PPD)
2011	0.43%	2.38%	1,864	1,791
2012	0.35%	2.06%	1,573	1,513
2013	0.81%	5.03%	3,706	3,579
2014	0.77%	5.02%	3,595	3,451

Table 1. Number of Injured Workers with Any Paid SJDB by Year of Injury, 2011-2014

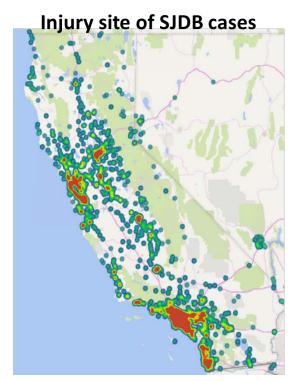
Source: WCIS data analysis conducted by RAND: <u>https://www.dir.ca.gov/chswc/meetings/2018/Eval-RTW-Fund-Report-2018.pdf</u>, table B13, p. 154.

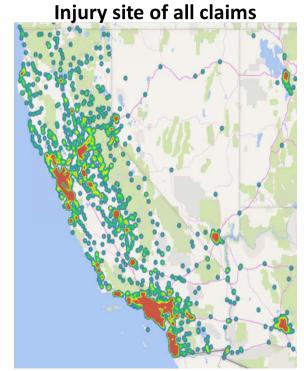
An examination of benefit payments revealed that workers are not using the full benefit amount. Whereas the SJDB permits up to \$6,000 in benefits per eligible worker, the average spent is \$4,600 per worker.<sup>5</sup> In terms of timing, 60% of eligible workers begin using the their benefit within three years of being injured.<sup>6</sup>

We looked at the claims data to gain insight into the characteristics of SJDB recipients. Most (58%) are male, and the average worker is 43.5 years old and earns around \$635 in weekly wages. Based on the reported home address, recipients may have lower literacy levels (43%) and limited access to services such as the internet (31%). Half live in southern California, the majority of whom reside in Los Angeles.<sup>7</sup>

The SJDB beneficiaries live throughout the state, and are concentrated in major metropolitan areas, as with all injured workers (see Figure 1).

Figure 1. Comparison of Injury Sites Reported for SJDB Workers and All Workers' Compensation Claims





Source: DIR analysis of WCIS data, extracted March 2018. *N* = 14,629 for SJDB cases with dates of injury in 2011-2017.

We examined the cause and nature of these workers' injuries. Claims data revealed that strains and lifting injuries, followed by cumulative trauma, were the leading causes of injury and accounted for a greater share of SJDB claimant injuries than is the case in workers' compensation claims in general (see Figure 2). Injuries of the lower back (22%), shoulder (11%), multiple body parts (11%), and knee (9%) (which, combined, comprise 53% of all injuries) were the most frequently reported types of injury.

<sup>&</sup>lt;sup>5</sup> RAND analysis of WCIS data, 2013-2014 injuries, <u>WC1219</u> (2018), table B14, p. 155.

<sup>&</sup>lt;sup>6</sup> DIR analysis of WCIS data, extracted March 2018.

<sup>&</sup>lt;sup>7</sup> RAND analysis of WCIS data, 2013-2014 injuries, <u>WC1219</u> (2018), table B15, p. 155.

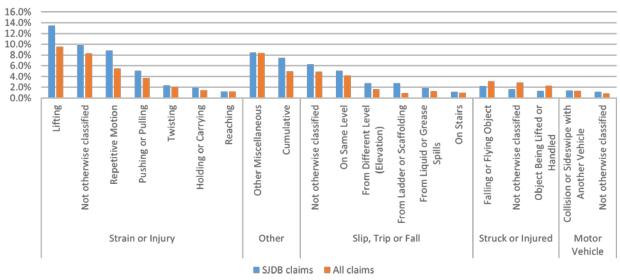


Figure 2. Causes of Injuries in Workers' Compensation Claims with SJDB Payments vs All Claims

Source: DIR analysis of WCIS data, extracted March 2018. *N* = 14,629 for SJDB cases with date of injury in 2011-2017.

We looked at the industry and class mix for these workers as well. Manufacturing, retail, and administrative support industries had the largest share of SJDB recipients. Service and retail classes were the most frequently reported for SJDB recipients. Data reveal that a third of beneficiaries worked in labor and maintenance occupations. Laborers such as roofers and construction and warehouse workers accounted for 23% of cases and reported slips/trips/falls and lifting most frequently. Maintenance workers such as janitors, caregivers, and housekeepers comprised 13% of those who reported the same causes and types of injury at even higher rates than in all claims.

# Assessment of the Legitimacy and Legal Credentials of SJDB Training Partners

Under section 122 of the federal Workforce Innovation and Opportunity Act (WIOA) of 2014, each state compiles a statewide list of training providers, both public and private, that are eligible to receive WIOA funds for providing training services to adults. Criteria for determining eligibility for California's Eligible Training Provider List (ETPL) are established by the state Workforce Development Board and local boards.<sup>8</sup> Rules are set forth primarily in *The Workforce Innovation and Opportunity Act Eligible Training Provider List Policy and Procedures*. The SJDB program permits use of services from eligible training providers included in the ETPL, accessed through the online CalJobs resource.

A training provider might be considered "legitimate" if it meets all regulatory requirements for inclusion in the ETPL. The term could be used to distinguish eligible providers or programs from those that failed

<sup>&</sup>lt;sup>8</sup> Eligible Training Provider List Explanation: A program of training services under WIOA section <u>134(c)(3)</u> is defined as one or more courses or classes, or a structured regimen that leads to a recognized post-secondary credential, secondary school diploma or its equivalent, employment, or measurable skill gains toward such a credential or employment. Only providers that the State determines to be eligible, may receive training funds under Workforce Innovation and Opportunity Act (WIOA).

to gain eligibility or from those that are ineligible by definition, which include on-the-job training, customized training (as defined by the WIOA), incumbent worker training, internships, and transitional employment. "Legitimate" might also be used to distinguish programs that meet the required performance standards for list eligibility from those that qualify only for temporary waivers.

Neither providers nor programs on the ETPL are credentialed. (Students who complete programs are credentialed.) Providers and programs may be but are not necessarily accredited by an accrediting agency such as the Western Association of Schools and Colleges.

Providers that are not accredited may instead qualify for the ETPL by securing the approval of the Bureau for Private Postsecondary Education, California Department of Education, or Chancellor's Office of the California Community Colleges. These agencies have legal authority under legislation such as the California Private Postsecondary Act, so their approval is sought through a legal process, but that process is neither credentialing nor accrediting.

DWC posts an Approved Vocational Return to Work Counselor (VRTWC) <u>list</u> pursuant to section 10133.59 (b) of Title 8, California Code of Regulations. The VRTWC list includes persons or entities capable of assisting a person with a disability in the development of a return-to-work strategy, and whose regular duties involve the evaluation, counseling, and placement of disabled persons. A VRTWC must have at least an undergraduate degree in any field and three or more years of full-time experience in conducting vocational evaluations, counseling, and placement of disabled adults (8 CCR §10116.9(s)). Applications for appointment are accepted only from individuals. Any person who meets the minimum requirement of having an undergraduate degree in any field and three or more years of full-time experience in conducting vocational evaluations, counseling, and placement of disabled adults (a can apply (8 CCR §10116.9(s), and §10133.59).

In an attempt to gain additional insight into training partner quality, we reviewed the Requests for Dispute Resolutions (8 CCR §10133.55) submitted to DWC between January 1, 2014, and June 30, 2018. Pursuant to 8 CCR §10133.54, when there is a dispute regarding the SJDB, the employee or claims administrator may request the administrative director's resolution. Of the 588 forms received, 23 were regarding SJDB voucher entitlement disputes, seven were regarding failure to pay the SJDB training provider or counselor, three were for reimbursement requests, and one resolved a dispute between parties regarding the SJDB voucher amount.

#### Evidence of Effectiveness of the Vocational Training Process and Benefit to Workers

We examined the literature for empirical studies on the efficacy of vocational education and training (VET). We found no research studying the impact for injured workers. A substantive body of research exists for other cohorts, including apprenticeship and younger workers (high school through post-college) and may offer insight. Because the cohorts differ significantly, however, research on outcomes specifically associated with VET programs for injured workers would be informative for policy consideration.

Hoeckel (2008) provides a general cost-benefit analysis of VET, with a detailed discussion on relevant variables and short- and long-term benefits for different stakeholders. Table 2 provides a relevant summary of outcomes.

Author, Year	Data, Country	Results	
Bishop & Mañe (2005)	High school student reports and transcripts, US	Students who take a certain percentage of vocational subjects go on to earn higher wages and work more than purely academic students. Short- and medium-term returns to career-technical education and payoffs increase over time. Dropping out is less likely in vocational than in academic tracks.	
Bonnal et al. (2002)	Survey (19 months transition from school to first job), France	Apprentices (especially men) perform better in the labor market than students from VET schools.	
Euwals & Winkelmann (2002)	Registration data, Germany	Apprentices who stay with their training firms after receiving their diploma have higher wages and stay in their first job longer than apprentices who leave the training firms.	
Hofer & Lietz (2004)	Social insurance data, Austria	In terms of long-term unemployment and employment stability, ex-apprentices do better than unskilled workers. Monthly median earnings for the unskilled are 20% less than for ex-apprentices.	
Jenkins et al. (2007)	Labor force survey, England	Some VET qualifications generate substantial wage premia. Level 3 vocational qualifications are associated with a higher probability of employment.	
Karmel & Nguyen (2006)	Student outcomes survey, Australia	Compares students who have only partially completed VET certificate and VET graduates and finds a positive association between the highest (VET) education level and employment.	
McIntosh (2004, 2007)	Labor force survey, UK	Vocational qualifications at all levels can improve the employment chances of unqualified school leavers.	
		Apprenticeships (compared to other vocational qualifications) significantly positively related to the probability of employment. Wage returns have increased over time.	
Ryan (2002a, 2002b)	Survey of education and training (longitudinal), Australia	Individuals who complete VET qualifications generally receive higher wages than similar individuals who do not complete VET qualifications. This benefit continues throughout their career.	
		Full-time employment outcomes are significantly higher for VET graduates than for students without post-school qualification immediately after entering the labor market.	

Table 2. Literature Review of the Efficacy of Vocational Education and Training (VET)

Source: Adapted from K. Hoeckel, *Costs and Benefits in Vocational Education and Training* (OECD, 2008), table 2, pp. 13-14, <u>http://www.oecd.org/education/innovation-education/41538706.pdf</u>. © OECD, 2008.

Tripney et al. (2013) examine the effectiveness of technical and vocational education intervention in developing countries on employment and employability outcomes of young people. The review summarizes findings from 26 studies conducted in Latin America, the Caribbean, Europe, East Asia, South Asia, and sub-Saharan Africa. Participants were between the ages of 15 and 24. Ten studies were used for statistical meta-analysis. They found that VET interventions had a small but positive effect on paid employment, formal employment, and monthly earnings. (The effect on hours worked was positive but non-significant, and the effect on self-employment earnings was negative but non-significant.) Evidence for formal employment and earnings was stronger than for the other outcomes.

More research in this area would be helpful to better understand the outcomes of workers who suffer occupational injury and receive VET. It is not clear from the current literature whether VET has shown evidence of effectiveness in helping injured workers, especially those with permanent disability, return to work.<sup>9</sup>

### Program Efficacy: Survey of Eligible Injured Workers

To assess how beneficial the SJDB program is for workers, DIR conducted a 14-question survey of injured workers in June and July 2018. Participants were invited via one of three methods: email, text, and telephone.

## Data Collection

We prepared a sample of injured workers with dates of injury on or after January 1, 2013, who meet either of the following criteria:

- Received a one-time \$5,000 cash benefit from the Return to Work Supplement Program's (RTWSP), based on eligibility determined by demonstrated receipt of the SJDB voucher ("RTWSP workers").
- SJDB eligibility based on indication of some SJDB-related payment reported to WCIS after July 1, 2015 ("SJDB workers").

To determine the population of RTWSP workers, we used the RTWSP database for beneficiaries receiving \$5,000 payments on or after July 1, 2016. We identified 29,708 workers, 36% with email addresses and an additional 40% with telephone numbers. Of these, we included all 10,843 email addresses in the sample for the email survey and 1,031 randomly selected telephone numbers<sup>10</sup> to invite to participate in the text-based survey. Because the RTWSP application is submitted by the worker and is more recent than the worker information reported to WCIS, the RTWSP worker sample was considered to have a greater likelihood of reaching the worker through the most current contact information.

<sup>&</sup>lt;sup>9</sup> The <u>Washington State Labor and Industry Vocational Recovery Project</u> may provide a future basis for measuring effectiveness.

<sup>&</sup>lt;sup>10</sup> The 1,031 sample aimed for a 95% confidence interval with a 3% margin of error.

To determine the population of SJDB workers, we used a WCIS data extract from May 1, 2018, for workers with a date of injury on or after January 1, 2013, and SJDB-related payment reported to WCIS after July 1, 2015. This time allowance enabled us to capture those eligible to receive RTWSP in alignment with the RTWSP workers sample since the regulations (<u>CCR 17304</u>) permit a one-year allowance after SJDB voucher issuance to claim the \$5,000 payment.

Of the 9,953 SJDB workers identified, 77% (7,685 workers) matched the RTWSP workers (and thus were excluded to avoid the potential for duplicate survey responses). Telephone numbers were available for 2,190 SJDB workers, and from these we randomly selected 758 respondents for the survey sample.<sup>11</sup> Of these, 658 received text survey invitations. Staff called 100 of the SJDB workers sample to conduct the survey over the phone and pilot the questions to ensure clarity. Based on the successful pilot, the results obtained through phone surveys and text invitations were included in the analysis. We conducted the phone survey in English and Spanish to accommodate the workers' language preferences. The online survey used by those invited via email and text was translated and made available in six languages: English, Spanish, Chinese, Korean, Tagalog, and Vietnamese.

In total, we contacted 12,632 injured workers to participate in the survey. After two rounds of email invitations and four weeks of time for survey completion, we received input from 122 respondents.<sup>12</sup> Of these, 90 completed surveys. Low response rates are common in injured worker surveys for a variety of reasons, and because of this small sample size, the findings should be interpreted with caution.

#### Findings

Although the survey was available in six languages, respondents selected only English (63%) and Spanish (37%) versions. Text-invitation surveys generated the most responses, comprising 36% of respondents, while telephone- and email-invitation surveys each contributed 32%. Of the 90 respondents who completed the survey, 70% (63 workers) reported that they received the SJDB voucher, which was a qualifying criterion for survey eligibility.<sup>13</sup> For those who reported that they received the benefit, 33% (21 workers) received vocational counseling, 56% (35 workers) received a computer, 48% (30 workers) received training, 19% (12 workers) received payment for licensing or certification fees, and 32% (20 workers) received payment for something else. Eight percent (5 workers) reported taking a test<sup>14</sup> to determine the best training for their needs, and less than a quarter (24%, 15 workers) found it easy to find the best training for their needs.<sup>15</sup> Less than half (43%) the workers received training in their preferred language.

<sup>&</sup>lt;sup>11</sup> The 758 sample aimed for a 95% confidence interval with a 3% margin of error.

<sup>&</sup>lt;sup>12</sup> We do not know how many email or text invitations were delivered successfully. This may have affected the response rate for this survey. Telephones that do not accommodate texting, coupled with wrong numbers/email addresses, etc., are factors that may have reduced the potential number of survey respondents.

<sup>&</sup>lt;sup>13</sup> This could be due to recall bias (the worker may not remember receiving the voucher).

<sup>&</sup>lt;sup>14</sup> This may also be referred to as an "Ability to Benefit" examination.

<sup>&</sup>lt;sup>15</sup> In response to this issue, DWC recently updated the <u>SJDB website</u> to include links and specific instructions on how to locate approved training providers.

For workers who received training, 31% (10 workers) took it in a classroom, 28% (9 workers) participated in online training, and 6% (2 workers) had a combination program that was part online and part classroom based. Two workers (6%) reported that a home was the training venue, and nine respondents (28%) indicated that the training never took place.

We asked respondents whether the training they received was helpful. One-third (10 workers) reported that they were currently receiving the training, so it was too soon to tell. A quarter (7 workers) thought the training was helpful because they are applying the skills they learned; however, they currently do not have a job. Another quarter (7 workers) did not complete the training. Two workers registered but did not begin the training, and three respondents completed the training but reported it was not helpful. Of all the surveyed workers who received the SJDB training benefit, two reported that they got a new job using the skills they gained.

When asked how they first learned about the SJDB training voucher, 55% of respondents (36 workers) reported that their attorney had informed them and 29% (19 workers) indicated that they had learned about SJDB from their employer's insurer (see Figure 3). Three workers did not know about SJDB until they received the voucher. Over half (49 workers) indicated a \$4,000 cash benefit would be more helpful than training to learn new skills or help finding a job.



## Figure 3. Respondents' Awareness of the SJDB Voucher

Source: Injured Worker Survey, July 2018, N = 65.

In terms of educational attainment, 29% (26 workers) had a high school diploma or GED. Nearly a quarter (22 workers) went to college or had a two-year degree, and another quarter (22 workers) went to high school but did not graduate (see Figure 4).

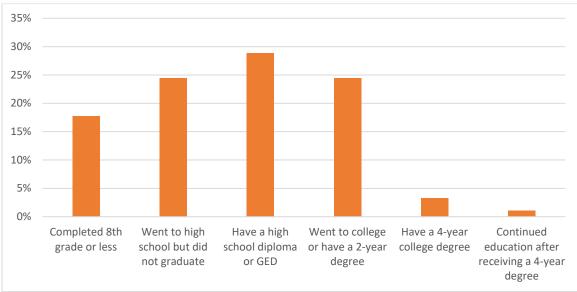


Figure 4. Respondents' Highest Level of School Completed

Most respondents (63%, 57 workers) had an attorney assist with their workers' compensation claim. Less than half of those surveyed (47%, 42 workers) applied for the RTWSP \$5,000 benefit, and 7% (6 workers) paid someone to help them apply. Despite being eligible for RTWSP, 81% (39 workers) of those who did not apply said it was because they did not know about the benefit. Two workers did not apply because they could not provide all the required information; however, none indicated that they had a problem providing a copy of their SJDB voucher. One worker could not access a computer (the RWTSP application is only online and available to workers at kiosks in every DWC office throughout the state), and two workers found the application too confusing.

Less than half the respondents were employed at the time of the survey (24% full time, 20% part time), and 28% (25 workers) indicated that they were not able to work. Two percent were retired and 26% were still looking for a job.

#### Discussion

SJDB eligibility and payments are increasing. Most (58%) beneficiaries are male, and the average worker is 43.5 years old and earns around \$635 in weekly wages. In terms of geographic dispersion, half live in southern California, of which the majority reside in Los Angeles. Manufacturing, retail, and administrative support industries have the largest share of SJDB recipients. A third of beneficiaries work in labor and maintenance occupations. Claims data reveal that strains and lifting injuries, followed by cumulative trauma, were the leading causes of injury and accounted for a larger share of SJDB claimant injuries than workers' compensation claims in general.

Although the quantity of workers participating in SJDB is increasing, along with the associated costs, the program's efficacy is not clear. Specifically, the evidence is lacking to suggest that the benefit is

Source: Injured Worker Survey, July 2018, *N* = 90.

producing the intended results for permanently disabled workers—namely, workforce re-entry. Because these workers were not offered a job with their at-injury employer, securing a new job is critical. Of those eligible for the SJDB who participated in the injured worker survey, only two indicated that they got a new job using the skills they gained. Less than half the respondents were employed at the time of the survey. A majority indicated that a \$4,000 cash benefit would be more helpful than training to learn new skills or help in finding a job. This type of benefit aligns closely with the \$5,000 cash benefit that these same workers are eligible to receive through the RTWSP, although only a small portion apply.<sup>16</sup>

Although the evidence supports conditional and unconditional cash transfer as an efficient and effective means of benefit delivery,<sup>17</sup> an examination of the literature produced a dearth of evidence regarding the effectiveness of VET for helping permanently disabled workers re-enter the workforce. Additional research in this area is merited.

Although SJDB payments for VET services are issued, anecdotal evidence<sup>18</sup> and survey responses suggest that workers are not receiving education or training that leads to viable employment. While the larger economy should be considered as a potential factor in lower employment rates, current unemployment rates as published by the U.S. Department of Labor<sup>19</sup> are extremely low and employers are actively hiring. So the 1 in 4 surveyed workers still looking for a job are in the minority of job seekers not finding one. If it is because they are no longer actively seeking employment, perhaps because they are not able to work, as reported by 28% of survey respondents, VET delivered through the SJDB may be ineffective.

Given these findings, there may be merit in considering alternative benefit options that may better serve these workers.

<sup>&</sup>lt;sup>16</sup> A recent <u>RAND study</u> found that take-up of the program is low: In a sample of eligible workers, just over half applied to receive the benefit. The authors also found that the eligible population is larger than initially anticipated, a trend driven in part by rising utilization of the SJDB program. This study had a similar finding: 47% of injured worker survey respondents eligible for SJDB/RTWSP applied for the RTWSP benefit. Over 80% of those who did not apply reported that it was because they did not know about the benefit.

<sup>&</sup>lt;sup>17</sup> As recently published in *Science* magazine (Hanna 2017), more than 1.9 billion individuals in the developing world benefit from social safety net programs. Concerns about delays in benefit delivery and fraud related to this practice have been countered by a recent report showing that use of modern banking technology to distribute benefits can help to drastically reduce corruption in cash transfer programs (Muralidharan 2016). A recently chaptered bill in the California legislature (<u>Senate Bill 880</u>) would be a potential vehicle to consider for this purpose.

<sup>&</sup>lt;sup>18</sup> See correspondence from Senator Lara requesting the CHSWC study of this issue dated February 5, 2018.
<sup>19</sup> U.S. Department of Labor News Release, <u>https://www.dol.gov/ui/data.pdf.</u> In the week ending September 15, 2018, the advance figure for seasonally adjusted initial claims was 201,000, a decrease of 3,000 from the previous week's unrevised level of 204,000. This is the lowest level for initial claims since November 15, 1969 when it was 197,000. The 4-week moving average was 205,750, a decrease of 2,250 from the previous week's unrevised average of 208,000. This is the lowest level for this average since December 6, 1969 when it was 204,500.

#### References

- Bishop, J. H. and F. Mañe (2005). Economic returns to vocational courses in U.S. high schools. In Laugslo,
   J., and Maclean, R. (eds.), *Vocationalisation of secondary education revisited*. Netherlands:
   Springer, pp. 329-362.
- Bonnal, L., S. Mendes, and C. Sofer (2002). School-to-work transition: apprenticeship versus vocational schools in France. International Journal of Manpower, Vol. 23, No. 5, pp. 426-442.
- Euwals, R., and R. Winkelmann (2002). Mobility after apprenticeship—Evidence from register data. Applied Economics Quarterly, Vol. 48, Nos. 3–4, pp. 256–278.
- Hanna, R. (2017). Technology beats corruption. Science, Vol. 355, No. 6322, 20 January, pp. 244-245. DOI: 10.1126/science.aal2868
- Hoeckel, K. (2008). Costs and benefits in vocational education and training. OECD, http://www.oecd.org/education/innovation-education/41538706.pdf.
- Hofer, H., and C. Lietz (2004). Labour market effects of apprenticeship training in Austria. International Journal of Manpower, Vol. 25, No. 1, pp. 104-122.
- Jenkins, A., C. Greenwood, and A. Vignoles (2007). The returns to qualification in England: Updating the evidence base on level 2 and level 3 vocational qualifications. Centre for the Economics of Education, LSE, London.
- Karmel, T., and N. Nguyen (2006). The value of completing a vocational education and training qualification. NVCER, Adelaide.
- McIntosh, S. (2004). The impact of vocational qualifications on the labour market outcomes of low achieving school-leavers. CEP Discussion Paper No. 621.
- McIntosh, S. (2007). A cost-benefit analysis of apprenticeships and other vocational qualifications. Sheffield University Management School, Research Report RR 834.
- Muralidharan, K. (2016). Building state capacity: Evidence from biometric smartcards in India. American Economic Review, Vol. 106, No. 10, pp. 2895–2929, DOI: <u>http://dx.doi.org/10.1257/aer.20141346</u>
- Ryan, C. (2002a). Individual returns to vocational education and training qualifications: Their implications for lifelong learning. NCVER, Adelaide.
- Ryan, C. (2002b). What are the longer term outcomes for individuals completing vocational education and training qualifications? NCVER, Adelaide.
- Tripney, J., J. Garcia Hombrados, M. Newman, C. Hovish, C. Brown, K.T. Steinka-Fry, and E. Wilkey (2013). Post-basic technical and vocational education and training (TVET) interventions to improve the employability and employment of young people in low- and middle-income countries: A systematic review, Campbell Systematic Reviews, no. 9, DOI: 10.4073/csr.2013.9