Disability, employment, and income: are Iraq/Afghanistan-era U.S. veterans unique?

Recent veterans, although demographically different from and more likely to have a disability than the combined population of nonveterans and veterans whose service concluded before 2001, are nonetheless similar to them in terms of full–time employment, wage income, and adjusted family income

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At a time when the United States is involved in two major international conflicts, research on the health and economic outcomes of its recent veterans is becoming increasingly important. However, it is difficult to compare the labor force characteristics of recent veterans[1] to those of nonveterans and veterans who have not served recently because recent veterans—those who served in the era of Operation Iraqi Freedom[2] and Operation Enduring Freedom (Afghanistan), also known as Gulf War era II—are demographically different from the rest of the population. In this study, recent veterans are compared with the combined population of people who have never served in the military and veterans whose service concluded prior to September 2001.

Recent veterans tend to be much younger and are more likely to be male than are people in the comparison group. The recent veterans and the rest of the population are demographically different in other ways, too. For instance, only 1 in 4 young Americans has been eligible to enlist into the military during the period when the United States has been involved in conflicts in Iraq and Afghanistan. Pre-

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existing conditions—including obesity, medical and behavioral health conditions, criminal history, or other administrative disqualifiers—limit the number of eligible recruits.[3]

This study aims to create a level playing field of comparison by controlling for the differences in age, gender, race, ethnicity, and educational attainment through the use of propensity score matching techniques. Using matched samples, one can determine whether there are different employment outcomes, income sources, disability program participation, and disability statuses for recent veterans and the rest of the population. After matching on the complete sample, the study will make similar comparisons using only the subset of people with disabilities. While this article uses data for the United States, the topic has global relevance.

Disability is increasingly part of the lives of veterans. The types of disabilities that are related to combat injuries include physical injuries, traumatic brain injury, hearing loss, posttraumatic stress disorder, and a combination of ailments and injuries. According to the U.S. Department of Veterans Affairs (VA), a majority of combat injuries in Operation Iraqi Freedom and Operation Enduring Freedom occur from high-pressure waves, acceleration/deceleration injury, and shrapnel that are the

result of an explosion.[4] Minor traumatic brain injury can even occur in those who were not directly hit by a blast and never lost consciousness. Kevlar helmets and body armor have helped reduce the mortality rate but cannot provide complete protection, particularly when dealing with injuries to the head, neck, and face.[5] Some veterans return from combat with sensory limitations, cognitive disabilities, physical disabilities, self-care limitations, difficulty with independent living, and/or work limitations. The VA recognizes the unique injuries and problems of this new generation of veterans, including their special chronic-care needs.[6] These disabilities could be associated with employment rates, earnings, and disability program participation of returning veterans.

While the academic literature has touched upon the demographics and employment of the disabled population as a whole and the heterogeneity within that population,[7] very few academic papers have been written about the employment, earnings, and disability program participation of veterans, either with or without disabilities.[8] In a 2010 article, James Walker looked at the employment and earnings of recent veterans as a whole, and presented brief summary statistics on the employment rates of disabled veterans.[9] Robert Rosenheck, Linda Frisman, and Jody L. Sindelar in 1995 looked at the 1987–1988 National Vietnam Veterans' Adjustment Study and found only a small association between disability payments and labor force nonparticipation, except at high levels of payment.[10] The analysis being presented here, however, extends the previous analysis by using propensity score matching to meaningfully compare recent veterans to the comparison group, and also expands the discussion regarding disability, since recent veterans may be different from the rest of the population in terms of disability prevalence and type.

Data and methodology

The data in this study come from the Current Population Survey (CPS). The CPS, a joint undertaking of the Bureau of Labor Statistics and the Census Bureau, is a monthly survey of approximately 60,000 eligible households and is the primary source of labor force information for the U.S. noninstitutionalized population ages 16 and older.[11] A few different types of surveys are fielded by the CPS: (1) the basic monthly survey (BMS), (2) the Annual Social and Economic Supplement (ASEC), and (3) various other supplements that

deal with more specific questions, generally fielded every other year or on a sporadic basis. The BMS collects labor force information and demographic information, including veteran status and period of service. The basic monthly survey also includes questions pertaining to disability. A series of six disability questions was asked of every respondent in the BMS in June 2008, and then of respondents in their first and fifth months in sample from September 2008 onward.[12] These new questions encompass disabilities and limitations that affected (1) vision; (2) hearing; (3) remembering, making decisions, or concentrating; (4) physical matters such as walking and climbing stairs; (5) self-care, like dressing or bathing; and (6) independent living in the form of being able to leave the house for an errand or doctor's appointment. These questions are asked every month; the official BLS measure of disability comprises them.[13]

The ASEC Supplement, administered in March, generates the usual monthly labor force and disability data provided in the BMS, but also adds data on work experience, income, noncash benefits, and migration.[14] This supplemental survey distinguishes among many forms of household income, including Social Security disability benefits, Supplemental Security Income, and service-connected veteran disability compensation.

The CPS uses a rotation system for its household interviews. Each household is followed for a 16-month period on a 4-8-4 pattern. That is, the housing unit or group quarters is interviewed 4 consecutive months, not in sample for the next 8 months, interviewed the next 4 months, and then retired from sample. In any monthly sample, one-eighth of the sample is being interviewed for the first time (MIS, standing for month in sample, equals 1), one-eighth is being interviewed for the second time (MIS = 2), and so on.[15] While one of the benefits of the Current Population Survey is that this rotation system creates short longitudinal panels, there are not enough veterans with disabilities to permit the creation of panels that would be statistically and economically meaningful. Because of this limitation, this study will not be able to differentiate between longer term (both in t and $t + 1$) disability and possibly shorter term disability.

This study will instead use data from the 2009 and 2010 Annual Social and Economic Supplements. The ASEC Supplement includes detailed information about the respondent's types of income (including service-connected veteran disability income) as well as disability, demographic, and labor force participation variables. The 2009 and 2010 ASEC data include information from the six disability questions that were introduced in June 2008 in the BMS. The CPS has an annual veterans supplement that it releases every year, most recently in March 2012 with data from August 2011.[16] However, the

veterans supplement sample will never also be interviewed for the ASEC, which is administered in March, because of the 4-8-4 sample design. A household that is interviewed in March would be out of the sample in July, and a household interviewed in the summer months would be out of sample in March. Since the ASEC Supplement provides relevant income information, this study will not utilize the veterans supplement. However, the ASEC Supplement includes a question about service-related veteran disability payments, which mirrors the "do you have a service-connected disability" question in the veterans supplement.

The technique of propensity score matching is used to compare recent veterans with the rest of the population, described earlier as people who have never served in the military as well as those whose service concluded prior to September 2001. Propensity score matching was introduced into the literature by Paul Rosenbaum and Donald Rubin in 1983,[17] and is a way to create "similar" groups that can be compared in terms of both observed and unobserved characteristics. A propensity score matched sample takes characteristics of the veteran group (such as age, gender, and race) and draws a sample from the rest of the population so that the proportions of certain demographic characteristics of the control group align with the veteran group. This allows for more meaningful comparisons across the groups.

Without propensity score matching, according to Marcelo Coca-Perraillon, "causal inference is complicated by the fact that a group which received a treatment or experienced an event may be very different from another group that did not experience the event or receive the treatment. Thus, it is not clear whether a difference in certain outcome of interest is due to the treatment or is the product of prior differences among groups."[18] Propensity scores are the predicted probabilities from a logistic model that estimates the probability of being in a treatment group (in this study's case, being a recent veteran) given certain variables. This study creates propensity scores for being a recent veteran by age, gender, race, ethnicity, marital status, and educational attainment. One can then match a respondent who is a recent veteran to a respondent in the comparison group on the basis of equal or similar propensity scores.[19] Some propensity score matching is done by nearest neighbor or nearest neighbor within a certain caliper, or measured distance, with or without replacement.

There has been a great deal of literature that has evaluated the performance of propensity score matching estimators using experimental data. James Heckman and others looked at job training programs and found that the propensity score matching estimator only performs well when the participants and non-participants come from the same data source so that variable definitions are the same, participants and non-participants are in the same local labor markets, and the datasets have a large selection of variables.[20] In response, Rajeev Dehejia and Sadek Wahba showed that propensity score matching can yield accurate estimates of the treatment effect even when the treatment group differs greatly from the nontreatment group, and stated that matching with replacement is better than the alternative matching algorithms.[21] As the current study is not looking at job training programs, the caveat of Heckman et al. about local labor markets should not apply. However, this study uses the Current Population Survey, an extremely rich dataset, for both recent veterans and the rest of the population, so the other two conditions hold. In this study, the nearest neighbor propensity score match, with replacement, is chosen for each respondent in the treatment group, which speaks to Dehejia and Wahba's suggestion. The Stata command psmatch2 was used to compute the propensity scores and the matched samples.[22] Common support is implemented, and therefore treatment observations whose propensity scores are higher than the maximum or lower than the minimum propensity scores of the controls are dropped. This article only shows results for the nearest neighbor matching, with replacement and common support, although the findings were fairly robust when using logit instead of probit for the estimation of the propensity scores and when introducing different numbers of neighbors to calculate the matched outcome.

Tables 1 and 2 show the demographics of the original samples and the propensity score matched samples, respectively. Table 1 shows that more than one-third of the sample of recent veterans is ages 25–29, compared with 12 percent of the rest of the population. Recent veterans are also overwhelmingly male, at 83 percent. This is the most striking difference between the samples as only 47 percent of the comparison group is male. Another difference between the two samples is the percentage of respondents who report having less than a high school diploma. Because of qualification guidelines for military service, there are very few recent veterans who have not received a high school diploma, and this is evident in the data: 1.2 percent of recent veterans do not have a high school diploma compared with 11.3 percent for the rest of the population. However, while fewer recent veterans than the comparison group have not received a high school diploma, recent veterans are less likely to have a college degree or higher.

The propensity score matched sample is shown in table 2. The demographics of the matched sample of the

Table 1. Demographics of original samples of recent veterans and the rest of the population

Variable	Percent of recent veterans[1]	Percent of rest of population[2]	*t*-statistic	Are means significantly different?[3]
Ages 25–29	33.41	12.40	26.74	Yes
Ages 30–34	18.91	13.28	6.99	Yes
Ages 35–39	10.37	14.28	–4.71	Yes
Ages 40–44	12.88	15.08	–2.59	Yes
Ages 45–49	12.88	15.51	–3.07	Yes
Ages 50–54	5.97	14.03	–9.81	Yes
Ages 55–59	4.02	11.39	–9.81	Yes
Ages 60–61	1.56	4.04	–5.31	Yes
Male	82.88	47.42	30.00	Yes
Less than high school	1.17	11.33	–13.57	Yes
High school graduate only	25.32	29.39	–3.77	Yes
Some college	45.57	27.76	16.74	Yes
College graduate	27.94	31.51	–3.24	Yes
White, non-Hispanic	68.82	64.17	4.09	Yes
Black, non-Hispanic	14.22	11.01	4.33	Yes
Other race, non-Hispanic	6.02	8.36	–3.56	Yes
Hispanic	10.54	16.37	–6.65	Yes
Married	61.74	64.91	–2.80	Yes
Divorced	15.56	14.06	1.82	No
Never married	18.63	18.91	–.30	No

[1] "Recent veterans" are those who served since September 2001; they may also have served earlier.
[2] The "rest of population" sample includes people who have never served in the military, as well as those who served prior to September 2001.
[3] At 5-percent level.
NOTE: *n(recent veterans)* = 1,793; *n(not recent veterans)* = 203,173.
SOURCE: U.S. Bureau of Labor Statistics, Current Population Survey, March 2009 and March 2010.

comparison group are similar to the demographics of the recent veteran sample, with none of the means being significantly different.

Results and discussion

Once the propensity score matched samples are created, the data can be compared in a more meaningful way. Table 3 compares income sources and employment outcomes of the two groups. The recent veteran and comparison group matched samples are fairly similar in terms of working "full time, full year" in the previous year (that is, at least 35 hours a week for 50 weeks a year), working at least 52 hours in the previous year (that is, one hour per week), hours worked in the previous year, and likelihood of being in the labor force. Recent veterans were also similar in terms of annual income from wages and salary (on average, $43,370 versus $42,972) and family income adjusted for number of people in the household (on average,

$52,038 versus $47,530, but there was no statistically significant difference between these two amounts). In terms of participation in disability compensation programs, recent veterans were not significantly different from the rest of the population in their Supplemental Security Income (SSI) and Social Security Disability Insurance (SSDI) participation rates and income.

The main economic differences between these two samples were their poverty rates, the percentage of the sample receiving service-connected disability compensation, and the amount of income they received from that disability program. The poverty rate for recent veterans is almost half that of the comparison group, 5.1 percent versus 9.7 percent. In terms of program participation, 16.4 percent of recent veterans received service-connected disability compensation in the previous year, at an average of $2,531.

In terms of disability type and prevalence, there are some differences between the recent veteran population

Table 2. Demographics of matched samples of recent veterans and the rest of the population

Variable	Percent of recent veterans[1]	Percent of rest of population[2]	t-statistic	Are means significantly different?[3]
Ages 25–29	33.41	33.18	0.10	No
Ages 30–34	18.91	19.30	−.19	No
Ages 35–39	10.37	10.99	−.35	No
Ages 40–44	12.88	12.72	.10	No
Ages 45–49	12.88	12.66	.13	No
Ages 50–54	5.97	5.69	.20	No
Ages 55–59	4.02	3.90	.10	No
Ages 60–61	1.56	1.56	0	No
Male	82.88	82.99	−.05	No
Less than high school	1.17	2.12	−1.03	No
High school graduate only	25.32	25.66	−.16	No
Some college	45.57	44.39	.45	No
College graduate	27.94	27.83	.05	No
White, non-Hispanic	68.82	68.54	.11	No
Black, non-Hispanic	14.22	13.89	.16	No
Other race, non-Hispanic	6.02	6.30	−.18	No
Hispanic	10.54	10.99	−.24	No
Married	61.74	62.24	−.19	No
Divorced	15.56	15.06	.24	No
Never married	18.63	20.02	−.66	No

[1] "Recent veterans" are those who served since September 2001; they may also have served earlier.
[2] The "rest of population" sample includes people who have never served in the military, as well as those who served prior to September 2001.

[3] At 5-percent level.
NOTE: *n(matched sample)* = 1,793.
SOURCE: U.S. Bureau of Labor Statistics, Current Population Survey, March 2009 and March 2010.

and the comparison group. Recent veterans are more likely to have hearing difficulties or any measure of disability than the rest of the population. Table 4 shows that 3.2 percent of recent veterans reported hearing difficulties compared with 0.9 percent of the comparison group sample, and these means are significantly different at a 5.0-percent level. These types of disabilities are consistent with combat-zone injuries and trauma caused by explosions, high-pressure waves, and acceleration/deceleration. In terms of broader definitions of disability, recent veterans are significantly more likely than the comparison group to identify as having one of the six disabilities listed in the Current Population Survey's basic monthly survey, 8.3 percent versus 5.7 percent.

While table 4 shows the various disability prevalence rates for the entire population of recent veterans compared with the rest of the population, table 5 looks solely at people with disabilities. It compares disabled recent veterans and the control group in terms of the type and

prevalence of transfer payments, employment outcomes, and measures of well-being. Some of the veterans in the survey are eligible for SSI and SSDI, but some disabled veterans also receive service-connected disability insurance payments from the Department of Veterans Affairs. VA veterans disability compensation is defined as a monetary benefit paid to veterans who are disabled by an injury or illness that was incurred or aggravated during active military service.[23] There have been many articles that show that receipt of SSDI and SSI benefits disincentivize working;[24] however, there is no definite corollary when discussing veterans disability compensation from the VA. Both SSDI and SSI provide a minimum cash benefit to people deemed unable "to engage in any substantial gainful activity (SGA), by reason of any medically determinable physical or mental impairment(s) which can be expected to result in death or which has lasted or can be expected to last for a continuous period of not less than 12 months."[25] SSDI and SSI disability insurance programs

Table 3. Income sources and employment outcomes, matched samples of recent veterans and the rest of the population

Income source or employment outcome	Recent veterans[1]	Rest of population[2]	t-statistic	Are means significantly different?[3]
Income from wages and salary	$43,370.44	$42,972.24	0.13	No
Income from SSI	$43.66	$135.33	−1.42	No
Income from SSDI	$280.00	$188.89	0.76	No
Income from Veterans Administration	$2,530.58	$105.76	12.61	Yes
Received service-connected veterans disability compensation last year (percent)	16.40	.95	15.62	Yes
Received SSI last year (percent)	.45	1.28	−1.28	No
Received SSDI last year (percent)	1.39	1.06	.51	No
Received worker's compensation last year (percent)	.28	.28	0	No
Poverty rate (percent)	5.08	9.65	−3.05	Yes
Adjusted household income last year (percent)	$52,038.06	$47,529.91	1.90	No
Worked full time, full year last year (percent)	67.15	68.38	−.49	No
Worked at least 52 hours last year (i.e., 1 hour a week) (percent)	87.40	89.68	−1.32	No
Employed (percent)	78.47	79.59	−.53	No
In the labor force (percent)	86.17	89.24	−1.78	No
Annual hours worked last year (mean)	1,811	1,841	−.62	No

[1] "Recent veterans" are those who served since September 2001; they may also have served earlier.
[2] The "rest of population" sample includes people who have never served in the military, as well as those who served prior to September 2001.

[3] At the 5-percent level.
NOTE: *n(matched sample)* = 1,793.
SOURCE: U.S. Bureau of Labor Statistics, Current Population Survey, March 2009 and March 2010.

Table 4. Disability prevalence within the propensity score matched samples of recent veterans and the rest of the population

Type of disability	Percent of recent veterans[1]	Percent of rest of population[2]	t-statistic	Are means significantly different?[3]
Hearing difficulty	3.23	.89	3.76	Yes
Vision difficulty	.50	1.06	−1.05	No
Difficulty remembering, concentrating	3.63	2.62	1.15	No
Physical difficulty	3.46	3.18	.29	No
Self-care disability	.50	1.51	−1.71	No
Independent living difficulty	1.45	2.01	−.74	No
Any of the six disability questions	8.25	5.69	1.98	Yes

[1] "Recent veterans" are those who served since September 2001; they may also have served earlier.
[2] The "rest of population" sample includes people who have never served in the military, as well as those who served prior to September 2001.

[3] At 5-percent level.
NOTE: *n(matched sample)* = 1,793.
SOURCE: U.S. Bureau of Labor Statistics, Current Population Survey, March 2009 and March 2010.

both virtually bar recipients from working, although as Richard Burkhauser and Mary Daly note, there are differences in these recipient populations.[26] SSDI is financed by a payroll tax to provide earnings replacement to those who leave the labor force because of disability, while SSI is the means-tested equivalent for those who haven't worked enough to qualify for SSDI.[27] Regarding VA benefits, there are two unique components of service-connected disability insurance for veterans. First, a veteran receives a disability rating from 0 to 100 percent, with ratings given in 10-percentage-point increments; having a disability is not an "all or nothing" status. Second, the program is not means-tested and the recipient is allowed to work while collecting benefits. As noted

Table 5. Income sources, employment outcomes and measures of well-being of those with disabilities, using matched samples of recent veterans and the rest of the population

Income source or employment outcome	Recent veterans[1]	Rest of population[2]	Are means significantly different?[3]
Received service-connected veteran disability compensation last year (percent)	43.92	5.88	Yes
Received SSI last year (percent)	4.05	10.78	No
Received SSDI last year (percent)	14.19	12.75	No
Employment rate (percent)	45.27	40.20	No
Worked full time full year (percent)	41.22	27.45	No
Annual hours worked last year	1,116	1,098	No
Poverty rate (percent)	7.43	26.47	Yes

[1] "Recent veterans" are those who served since September 2001; they may also have served earlier.
[2] The "rest of population" sample includes people who have never served in the military, as well as those who served prior to September 2001.

[3] 95-percent confidence intervals do not overlap.
NOTE: *n(matched sample)* = 250.
SOURCE: U.S. Bureau of Labor Statistics, Current Population Survey, March 2009 and March 2010.

by David Autor and Mark Duggan, "…because benefit payments in the Disability Compensation program are not conditioned on staying out of the labor force, the [VA benefits] system does not directly reward labor force nonparticipation."[28]

As shown in table 5, there was no statistical difference between recent veterans with disabilities and the rest of the population with disabilities regarding their likelihood of receiving SSI or SSDI benefits. The work restrictions inherent in the SSI and SSDI programs may be associated with differences in employment for disabled recent veterans and the comparison group. Recent veterans with disabilities are more likely to be working full time, full year than are people with disabilities who did not serve in Gulf War era II; the proportions are 41.2 percent and 27.5 percent, respectively.[29]

A dramatic difference between recent veterans with disabilities and people with disabilities who are in the comparison group is their poverty rates. People with disabilities who are in the comparison group are significantly more likely to be in poverty than are recent veterans with disabilities. The rate of poverty for people with disabilities in the rest of the population is 26.5 percent, more than three times the rate for recent veterans with disabilities. These higher rates of full-time work, as well as dramatically lower rates of poverty, could be related to the fact that veterans disability compensation allows one to work, while there is an implicit work prohibition in the SSI–SSDI system. However, only summary statistics are presented in this article, not causal inferences, and we must also keep in mind the small sample sizes before coming to broad conclusions.

RECENT VETERANS ARE DEMOGRAPHICALLY DIFFERENT from people in the rest of the population, but the samples can be adjusted through the use of propensity score matching to facilitate more effective comparisons. Using data from the CPS Annual Social and Economic Supplement from 2009 and 2010, once the adjustment is performed, we see that recent veterans are quite similar to those in the comparison group in terms of full-time employment, hours worked, likelihood of being in the labor force, income from wages and salary, and adjusted family income. Recent veterans are better off in terms of poverty rates, with the rest of the population being almost twice as likely to be in poverty. One of the most significant differences between the two groups is prevalence and type of disability, as well as disability program participation, employment outcomes, and well-being of the disabled population. Recent veterans are more likely than the comparison group to have hearing difficulties, which is consistent with combat-related injuries and trauma. Recent veterans are also significantly more likely to have one of the six disabilities in the new disability questions. Despite these disadvantages, veterans with disabilities are more likely to be working full time, full year and significantly less likely to be in poverty than are other people with disabilities. This could be related to the fact that veterans who receive service-connected veterans disability compensation are rated on a 0–100 point scale of disability and are allowed to continue working, while other disability income transfer programs either severely limit or bar employment. Future research should look at specific policy changes that affect recent veterans in order to determine causal pathways between different types of transfer payments and employment outcomes. ☐

Notes

[1] The Current Population Survey Annual Social and Economic Supplement (ASEC) does not identify location of service, just period of service. Therefore, those identified as "recent veterans" in this study served in September 2001 or later, but may have done so anywhere in the world; in addition, their military service may have begun before September 2001. The Bureau of Labor Statistics Employment Situation for Veterans news release with data from August 2011 shows that about 38 percent of the veterans who served at some point since September 2001 did so in Iraq, Afghanistan, or both.

[2] Operation Iraqi Freedom was declared over on August 31, 2010; 50,000 troops currently remain in Iraq in a noncombat role to provide training, advice, and assistance to the Iraqi military. See **http://www.army.mil/article/44526/Operation_New_Dawn/**.

[3] See *Ready, Willing and Unable to Serve*, an article by a nonprofit, nonpartisan U.S. national security organization of senior retired military leaders, at **www.missionreadiness.org**.

[4] See Department of Veterans Affairs, Office of Research and Development program announcement, "Traumatic brain injury," Veterans Health Administration, June 17, 2008, **http://www.research.va.gov/funding/solicitations/docs/TBI.pdf**.

[5] *Ibid*.

[6] See Department of Veterans Affairs, Office of Research and Development program announcement, "Deployment health: OEF/OIF veteran research issues," Veterans Health Administration, June 13, 2006.

[7] See Richard V. Burkhauser, Ludmila Rovba, and Robert R. Weathers II, "Household Income," and Andrew J. Houtenville, Elizabeth Potamites, William A. Erickson, and S. Antonio Ruiz-Quintanilla, "Disability Prevalence and Demographics," both in Andrew J. Houtenville, David C. Stapleton, Robert R. Weathers, and Richard V. Burkhauser, eds., *Counting Working-Age People with Disabilities: What Current Data Tell Us and Options for Improvement* (Kalamazoo, MI: W.E. Upjohn Institute for Employment Research, 2009).

[8] There are a few studies looking at the effect of a policy change in the VA veteran disability compensation program on participation in the program and labor force outcomes of Vietnam-era veterans, such as Mark Duggan, Robert Rosenheck, and Perry Douglas Singleton II, "Federal Policy and the Rise in Disability Enrollment: Evidence for the Veterans Affairs' Disability Compensation Program," *Journal of Law and Economics*, May 2010, pp. 379–398, and David Autor and Mark Duggan, "Distinguishing Income from Substitution Effects in Disability Insurance," *American Economic Review*, May 2007, pp. 119–124. These are causal studies and therefore have a different focus than this paper.

[9] See James A. Walker, "Employment and earnings of recent veterans: data from the CPS," *Monthly Labor Review*, July 2010, pp. 3–9.

[10] See Robert Rosenheck, Linda Frisman, and Jody Sindelar, "Disability Compensation and Work Among Veterans with Psychiatric and Nonpsychiatric Impairments," *Psychiatric Services*, April 1995, pp. 359–365.

[11] See **http://www.census.gov/apsd/techdoc/cps/cpsmar09.pdf**, p. 2–1.

[12] See "Frequently asked questions about disability data" at **http://www.bls.gov/cps/cpsdisability_faq.htm**.

[13] Veterans who answered "yes" to any of the six disability questions in the basic monthly survey did not necessarily acquire the disability through military service.

[14] See Annual Social and Economic Supplement technical documentation at **http://www.census.gov/apsd/techdoc/cps/cpsmar09.pdf**.

[15] "Design and Methodology: Current Population Survey," Technical Paper 66, (U.S. Bureau of Labor Statistics and U.S. Census Bureau, October 2006), pp. 3–13, **http://www.census.gov/prod/2006pubs/tp-66.pdf**.

[16] The supplement to the CPS yielding additional data about veterans has recently been conducted annually. It was part of the CPS in August 2009, July 2010, August 2011, and August 2012.

[17] See Paul R. Rosenbaum and Donald B. Rubin, "The Central Role of the Propensity Score in Observational Studies for Causal Effects," *Biometrika*, April 1983, pp. 41–55.

[18] See Marcelo Coca-Perraillon, "Local and Global Optimal Propensity Score Matching," Paper 185–2007 (presented at SAS Global Forum, 2007).

[19] See SAS Usage Note 30971, "How can I compute and match observations on propensity scores?" January 18, 2008, at **http://support.sas.com/kb/30/971.html**.

[20] See James Heckman, Hidehiko Ichimura and Petra Todd, "Matching as an Econometric Evaluation Estimator: Evidence from Evaluating a Job Training Programme," *The Review of Economic Studies*, October 1997, pp. 605–654; and James Heckman, Hidehiko Ichimura, Jeffrey Smith and Petra Todd, "Characterizing Selection Bias Using Experimental Data," *Econometrica*, September 1998, pp. 1017–1098.

[21] See Rajeev H. Dehejia and Sadek Wahba, "Propensity Score-Matching Methods for Nonexperimental Causal Studies," *The Review of Economics and Statistics*, February 2002, pp. 151–161.

[22] See Edwin Leuven and Barbara Sianesi, "PSMATCH2: Stata module to perform full Mahalanobis and propensity score matching, common support graphing, and covariate imbalance testing," 2003, **http://ideas.repec.org/c/boc/bocode/s432001.html**. Version 4.0.4 is dated November 10, 2010.

[23] See *Federal Benefits for Veterans, Dependents, and Survivors* (Department of Veterans Affairs, 2012), Chapter 2: Veterans with Service-Connected Disabilities, also available at **http://www1.va.gov/opa/publications/benefits_book/benefits_chap02.asp**.

[24] See John Bound and Timothy Waidmann, "Disability Transfers, Self-Reported Health, and the Labor Force Attachment of Older Men: Evidence from the Historical Record," *The Quarterly Journal of Economics*, November 1992, pp. 1393–1419, and John Bound and Timothy Waidmann, "Accounting for Recent Declines in Employment Rates among Working-Aged Men and Women with Disabilities," *The Journal of Human Resources*, Spring 2002, pp. 231–250.

[25] See "Disability Evaluation Under Social Security" at **http://www.ssa.gov/disability/professionals/bluebook/general-info.htm**.

[26] See Richard V. Burkhauser and Mary C. Daly, "Policy Watch: U.S. Disability Policy in a Changing Environment," *Journal of Economic Perspectives*, Winter 2002, pp. 213–224.

[27] *Ibid.*, p. 215.

[28] See David H. Autor and Mark G. Duggan, "The Growth in the Social Security Disability Rolls: A Fiscal Crisis Unfolding," *Journal of Economic Perspectives*, Summer 2006, p. 94.

[29] When the probit specification of the propensity score matching is used, these differences are not statistically significant. However, when the logit specification is used, these differences are statistically significant.