Workforce Program Performance Indicators for The Commonwealth of Virginia

Upjohn Institute Technical Report No. 08-024

By

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EXECUTIVE SUMMARY

The Commonwealth of Virginia, as with other states, operates a panoply of programs whose objectives, either directly or indirectly, are to develop the state's workforce. Some programs enhance the skills of Virginians through training or formal education; whereas other programs, such as the Employment Service, attempt to facilitate the employment of clients without much focus on training. In the abstract, each of these programs can be described as providing individuals who happen to encounter the program with a set of interventions or services that result in labor market outcomes. Naturally, the question arises of whether these interventions or services are effective. Because the programs are paid for with public resources, accountability to taxpayers requires policymakers and administrators to try to answer that question. Hence, they need to develop and analyze valid performance information about the outcomes that result from programmatic interventions for participants.

The Virginia Workforce Council approved and the Commonwealth's legislature approved a set of performance indicators for the state's workforce programs. In December 2006, the Commonwealth issued RFP 135CWWWFORCE to engage a consultant to compute six integrated indicators for nine programs. The six measures are as follows:

- Short-term employment rate
- Long-term employment rate
- Short-term earnings level
- Long-term earnings level
- Credential completion rate
- Repeat employer customers

The nine programs are as follows:

- Adult Education & Literacy (AEL)
- Employment Service/Wagner-Peyser (W/P)
- Trade Adjustment Assistance (TAA)
- Food Stamp Employment & Training (FSET) Program

- Virginia Initiative for Employment Not Welfare – TANF/VIEW
- Vocational Rehabilitation programs administered by Department of Rehabilitative Services (DRS)
- Vocational Rehabilitation programs administered by Department for Blind and Vision Impaired (DBVI)
- Workforce Investment Act (WIA) Title 1 Programs
- Carl Perkins Postsecondary Career and Technical Education (CTE)

The W.E. Upjohn Institute bid successfully for this contract, and this report documents the computations and the data processing that supported them.

Methodology and Results

The general process that was followed in producing the indicators was as follows. Agencies responsible for each of the programs supplied administrative data concerning clients who exited (successfully or not) from their program in FY2005 (July 2004 to June 2005). Project staff edited these data. In the course of this editing, errors in the data were fixed, or records were deleted if they were found to have irreconcilable errors or omissions. Once the administrative data were prepared, we matched the records to eight quarters of wage record data from the unemployment insurance system (2005:Q1 to 2006:Q4). These wage record data were the source of information for the employment and earnings indicators. Two data matches were performed. The first merged wage record data from Virginia employers, and the second merged wage record data from 30 other states who have been signatories to the Wage Record Interstate System (WRIS) agreement.

Once all of the administrative data were cleaned and merged, we computed the indicators in two ways. The first way may be referred to as gross impact, or levels, indicators, and the second may be referred to as net impact indicators. For a number of reasons, the latter are more informative for policy purposes. Figures 1 through 4 present the employment and earnings net impact indicators for all of the programs. Note that the benchmark used to compute the

indicators is a statistically-matched comparison group from the individuals who encountered the Employment Service. The entries in the graphs are differences: program outcomes minus outcomes for the program's matched comparison group. One drawback to the methodology used to compute the net impact indicators is that because Wagner-Peyser clients were used to form the comparison groups, there is no comparable set of net impact indicators for the Wagner-Peyser program itself. We have included in the graphs, then, an alternative set of net impact estimates for W/P that is computed on a post-pre basis.

The first two graphs show the employment net impact indicators. For example, the first bar in figure 1 has a value of −9.58, which means that in the second quarter after exit, the individuals from adult education and literacy training had a 9.58 percentage point lower employment rate than the individuals who were statistically matched to them. Employment is measured by whether the individual has earnings reported by one or more employers in the second full quarter after program exit (short-term) or fourth full quarter after exit (long-term), and for individuals under the age of 18, enrollment in school is counted as "employment."

The figures show that Postsecondary CTE, DRS, DBVI, and WIA Adult programs have positive employment differences indicators. The individuals from these programs have higher employment rates in the second and fourth quarters after leaving their respective programs than the individuals matched to them. The differences for DRS and DBVI are quite large—on the order of 20 percentage points. On the other hand, AEL, FSET, TANF/VIEW, TAA, and WIA youth have negative employment differences indicators. That is, the individuals from these programs had lower employment rates than the individuals matched to them from the W/P program. These differences were all statistically significant except for postsecondary CTE and WIA youth in the short-term.

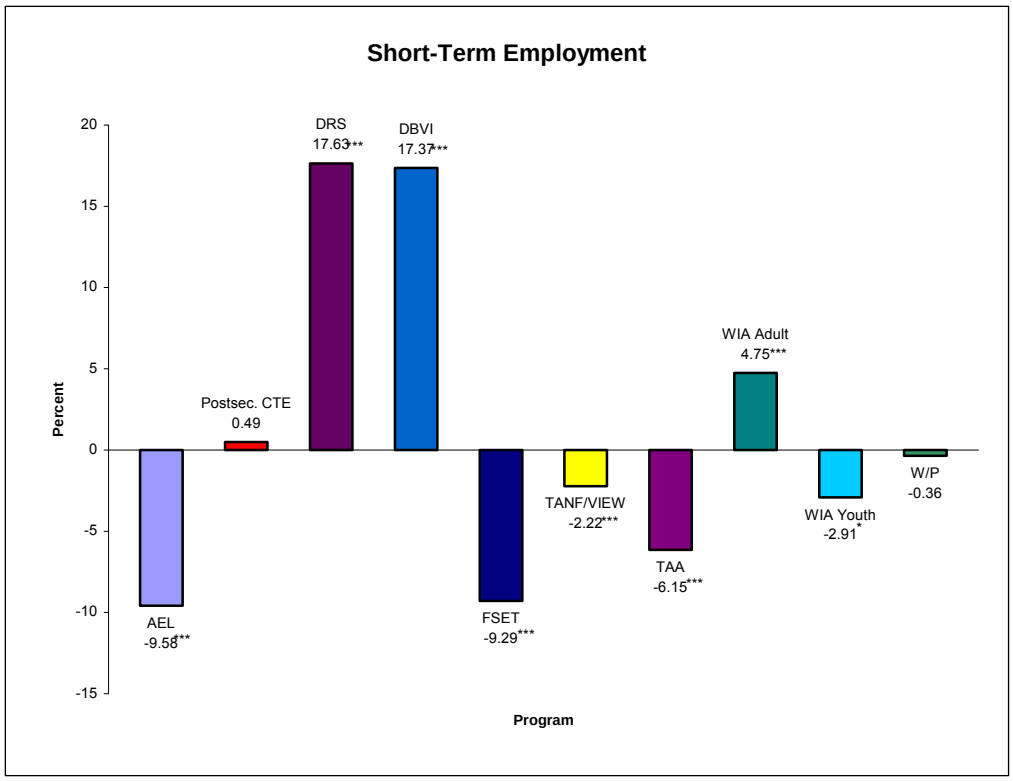

Figure 1. Short-Term Employment Net Impact Indicators for All Programs.

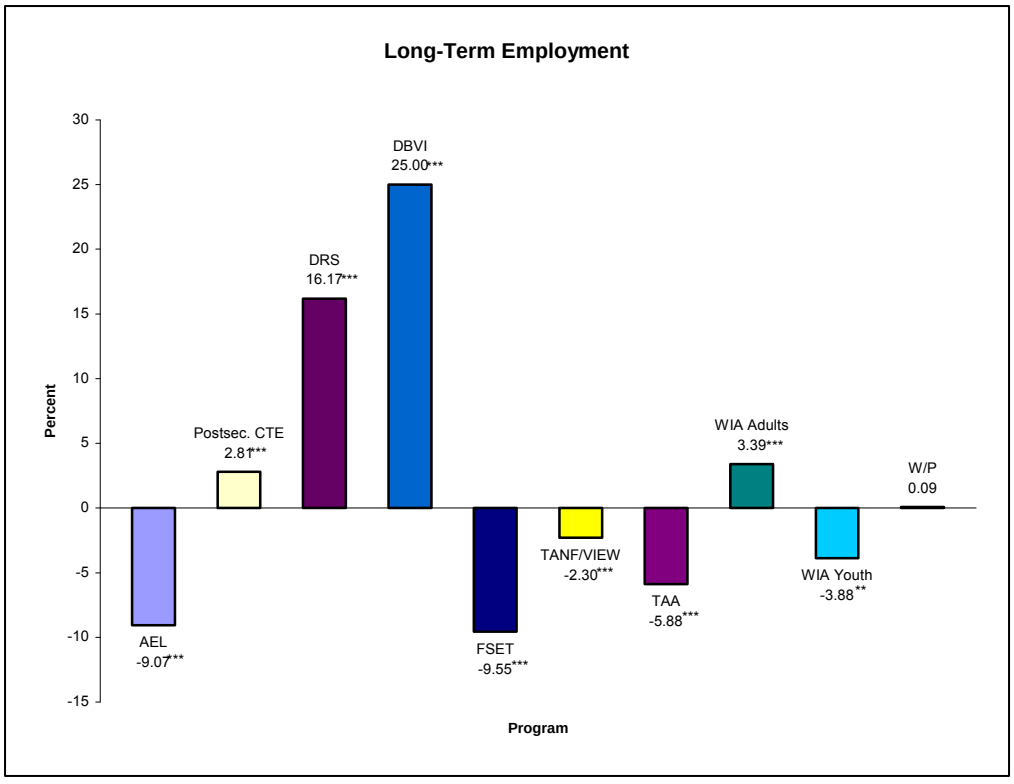

Figure 2. Long-Term Employment Net Impact Indicators for All Programs.

Figures 3 and 4 focus on the earnings indicators. Here the statistic that is graphed is the difference in the medians for earnings in the second (or fourth) quarters after exit. These medians are conditional on non-zero earnings, that is, individuals with no earnings in a quarter are excluded from the calculation of the median. Most of the programs have positive differences meaning that the program exiters have a higher median than the group of individuals to whom they were matched. Note that the differences for postsecondary CTE and for DBVI are over $1,000 in quarterly earnings. The programs for which this indicator is negative in both the second and fourth quarters after exit are FSET and TAA. AEL has a positive difference indicator in the second quarter after exit, but a negative one in the fourth quarter.

Prior to this study and the development of the gross and net impact indicators, the only way that Virginia policymakers could judge the performance of workforce programs was to compare the goals that are set for a program prior to the start of a year to the results that the agency reports for the program at the end of the year. In addition, policymakers had access to cost per participant data for the programs. One of the tasks that was included in the RFP for this study was to collect this information, i.e., goals, performance against goals, and costs/participant, for FY2006. After receiving and analyzing the information that was sent to us, we made the judgment that the data were virtually impossible to compare across programs in a meaningful way.

Subgroups

An important aspect of the project was to examine the indicators by subgroups of the population. This type of analysis is important because it is aimed at uncovering variation across programs, if any, in outcomes for different population groups. We looked at both demographic subgroups and regional subgroups of the state's population. In general, this analysis was done

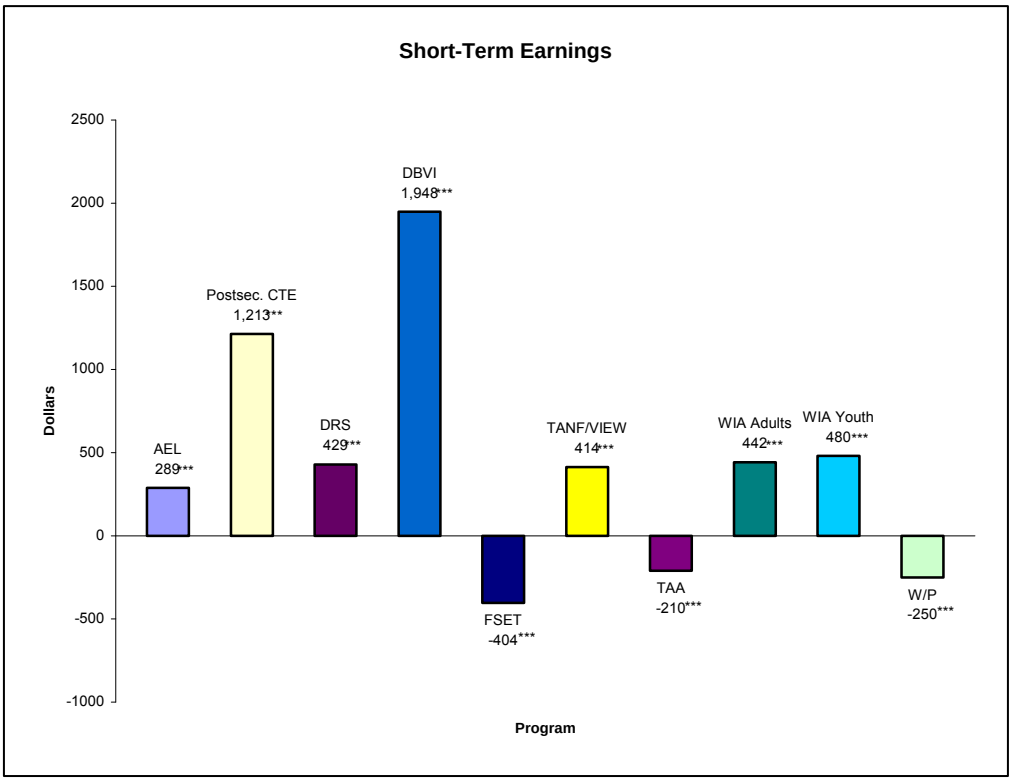

Figure 3. Short-Terms Earnings Net Impact Indicators for All Programs.

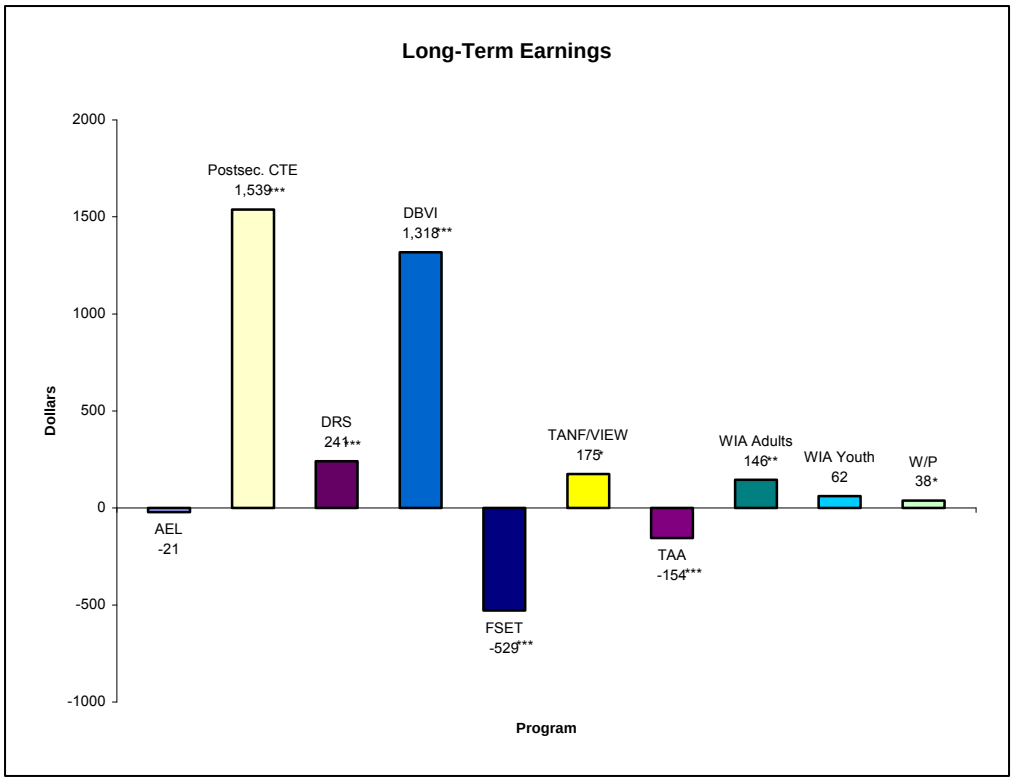

Figure 4. Long-Term Earnings Net Impact Indicators for All Programs.

through cross-tabulations of the levels indicators (as well as the research outcomes described below) by characteristic or region. In addition, we estimated multivariate regression models that controlled for all of the characteristics simultaneously, but those are not reported in this document because they did not alter the fundamental results from the cross-tabulations.

The specific demographic subgroups that we chose to examine (in consultation with the state) are as follows:

Educational Status	Age	Race	Disability	Gender
Less than 9th grade	< 21	White	Yes	Male
Less than H.S. Grad.	20 – 30	African American/Black	No	Female
H.S. Grad., no postsecondary	31 – 40	Hispanic		
Some education beyond H.S., no Associates	41 – 50	Mixed		
Associates degree +	51+	Other		

Appendix A contains all of the tables for the 19 subgroups listed above for the gross impact indicators. In addition to examining the gross impact indicators by demographic detail, we also examined them by region. The particular geography that we used was the Workforce Investment Board (WIB) area. In FY 2005, there were 17 WIB areas (since then, two of the areas have consolidated, so that only 16 WIBs remain). Appendix B contains tables for all 17 areas.

Conclusions and Recommendations

With this effort, Virginia is at the forefront of states in terms of workforce program performance monitoring. To our knowledge, the State of Washington is the only other state to have developed an integrated system of workforce development program indicators. This project has made great strides in demonstrating the viability of using administrative data to produce a small set of common metrics to measure performance of the components of the state's workforce

system. The usefulness of the metrics should be enhanced as they get used for additional programs and over more years. The last chapter of the report provides some summary recommendations or conclusions based on our work with the data and computation of the indicators targeted on making the system even better. We list our recommendations here.

- **Indicator Recommendation 1:** As long as administrative data are available for deriving defensible comparison groups, we believe that Virginia's policymakers will be best served by net impact indicators.

- **Indicator Recommendation 2:** Replace the long-term (4th quarter) employment indicator with an employment retention indicator. An example would be the percentage of individuals who left the program and were employed in the second full quarter after exit who were also employed in the fourth full quarter after exit.

- **Indicator Recommendation 3:** Add a benefit-cost (equivalent to return on investment) indicator as a seventh indicator in order to compare program performance on a cost efficiency basis. It may make sense to include this in the workforce performance system on a periodic basis in which this indicator is computed less frequently than the other six indicators.

- **Indicator Recommendation 4:** The Commonwealth should rely on a sample survey of employers to compute the Satisfied Customer indicator rather than the measure based on administrative data used in this study.

- **Indicator Recommendation 5:** The Commonwealth needs to resolve the legal issues that precluded the VDOE from providing data on GED or high school diploma earning for individuals from other programs. If the resolution of the situation means that VDOE does not provide the data, then the indicator needs to be slightly re-defined accordingly.

- **Data Recommendation 1:** To ensure that outcome indicators meaningfully compare programs, Virginia should standardize the definition of program participant (for outcome measurement purposes).

- **Data Recommendation 2:** Data items that need consistent definitions in order to compute performance indicators include exit date, registration date, and demographic characteristics at the time of registration (at a minimum age, race, sex, education background, and disability status).

- **Data Recommendation 3:** The Commonwealth should identify research issues that are of interest to policymakers over and above the performance indicators, determine the data needed to answer these issues, and request that the agencies collect these data items.

This report documents Virginia's initial attempt to calculate integrated performance measurement indicators for ten of its workforce programs. It has pointed out some of the data problems that were encountered. However, those problems should not overshadow the fact that the seven agencies that administer ten programs came together to supply administrative data that could be used to calculate indicators of program performance. The results—both for the gross impact and for the net impact indicators—have been and will continue to be informative for program oversight and workforce policy and resource allocation. As the Commonwealth proceeds with this effort, with more programs and more years of data, the indicators will provide more and more utility. We're confident that the state will be a leader in the movement toward integrated accountability of workforce development systems.

Workforce Program Performance Indicators for The Commonwealth of Virginia

1. INTRODUCTION

The Commonwealth of Virginia, as with other states, operates a panoply of programs whose objectives, either directly or indirectly, are to develop the state's workforce. Some programs enhance the skills of Virginians through training or formal education; whereas other programs attempt to facilitate the employment of clients without much focus on training. In the abstract, each of these programs can be described as providing individuals who happen to encounter the program with a set of interventions or services that result in labor market outcomes. Naturally, the question arises of whether these interventions or services are effective. Because the programs are paid for with public resources, accountability to taxpayers requires policymakers and administrators to try to answer that question. Hence, they need to develop and analyze valid performance information about the outcomes that result from programmatic interventions for participants.

To be most useful, the performance information should have two characteristics. First, it should be integrated, which means that the same indicators of performance are compared across programs. Integrated measures allow policymakers to make valid ('apple to apple') comparisons.[1] Second, the information should be limited to a small number of key measures. The policymaker and administrative audiences for the indicators have limited time frames and

[1] As consultants to the Commonwealth, we encountered a subtle, but important, difference in opinion about program performance monitoring. Some program administrators felt that net impact indicators should be examined on a program-by-program basis. In this case, this report would have been organized by sections that address each program separately, and no tables or charts would have displayed all of the programs together. The alternative viewpoint, which is the perspective of the Office of the Senior Advisor, is that all of the programs comprise a system, and that it is appropriate to make comparisons across programs as has been done here since they are component parts of a system.

wide responsibilities. They don't have the time or need for nuanced analyses of dozens of indicators. They want to be able to quickly get to the bottom line.

The Virginia Workforce Council approved and the Commonwealth's legislature approved a set of performance indicators for the state's workforce programs. In December 2006, the Commonwealth issued RFP 135CWWWFORCE to engage a consultant to compute six integrated indicators for nine programs. The six measures are as follows:

- Short-term employment rate
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- Carl Perkins Postsecondary Career and Technical Education (CTE)

The W.E. Upjohn Institute bid successfully for this contract, and this report documents the computations and the data processing that supported them.

The state's intent is to consider these indicators annually as required by state law as part of the biennial budget. This particular project was Virginia's initial attempt. As such, it was quite successful in actually producing a usable, integrated set of indicators. On the other hand, the effort elicited many suggestions that will refine and facilitate future iterations.

The general process that was followed in producing the indicators was as follows. Agencies responsible for each of the programs supplied administrative data concerning clients who exited (successfully or not) from their program in FY2005 (July 2004 to June 2005). Project staff edited these data. In the course of this editing, numerous errors in the data were fixed, or records were deleted if they were found to have irreconcilable errors or omissions.[2] Once the administrative data were prepared, we matched the records to eight quarters of wage record data from the unemployment insurance system (2005:Q1 to 2006:Q4). These wage record data were the source of information for the employment and earnings indicators. Two data matches were performed. The first merged wage record data from Virginia employers, and the second merged wage record data from 30 other states who have been signatories to the Wage Record Interstate System (WRIS) agreement.[3]

One last major process was undertaken prior to the computation and reporting of indicators. The credential earning indicator is phrased in a way to credit agencies if an individual earned a recognized education credential while they were in a program *or within 12 months after leaving a program*. To identify the latter, we submitted all of the records for which no credential had been earned while in program to the Community College System and Department of Education to determine if a GED, high school diploma, or community college degree had been earned within 12 months of exit.[4] After all of this data preparation, we computed the indicators as well as completed some analyses in order to respond to research questions that had been included in the RFP.

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[2] Appendix C to this report documents the data cleaning that was done.

[3] Even with the WRIS data, it should be recognized that the employment data will be underestimated slightly. Individuals may work in states that are not signatories to the WRIS agreement, and individuals may work in employment that is exempt from UI coverage. Both of these eventualities are uncommon, so we estimate that the bias is slight, and should not be systematically different by program.

[4] Unfortunately, because of legal issues, the Department of Education was not able to receive or process the data.

The next section of this report presents the results of the study. The six indicators, calculated in two different ways for all of the programs, are presented and discussed. Furthermore, they are contrasted to performance objectives and outcomes and fiscal data provided by the agencies. An important feature of the Virginia system of indicators is the ability to examine them by demographic group and by region of the state. The third section of the report presents these subgroup analyses. In section four, the report addresses several research questions that were included in the scope of work including the extent of training undertaken in these workforce development programs and the extent to which the training was in preparation for occupations in demand. The final section provides conclusions and recommendations. Appendices to the report provide subgroup and regional analyses and document the data processing procedures.

2. RESULTS

As noted in the introductory section, we computed the indicators in two ways. The first way may be referred to as gross impact, or levels, indicators. They measure the outcomes that result for a client after he or she has received services and exited from a program.[5] The precise language from the RFP for these indicators is as follows:

> **Short-term Employment Rate:** The percentage of participants who have exited with employment during the second quarter after exit. (For youth, enrollment in education counts as well as employment).[6]

[5] The clients for whom we have measured outcomes are referred to as exiters. Note that these individuals may or may not have completed the services that the program intended for them.

[6] The inclusion of the in-school rate for individuals under the age of 18 was inconsequential in the calculations of the employment rates for all programs, except WIA Title 1 Youth. For that program, 30.8 percent of the exiters were enrolled in school in the 2nd quarter after leaving the program; 20.1 percent were in school in the 4th quarter after exit. For Wagner-Peyser, the comparable percentages were 0.1 percent in both quarters, and for all other programs, they were 0.0.

Long-term Employment Rate: The percentage of participants who have exited with employment during the fourth quarter after exit. (For youth, enrollment in education counts as well as employment).

Short-term Earnings Level: Median earnings during the 2nd quarter after exit among all exiters with any earnings.

Long-term Earnings Level: Median earnings during the 4th quarter after exit among all exiters with any earnings.

Credential Completion Rate: The percentage of exiters who have completed a certificate, degree, diploma, licensure, or industry-recognized credential during participation or within one year of exit.

Repeat Employer Customers: The percentage of employers who are served who return to the same program for service within one year.

The second way that we computed the indicators might be referred to as net impact indicators.[7] They measure how program outcomes compare to a benchmark or baseline. The net impact indicators are more informative than the gross impact indicators because they rely on comparisons to a benchmark, and thus one can more confidently attribute the outcomes to the programs than for the levels indicators.

The difference between the two types of indicators can be roughly understood by considering the testing of a pharmaceutical. Drug trials are often run by giving a pharmaceutical to a treatment group of individuals and a placebo to a randomized control group. The gross impact indicators are analogous to the percentage of the treatment group that responded positively. The net impact indicators are analogous to the efficacy of the drug, or how much bigger is the positive response to the treatment than is the positive response to the placebo. Of course, drug trials are usually done experimentally with random assignment to treatment. Our method for calculating the comparative benchmark for the net impacts is less rigorous than that and may be subject to systematic differences between the groups, as we discuss below.

[7] These indicators might also be referred to as differences indicators because the outcomes are measured as differences.

Gross Impact Indicators

Table 1 presents the gross impact indicators for all of the programs. Note that we have split the WIA Title 1 program into two programs: Adults (including dislocated workers) and youth. In many ways, this table is pathbreaking! No other state that we're aware of has a scorecard that displays relatively compactly performance indicators for its workforce programs across agencies. This table represents the bottom line for what the Commonwealth was initially requesting in its RFP. As the study progressed, the Commonwealth formally amended the contract to include the computation of net impact indicators because the state felt that the latter yielded more conclusive evidence about program performance.

Table 1. Gross Impact Indicators for Virginia's Workforce Programs, FY2005

Program	Short-term employment/ in school rate	Long-term employment/ in school rate	Short-term earnings level	Long-term earnings level	Credential completion rate	Percent of repeat employer customers
DOE and VCCS programs						
AEL (DOE)	59.99	59.38	3,572	3,824	66.19	50.46
Postsecondary CTE (VCCS)	72.76	73.01	5,426	6,064	25.48	45.15
DRS and DBVI programs						
DRS	54.85	53.98	2,822	3,052	20.19	46.07
DBVI	38.13	40.13	4,176	4,083	19.73	6.98
DSS programs						
FSET	54.93	53.16	2,717	2,961	0.20	68.59
TANF/VIEW	63.34	61.85	3,211	3,410	1.11	58.04
VEC and Senior Advisor programs						
TAA (VEC)	67.93	68.46	4,366	4,965	65.02	45.40
W/P (VEC)	71.15	70.14	4,257	4,729	0.65	84.58
WIA Adults[a] (Senior Advisor)	75.98	74.12	4,439	4,733	54.91	51.86
WIA Youth (Senior Advisor)	71.61	67.04	1,637	1,761	81.39	49.20

[a]Includes WIA Dislocated Workers.

NOTE: The workforce programs vary considerably in size. Table C.2 shows the number of records of exiters that were supplied to us by program.

The first two columns of table 1 use employment as the outcome of the programs. Employment is measured by whether the individual had at least $50 in total earnings[8] reported by one or more employers in the second full quarter after the individual had left the program (short-term) or fourth full quarter after exit (long-term). Note that for individuals under the age of 18, enrollment in school was counted as "employment."[9] The data show that TAA, W/P, WIA (both adults and youth), and postsecondary CTE have employment rates of about 70 to 75 percent in both quarters. AEL, DRS, and both of the Department of Social Services (DSS) programs have employment rates of around 55 to 60 percent. DBVI has an employment rate of around 40 percent. In considering these employment percentages, note that they reflect differences in client characteristics and local labor market conditions as well as program performance differences. In other words, if Program A has a short-term employment rate of 75 percent and Program B has a rate of 70 percent, one cannot automatically conclude that A outperformed B. Program B may have "harder to serve" participants or may have a larger share of participants in areas with soft labor markets.

The employment indicators do not directly measure retention, as described below. However, program administrators should want the second column to be larger than the first, which would occur if most of the individuals employed in the short-term (quarter two after exit) remained employed through the fourth quarter and others became employed by that time. If the long-term employment indicator is less than the short-term indicator, then it must be the case that

[8]We did not do sensitivity testing to the $50 criterion in this study. In prior studies in other states, we have found that it affects no more than one percent of the sample observations with wage records. If one strictly defines employment as having any earnings in a quarter, this criterion will cause employment to be understated by a slight amount. We should note that there is no minimum level of earnings used in determining medians for the earnings indicators.

[9]One of the agencies suggested that enrollment in any formal education should count as "employment," without limitation by age. The point is that the goal of some of the workforce programs is to provide basic skills, and those skills might enable individuals to succeed in formal education, which would be a positive outcome. If this suggestion were accepted, there would be several pragmatic decisions that would have to be made such as whether the enrollment would have to be full-time, at what type of institutions, major program, degree intention, and so forth.

some jobs are not being retained. Unfortunately, this is the case in seven of the 10 programs (all except postsecondary CTE, DBVI, and TAA).

The third and fourth columns of table 1 use quarterly earnings as the program outcome, which adds a job quality dimension to the employment indicator. Specifically, the indicators are the median level of quarterly earnings for individuals who have earnings in the second full quarter after exit (short-term) and fourth full quarter after exit (long-term). The earnings are in nominal dollars (not adjusted for inflation) because the time periods involved are in a single fiscal year. However, the earnings are summed across all employers for individuals who may have had multiple employers in a quarter.

The table shows that the individuals who exited from postsecondary CTE had median quarterly earnings of around $5,500 to $6,000. Individuals who were served by DBVI, TAA, W/P, or WIA adult programs had medians in the range of $4,000 to $5,000. Interestingly, the DBVI program had low employment rates, but relatively high earnings levels. This suggests that placement was difficult, but the individuals who did get placed got relatively good jobs. Adult education and literacy exiters who were employed earned around $3,600 to $3,800; DRS and the two DSS program clients earned around $3,000 (slightly higher for welfare-to-work); and WIA youth had a median of around $1,600 to $1,800. As with the employment indicators, one should keep in mind that earnings levels across programs depend on client characteristics, labor market conditions, as well as program performance differences.

The fifth column of indicators displays attainment of an educational credential (during the program or within a year of exit) as the performance outcome. The entries in that column show percentages of clients who exited from a program who attained a credential. WIA youth had the highest level—above 80 percent. The Trade Adjustment Assistance and AEL programs

had about 65 percent of their clients attain a credential. WIA adults had about 55 percent, whereas postsecondary CTE, DRS, and DBVI were all around 20 to 25 percent. The DSS programs and W/P had virtually zero percent of their participants attain a credential.

The final column of indicators is intended to measure customer satisfaction, where customers are defined as employers. The idea here is to use the concept of repeat requests for services as indicative of customer satisfaction. If an employer comes to an agency with a job order, and then returns to the agency within 12 months, the employer is assumed to be a satisfied customer. The empirical calculation of this indicator was problematic, however, because not all of the agencies maintain employer contact information. The following proxy was used. An employer was categorized as satisfied if they hired someone who had exited from a program in the first quarter of the fiscal year, and then hired another individual from the program before the fiscal year was over. The denominator for this indicator was the number of employers who hired someone in the first quarter of the fiscal year.

The sixth column shows that almost all of the programs ended up with the satisfied customer indicator being around 50 percent. Wagner-Peyser had a much higher percentage—almost 85 percent; and DBVI had a much lower percentage—about seven percent. If we accept the validity of our proxy measure for employer satisfaction, then the results suggest that about half of the employers are "satisfied." Unfortunately, there is no benchmark criterion for this indicator, so it is hard to interpret. Furthermore, there are some technical shortcomings to it. For one thing, the indicator is loosely correlated to the size of the program, which partially explains the outlier results for W/P and DBVI. Also, it is biased against small employers who may hire only one or two new employees per year. We make some suggestions about how this indicator might be improved in the concluding chapter.

Table 2. Net Impact Indicators for Virginia's Workforce Programs, FY2005

Program	Short-term employment/ in school rate	Long-term employment/ in school rate	Short-term earnings level	Long-term earnings level	Credential completion rate
DOE and VCCS programs					
AEL (DOE)	−9.58***	−9.07***	289***	-21	65.48***
Postsecondary CTE (VCCS)	0.49	2.81***	1,213***	1,539***	22.68***
DRS and DBVI programs					
DRS	17.63***	16.17***	429***	241***	8.79***
DBVI	17.37***	25.00***	1,948***	1,318**	6.78***
DSS programs					
FSET	−9.29***	−9.55***	−404***	−529***	−0.41***
TANF/VIEW	−2.22***	−2.30***	414***	175*	0.46***
VEC and Senior Advisor programs					
TAA (VEC)	−6.15***	−5.88***	−210***	−154***	65.03***
WIA Adults[a] (Senior Advisor)	4.75***	3.39***	442***	146**	53.96***
WIA Youth (Senior Advisor)	−2.91*	−3.88**	480***	62	76.12***
W/P (VEC) post–pre impacts[b]	−0.36	0.09	−250***	38*	na

[a]Includes WIA Dislocated Workers.
[b]W/P program impacts were computed using a post-pre methodology as described in text. na means not available because credential completion is not meaningful in a post-pre methodology.
Significance levels (one-tailed test): * 10%; ** 5%; *** 1%.

Net Impact Indicators

Table 2 presents the net impact indicators for all of the programs. Note that the benchmark that we're using is a statistically-matched comparison group from the individuals who encountered the Employment Service. The entries in the table are differences: program outcomes minus outcomes for the program's matched comparison group. In general, we found the comparison group by a statistical matching procedure in which the individuals who exited from a program in FY2005 were "matched" to the closest observation in terms of demographic and labor market experience variables from the database of individuals who were served by and exited from Wagner-Peyser agencies.[11]

[11] The statistical matching was done using a nearest-neighbor technique with replacement and a caliper. The results that are presented here are unadjusted. In addition, we did the matching without replacement, and for both sets of matching techniques, we estimated regression-adjusted net impacts. The results for these additional techniques did not change appreciably from those presented. They are available from the authors.

For DRS and DBVI, we used two methodologies to identify a comparison group. We matched them to the Wagner-Peyser data set as we did with all the other programs, but in addition, we used records supplied by these agencies of individuals who applied for services, but never participated. For those two programs, we use the latter comparison group in table 2.[12]

One drawback to the methodology used to compute the net impact indicators is that because Wagner-Peyser clients were used to form the comparison groups, there is no comparable set of net impact indicators for the Wagner-Peyser program itself. We have included in table 2 an alternative set of net impact estimates for W/P that are computed on a post-pre basis as described below. In that methodology, the credential completion indicator is not meaningful, so there is no entry in the table for that indicator for W/P. Also note that the indicator for repeat employer customers could not be calculated on a net impact basis.

The assumption underlying the net impacts estimation is that if the program did not exist, the next best alternative for individuals (referred to as the counterfactual) would be the Employment Service. The ES does not provide training, so the net impact indicators reflect the effectiveness of training as well as differences in agencies. So in the table, a negative entry means that individuals did not benefit from the program on average; individuals with similar characteristics who received W/P services ended up with better outcomes. A small, positive net impact (not significant) means that the outcome is approximately the same as for the comparison group. A positive, significant impact means that the program delivered a positive outcome.

The entries in the table are statistical estimates because they are derived from data that might be misreported or mis-keyed and because statistical matching was used to find a

[12] In our opinion, the non-served applicants are a better source for comparison. They most likely have disabilities (or visual impairments), and they are motivated enough to seek services. In the statistical match, the Wagner-Peyser records have a self-reported disability indicator that we used in the statistical match, but it was only one of many variables that were matched. So it was entirely possible that we matched individuals from the DRS or DBVI agencies with individuals whose self-reported disability code was 0, i.e. not disabled.

benchmark comparison group. Because they are statistics, there is a chance that they are wrong. Thus, we performed tests of statistical significance to see if the estimates are statistically greater than 0.[13] If they are not, it means that the program is not effective as compared to the benchmark. If they are, then the program can be said to be effective. The levels of significance quantify the confidence that we have in how "correct" the estimates are. Ten percent; 5 percent; and 1 percent mean we can expect the estimates to not be wrong 90 times; 95 times; and 99 times out of 100.

The first two columns of the table show the employment indicators in terms of differences. For example, the first entry in the table, −9.58, means that in the second quarter after exit, the individuals from adult education and literacy training had a 9.58 percentage point lower employment rate than the individuals who were statistically matched to them. As with the levels indicators, employment is measured by whether the individual has earnings reported by one or more employers in the second full quarter after program exit (short-term) or fourth full quarter after exit (long-term), and for individuals under the age of 18, enrollment in school is counted as "employment."

The data show that Postsecondary CTE, DRS, DBVI, and WIA Adult programs have positive employment differences indicators. The individuals from these programs have higher employment rates in the second and fourth quarters after leaving their respective programs than the individuals matched to them. The differences for DRS and DBVI are quite large—on the order of 20 percentage points. On the other hand, AEL, FSET, TANF/VIEW, TAA, and WIA youth have negative employment differences indicators. That is, the individuals from these programs had lower employment rates than the individuals matched to them from the W/P

[13] On a technical note, the statistical tests that were performed were one-tailed tests. The null hypothesis is that the program effects were not positive (≤ 0); i.e., we don't really care about the significance of a negative estimate.

program. These differences were all statistically significant except for postsecondary CTE and WIA youth in the short-term.

The third and fourth columns of the table focus on the earnings indicators. Here the statistic that is reported is the difference in the medians for earnings in the second (or fourth) quarters after exit. As with the levels indicators, these are medians that are conditional on non-zero earnings. Most of the programs have positive differences meaning that the program exiters have a higher median than the group of individuals to whom they were matched. Note that the differences for postsecondary CTE and for DBVI are over $1,000 in quarterly earnings. The programs for which this indicator is negative in both the second and fourth quarters after exit are FSET and TAA. AEL has a positive difference indicator in the second quarter after exit, but a negative one in the fourth quarter.

The fifth column of indicators displays the attainment of an educational credential indicator on a differences basis. For most of the programs, this indicator is quite large. This is because the comparison group comes from the Wagner-Peyser program, which is not a training or education program geared toward earning a credential. As table 1 shows, less than one percent of the individuals who had been served by Wagner-Peyser earned a credential. So it is not surprising that the programs with an education or training emphasis like AEL, postsecondary CTE, WIA (youth and adults), and TAA have credentialing rates much higher than Wagner-Peyser. On the other hand, the programs that have a work-first emphasis, i.e., FSET and TANF/VIEW, have credentialing rates that are not much different from Wagner-Peyser.

A note on post-pre estimates. An alternative way of estimating net impacts of a program is by comparing the experience of the clients after participating in the program to their experiences prior to the program. This procedure yields net impact (or differences) indicators,

and the technique may be thought of as using program participants themselves as the comparison sample (the individuals' pre-program experiences represent the comparison group). Evaluators generally regard this technique as less valid than the statistical matching methodology described above. The reason for this is that a lot of events may occur during the period of program participation, and so it is an extremely strong and probably unrealistic assumption to suggest that the difference between the post- and pre- program labor market and earnings experiences depends solely on the program. For example, the participants get older and may become more mature. Furthermore, the pre-program period of time is likely to have been a time of labor market distress for the participants—why else would they choose to participate. So a statistic calculated by subtracting the pre-program level of an outcome variable from the post-program level is likely to be biased upward. Nevertheless, we computed the post-pre estimates and are available from the authors upon request.

Self-Reported Agency Performance versus Goals and Costs/Participant

Prior to this study and the development of the gross and net impact indicators, the only way that Virginia policymakers could judge the performance of programs was to compare the goals that are set for a program prior to the start of a year to the results that the agency reports for the program at the end of the year. In addition, policymakers had access to cost per participant data for the programs. One of the tasks that was included in the RFP for this study was to collect this information, i.e., goals, performance against goals, and costs/participant, for FY2006.

Table 3 presents the results of this information collection. The second and third columns of the table display the agency's reported number of objectives set for FY2006 and the number of these objectives that they reported were met or exceeded. After receiving and analyzing the information that was sent to us, we made the judgment that the data were virtually impossible to

Table 3. Program Self-Reported Performance-Against-Objectives and Cost/Participant, FY2006

Program	Number of program objectives	Number met/ exceeded	Cost/participant	Ranking of cost/ participant
DOE and VCCS programs				
AEL (DOE)	15[b]	9	$405.39	3
Postsecondary CTE (VCCS)	7	5	449.36[c]	4
DRS and DBVI programs				
DRS	2[d]	1?	2,669.30	8
DBVI	2[e]	2?	8,456.00	10
DSS programs				
FSET	2	2	168.32	2
TANF/VIEW	2	1	1,575.49	6
VEC and Senior Advisor programs				
TAA (VEC)	3	2	1,062.89	5
W/P (VEC)	2[f]	2	67.33	1
WIA Adults[a] (Senior Advisor)	10[g]	8	1,708.18	7[h]
WIA Youth (Senior Advisor)	7	5	2,824.97	9

[a]Includes WIA Dislocated Workers; [b]11 targets for functioning level – 7 met; 4 targets for outcomes – 3 met; [c]Based on W. Kang e:mail of 7/18/07; [d]objectives dated 6/09 and 9/07; performance data show latter objective exceeded; positive trend for other target; [e]objectives dated 6/09; [f]no negotiated state level goals; comparing state to National GPRA goals; [g]customer satisfaction goals included with adults; [h]WIA adults and youth combined would be 7th of 9.

compare across programs in a meaningful way. The first problem in trying to compare the program's performances with these data was that the number of objectives had a large range: for example, five of the programs had two objectives, whereas Adult Education and Literacy supplied a list with 15 objectives. Another substantial problem was the variation in the breadth and specificity of the objectives. For example, DSS was succinct and specific for FSET:

Program objectives:	place greater than 1,009 in full-time employment place greater than 430 in part-time

On the other hand, DBVI indicated that it had two very general goals, as follows:

a. Assist eligible individuals with disabilities to achieve their employment goals and work satisfactorily for at least 90 days upon completion of their programs.

   Measure used to assess program performance towards this objective: By June 30, 2009, at least 70 percent of vocational rehabilitation consumers will achieve their employment goals (using baseline of 55 percent in SFY 2006).

b. Increase by 5 percent annually the average hourly wage of vocational rehabilitation consumers who are closed successfully employed.

   Measure used to assess program performance towards this objective: By June 30, 2009, average hourly wages at closure will be $12.47 per hour.

As a consequence of this kind of heterogeneity, we concluded that it was inappropriate to try to rank the various programs by the self-reported percentage of goals attained. Overcoming this inability to compare program performance is the primary advantage of the integrated system of gross and net impact indicators described above.

The third column of data in Table 3 shows cost per participant for each of the programs and the final column ranks these data from lowest to highest. It should be noted that the participants in the denominator of this statistic includes all participants in a fiscal year – those receiving services as well as those who exited from the program. Unlike the performance-against-objectives data, the cost data are a common metric that can be ranked. However, the costs depend on factors that are quite different across programs: client services, client characteristics, duration of services, and so forth. Comparisons of similar programs across states and/or across time may be more useful than comparing the nine different programs.

3. SUBGROUPS

An important aspect of the project was to examine the gross impact indicators by subgroups of the population. This type of analysis is important because it is aimed at uncovering

variation across programs, if any, in outcomes for different population groups. We looked at both demographic subgroups and regional subgroups of the state's population. In general, this analysis was done through cross-tabulations of the gross impact indicators (as well as the research outcomes described below) by characteristic or region. In addition, we estimated multivariate regression models that controlled for all of the characteristics simultaneously, but those are not reported here because they did not alter the fundamental results from the cross-tabulations.[14]

Demographic Analyses

The specific demographic subgroups that we chose to examine (in consultation with the state) are as follows:

Educational Status	Age	Race	Disability	Gender
Less than 9th grade	< 21	White	Yes	Male
Less than H.S. Grad.	20 – 30	African American/Black	No	Female
H.S. Grad., no postsecondary	31 – 40	Hispanic		
Some education beyond H.S., no Associates	41 – 50	Mixed		
Associates degree +	51+	Other		

Appendix A contains all of the tables for the 19 subgroups listed above for the gross impact indicators. That is, table A.1 shows the indicators for individuals with less than a 9th grade

[14]In particular, we estimated by regression the following model of outcomes:

$$Y_{ijk} = a + b_i\, CHAR_i + c_j\, REGION_{ij} + d_k\, PROG_{ik} + e_{ijk}$$

where Y_{ijk} = outcome for individual i in region j who participated in program k; outcomes include short- and long-term employment; short- and long-term earnings; and certification while in program.

$CHAR_i$ = demographic characteristics of individual i thought to be related to outcomes

$REGION_{ij}$ = variable(s) representing that geographic region j is the region of residence for individual i

$PROG_{ik}$ = dummy variable = to 1 if individual i participated in program k; 0 otherwise

e_{ijk} = error term

a, b_i, c_j, d_k = parameters to be estimated.

We estimated the models with two different sets of REGION variables: one with dummy variables for each of the WIB regions; and one with regional labor market variables such as the unemployment rates and employment growth. The CHAR variables that we used included age, age squared, race, years of education, and high school diploma. Regression results are available from the author upon request.

education at the time of program registration. Table A.2 displays the indicators for the next education group; and so forth up to table A.19, which shows results for females.

Educational status

The analyses by education level were hampered by the non-availability of the data for the VDOE and VCCS programs, and aggregate coding for Wagner-Peyser (that agency only has codes of high school graduate or college graduate.) Nevertheless, when one looks across the five tables (A.1 to A.5), there is little difference in employment rates (short-term or long-term) by the educational level of the program participants. However, the earnings levels increase significantly with higher and higher education. For example, for TANF/VIEW, the short-term and long-term earnings levels for individuals with less than a high school education are approximately $2,600 to $2,800 per quarter. High school graduates have a median of about $3,400 to $3,600 per quarter. Clients with some postsecondary education have earnings levels indicators in the range of $4,300 to $4,900 per quarter. This pattern is similar in virtually all of the programs.

Age

The next five tables in the appendix, A.6 to A.10, show impacts by age at the time of entry into the program. The employment indicators are similar across all of the age classes, except for the last one, i.e., aged 51+. The individuals in that age range have lower employment rates than any of the other age classes. The relationship between age classes and earnings consistently shows that the earnings indicators increase significantly between the age classes of less than 21 to 21–30 to 31–40. Then the earnings indicators are approximately the same for the prime age classes of 31–40 and 41–50 (for some of the programs, earnings are greater in the 31 –

40 range, and for others, earnings are greater in the 41–50 range). Finally, earnings fall off slightly for the oldest age range of 51+.

Race/Ethnicity

Tables A.11 through A.15 show the gross impact indicators by individuals' race/ethnicity. If we examine the first three of these tables, which exhibit the results for individuals whose race/ethnicity is white, black, and Hispanic, respectively, we find the most positive results for Hispanics both in terms of employment and earnings. In comparing whites and blacks, we find that the former tend to have lower employment rates, but higher levels of earnings.

Disability status

Only a few of the programs routinely collected data on disability status at the time of registration, so Tables A.16 and A.17 can be used to compare these population groups for just four programs. The results for these programs show that employment rates are lower for disabled individuals, but earnings (except for the Adult Education and Literacy program) are comparable. In the Adult Education program, quarterly earnings for disabled individuals as well as employment rates lag well behind the quarterly earnings and employment rates for individuals who are not disabled.

Gender

The last two tables in Appendix A—A.18 and A.19—show the levels indicators for males and females, respectively. Generally, women have higher short-term and long-term employment rates than men, but they have lower levels of quarterly earnings. For example, for WIA Adults (including dislocated workers), the short-term and long-term employment rates for women are 77.2 percent and 75.3 percent, respectively. For men, they are 73.5 and 71.8 percent. However,

median short-term and long-term quarterly earnings levels for women are $4,137 and $4,324, respectively, as compared to $5,434 and $6,097 for men.

Cross-Tabulations by Region

In addition to examining the gross impact indicators by demographic detail, we also examined them by region. The particular geography that we used was the Workforce Investment Board (WIB) area. In FY 2005, there were 17 WIB areas (since then, two of the areas have consolidated, so that only 16 WIBs remain). Appendix B contains tables for all 17 areas. We don't analyze these here, but rather note that the interested reader may want to peruse the tables and note differences and similarities in outcomes across the state.

4. RESEARCH QUESTIONS

In addition to calculating the workforce system performance indicators, the project conducted an analysis of several research questions. In particular, the state was interested in the percentage of program participants who received training, the duration of training for individuals who participated in it, the completion rates of participants, and whether individuals were being trained for occupations in demand. Not all of the programs had the data needed to address these questions, but where the data were adequate; we computed measures of these outcomes for the entire population, as well as for the demographic and regional subgroups of the population. We did the latter analyses with cross-tabulations and regression analyses.

Table 4 provides the answers to the research questions using the data that were supplied by the agencies. The first column of data addresses program completion. For this statistic, we only have data for three of the programs. For postsecondary CTE, completion is defined as graduating and receiving an associate's degree. Approximately one quarter of the individuals

who left in FY 2005 received a degree. For DRS and DBVI, the administrative data have a closure status variable, and for each of these programs, approximately 55 percent of the cases were closed as "rehabilitated."

Table 4. Statistics Addressing Research Questions Concerning Virginia's Workforce Programs, FY2005

Program	Program completion	Percent receiving training	Training length (mean days)	Occupations in demand I	Occupations in demand II
DOE and VCCS programs					
AEL (DOE)	100.0%	100.0%	210.5	—	—
Postsecondary CTE (VCCS)	25.5[b]	100.0	2,450.0	8.1%	8.7%
DRS and DBVI programs					
DRS	54.1	19.3	—	4.1	49.9
DBVI	57.5	62.9	—	6.4	41.5
DSS programs					
FSET	—	—	—	—	—
TANF/VIEW	—	—	—	—	—
VEC and Senior Advisor programs					
TAA (VEC)	—	80.6	468.1	1.1	39.8
W/P (VEC)	100.0	0.0	—	—	—
WIA Adults[a] (Senior Advisor)	—	68.8	456.2	—	—
WIA Youth (Senior Advisor)	—	36.3	519.7	—	—

[a]Includes WIA Dislocated Workers.
[b]Federal rules in process of changing definition of completion.
—Data not available.

Since the Wagner-Peyser (Employment Service) agency may provide job referrals to a customer in a single visit, the notion of completion may not be meaningful. At any rate, the 100.0 percent completion is probably a reasonable statistic. For AEL, the 100.0 percent completion rate results from the agency's data collection procedures in which data were only captured for individuals who "completed" the program. For the other programs—FSET, TANF/VIEW, TAA, and WIA—there was no variable available that distinguished whether an

individual exited from the program after receiving all of the services that were intended (i.e., completed), or simply stopped receiving services..

Training

The second and third research questions addressed the percentage of participants who received training, and the duration of that training. In this case, we assumed that individuals in adult education and in postsecondary CTE were all receiving training. For AEL, the mean length of the training was about 210 (calendar) days. For postsecondary CTE, the mean duration was 2,450 days.[15]

DRS and DBVI had variables that indicated whether the client received training services, but those agencies' data did not have length of training. As can be seen in the table, a small share of DRS clients received training—19 percent—whereas over 60 percent of DBVI clients received training.

In general W/P clients do not receive training. On the other hand, the TAA and WIA data sets had indicators of training and had duration as well. A large share of TAA clients–over 80 percent–engaged in training that lasted, on average, about 15 months. WIA Adults and Dislocated Workers also received a lot of training. About two-thirds of individuals served received training, which again averaged about 15 months in duration. A little over one-third of WIA Youth clients received training, but here the training last about 17 months on average.

Occupations in Demand

The last two columns of data in Table 5 address the extent to which training was geared toward occupations in demand in the state. Only four of the agencies reported information on the occupation for which the participant was training, so we could address this question only for

[15] This duration was defined as the last date of attendance minus an official enrollment date. The mean reflects "stopping in" or out of programs.

those programs. The notion of "occupation in demand" is not universally defined, so we, in fact, used two different constructs. The first relied on the document, "Workforce Development Blueprint: Defining Virginia Workforce Needs, 2012." Appendix B to that document has an occupational demand and supply analysis by educational level. The fourth column of data in Table 5, labeled "Occupations in Demand I" defines an occupation in demand as one of the 56 occupations in Appendix B for which there is a gap between Annual Demand and Annual Supply. Only a small percentage of individuals are being trained for these occupations.

The fifth column uses a different definition. Here an occupation in demand is one in which the document, "Industry and Occupational Employment Projections: 2002-2012" from the Virginia Employment Commission lists at least 100 openings. There are 277 occupations that comprise this set. In this case, DRS, DBVI, and TAA have about 40 to 50 percent of their trainees in demand occupations. On the other hand, postsecondary CTE only has about 8 percent.

5. CONCLUSIONS AND RECOMMENDATIONS

With this effort, Virginia is at the forefront of states in terms of workforce program performance monitoring. To our knowledge, the State of Washington is the only other state to have developed an integrated system of workforce development program indicators. This project has made great strides in demonstrating the viability of using administrative data to produce a small set of common metrics to measure performance of the components of the state's workforce system. The usefulness of the metrics should be enhanced as they get used for additional programs and over more years. Of course, the usefulness of the system of performance indicators will depend on the extent to which it gets used. The purpose of this chapter is to

provide some summary recommendations or conclusions based on our work with the data and computation of the indicators targeted on making the system even better.

Indicators

First of all, the state should decide whether it wants to emphasize gross impact indicators or net impact indicators. There are advantages and disadvantages to each. The advantages to the gross impact, or levels, indicators include the following:

- Gross impact indicators are easier to understand.
- They provide straightforward measures of outcomes—percentage employed, quarterly earnings, and so forth.

The major problems with gross impact indicators are as follows:

- there is no baseline or benchmark to compare them to
- outcomes may depend on other factors beside program performance. For example, they may depend on the characteristics of clients, and they may depend on the labor markets of regions where clients reside.

The net impact, or net differences, indicators overcome these two problems. Their advantages include the following:

- Program outcomes are calculated *net* of a counterfactual situation; in our case, pursuing workforce development through the Employment Service.
- Furthermore, statistical matching to a comparison group controls for client characteristics and labor market experiences. This means that differences across programs do a much better job of reflecting program performance than do the gross impact indicators.

Indicator Recommendation 1: As long as administrative data are available for deriving defensible comparison groups, we believe that Virginia's policymakers will be best served by net impact indicators.

The main disadvantage with the net impact indicators is the following:

- Validity depends on finding a good comparison group for the program participants.

Another issue that the Commonwealth may wish to consider would be whether the set of indicators meets the needs of the state, or whether the measures could be "tweaked." Probably the best way to assess the usability of the measures is to directly ask the individuals who will use them whether they have suggestions for improvements. At a minimum, we would suggest that the state consider a measure that is more strongly correlated with employment retention, a measure of costs per participant, and an alternative measure of employer satisfaction.

The two employment indicators measure the percentage of individuals who left a program that are employed in the second full quarter after they left the program and in the fourth full quarter after exit. (Note that employment is defined as $50 or more in quarterly earnings.) These measures do not provide information about employment retention.[16] A different, and direct, measure of retention would be the percentage of individuals who are employed in the second full quarter after exit who are employed in the fourth quarter.

Indicator Recommendation 2: Replace the long-term (4th quarter) employment indicator with an employment retention indicator. An example would be the percentage of individuals who left the program and were employed in the second full quarter after exit who were also employed in the fourth full quarter after exit.

Program cost is another indicator of program performance (or efficiency). Table 3 displays data supplied by the agencies on cost per participant served. While these data are easily accessed, they are difficult to compare across programs because the programs are very disparate in the nature of the clientele that they serve and the nature of the services that they provide. Cost

[16] It is more correct to say that these measures are only indirectly related to employment retention. If both the short-term and long-term employment levels indicators were 70 percent, for example, all you know about retention is that it is at least 40 percentage points and no more than 70 percentage points.

per participant data may largely reflect those differences rather than program efficiency. A better alternative would be to estimate benefit-cost ratios, or equivalently, return on investment. Specifying a rigorous benefit-cost analysis is beyond the scope of this document,[17] but the key pieces of such an analysis would include using the net impact indicators for employment and earnings to project earnings into the future. Those projections can then be used to estimate total compensation and individual tax liabilities. Additional administrative data from the Department of Social Services on TANF, Food Stamp usage, and Medicaid coverage and from the VEC for unemployment compensation would be required. Statistical analyses of those data would be required, and then projections of reductions in income maintenance payments can be made. The data and analysis burden to conduct a benefit-cost analysis is substantial. In light of that burden, the State of Washington's legislature only requires return on investment to be included in the workforce program indicators every four years. Clearly, Virginia could adopt a similar requirement.

Indicator Recommendation 3: Add a benefit-cost (equivalent to return on investment) indicator as a seventh indicator in order to compare program performance on a cost efficiency basis. It may make sense to include this in the workforce performance system on a periodic basis in which this indicator is computed less frequently than the other six indicators.

Finally, the "satisfied, repeat customers" indicator should be looked at in our opinion. It makes sense to include an indicator that measures the satisfaction of employers, the major customers of the workforce system. However, the particular measure that is used has some severe analytical problems. An employer is considered to be a satisfied customer if the employer

[17] Our document, "Net Impact and Benefit-Cost Estimates of the Workforce Development System in Washington State," Upjohn Institute Technical Report No. TR06-020, September 2006, accessible on the Upjohn Institute website, www.upjohninstitute.org, has detailed documentation for a benefit-cost analysis that would be quite similar to what would be envisioned for Virginia.

hires two or more individuals who have exited from the same program (the first hire means that the employer is a customer; the second and succeeding hires means that the employer is a *satisfied* customer.) The analytical problems with this indicator are that it is correlated with the size of the program and, by its nature, a whole subgroup of customers—small business—is assumed to be dissatisfied. It would seem to make much more sense to do a straightforward random sample survey of employers served to obtain this information. Such a survey will require some resources, but we think that a very short customer satisfaction survey of a random sample of establishments that hire individuals who complete or leave a program will not cost too much more than the processing that is done to compute the indicator in the manner that was done for this study.[18]

Indicator Recommendation 4: The Commonwealth should rely on a sample survey of employers to compute the Satisfied Customer indicator rather than the measure based on administrative data used in this study.

A final issue concerning the indicators is obtaining a resolution to the issue of the Virginia Department of Education (VDOE) providing credential completion data for individuals who participated in programs outside of that agency. The credential completion performance indicator counts individuals who earned a recognized credential while they were in a program *plus* individuals who earned a credential within 12 months of leaving a program. A potential credential for the latter would be a GED (or even high school diploma). The identification of such an accomplishment requires having the VDOE examine their administrative records for

[18]Alternative methodologies that are likely to be less costly than a sample survey may suffice for generating data for this indicator. For example, programs may have employer advisory committees, and members of those committees could be asked to provide feedback about customer satisfaction. Qualitative data collection techniques such as focus groups could be deployed. Alternatively, agencies could ask for employer customers to voluntarily respond to short satisfaction surveys after they have interacted with the agency (telephone, in person, or internet) much as many private sector service providers do. (After making travel reservations, for example, customers are often asked to stay on the line to complete a 60-second survey after their calls.)

those individuals served by other programs who did not earn a credential. The VDOE did not feel that they could legally do this. Our recommendation is to get a resolution of this issue, and to explicitly exclude the GED and high school diploma from the definition of a post-program.

Indicator Recommendation 5: The Commonwealth needs to resolve the legal issues that precluded the VDOE from providing data on GED or high school diploma earning for individuals from other programs. If the resolution of the situation means that VDOE does not provide the data, then the indicator needs to be slightly re-defined accordingly.

Data Issues

The validity of the integrated workforce system indicators hinges greatly on the quality and consistency of the data across agencies. In our opinion, it would behoove Virginia to devote some resources to an effort that would standardize concepts and definitions. Perhaps the most urgent issue is the identification of program participants for whom the indicators would be calculated. The general purpose of the indicators is to measure program performance by examining the outcomes for individuals who received program services. So participants should be defined as anyone who applied for a program, except for individuals who never received services and except for individuals who could not experience outcomes (institutionalization, death, serious illness, e.g.). In general, individuals who started receiving program services, but didn't "complete" them should be included. On the other hand, for programs like postsecondary CTE or AEL, individuals who signed up for instruction, but never attended even once, should probably be excluded. In W/P, participants should probably be synonymous with some sort of mediation with a staffperson. So an individual who enters an office and simply reviews job postings would not be a participant, but someone who completes an online resume and interacts with a staff person would be a participant.

Data Recommendation 1: To ensure that outcome indicators meaningfully compare programs, Virginia should standardize the definition of program participant (for outcome measurement purposes).

After participants have been rigorously identified, attention needs to be paid to identifying and defining the minimum set of data items needed from individuals served by the workforce system. The set of data items and definitions could then be disseminated to the administrative agencies for the workforce programs, and those agencies would be tasked with making sure that their administrative data systems capture these data items with appropriate definitions. For example, the treatment of time is not consistent across agencies. In workforce development programs such as WIA or TAA, performance measures focus sharply on outcomes after exiting from the program. So "exit date" is an important data item in agency administrative data files. In educational programs, less attention is paid to the exact date. Rather, data are organized by semesters or quarters. These semesters or quarters typically start and end at different times for different campuses.

Similarly, "registration date" is important. In calculating the net impact indicators, we try to match on client characteristics *at the time of registration*, that is, prior to receiving program services. Furthermore for the gross impact indicators, we have defined subgroups of the populations that are also identified by their characteristics prior to program participation. Thus, for all programs, it would be key to measure registration date consistently.[19]

[19] In reviewing this report, one of the agencies noted, "The State agency workgroup, which looked at these issues, reached the conclusion that standardization of definitions and data collection would be very difficult, if not impossible. Changing data collected would also cost money, which most agencies simply don't have. Representatives from states (including Washington and Florida) that have attempted to do this told us that was where their efforts to create common 'system' measures broke down because of the vast differences in program delivery, mission, and host agency (DOL, DOE, etc.) measurement and operational requirements. Florida told us that they have been working on this for years and what they actually do is report on the individual programs consistent with their host agencies' requirements."

Data Recommendation 2: Data items that need consistent definitions to compute performance indicators include exit date, registration date, and demographic characteristics at the time of registration (at a minimum age, race, sex, education background, and disability status).

In its set of research questions, the state showed its interest in whether or not individuals completed their program participation, whether or not individuals received training, and whether or not individuals were being trained for occupations in demand. Unfortunately, the agencies' data were rather inconsistent or incomplete along all three dimensions. Some agencies provided data only about individuals who completed program participation. Apparently, for these agencies, individuals who quit attending were not tracked administratively.

The data across agencies was also somewhat inconsistent in terms of tracking services provided. In particular, for some agencies, it was difficult to determine whether individuals had received occupational training. Furthermore, when training could be identified, not all agencies identified the curriculum or occupation for which training was being provided. Consequently, we could not identify whether the training was in demand occupations. Again, we would recommend that the Commonwealth address the question of what issues policymakers would like researched in addition to the performance indicators, identify the data that need to be collected in order to answer these issues, and communicate these data items to all of the administrative agencies.

Data Recommendation 3: The Commonwealth should identify research issues that are of interest to policymakers over and above the performance indicators, determine the data needed to answer these issues, and request that the agencies collect these data items.

Conclusion

This report documents Virginia's initial attempt to calculate integrated performance measurement indicators for ten of its workforce programs. This chapter has pointed out some of the data problems that were encountered. However, those problems should not overshadow the fact that the seven agencies that administer nine programs came together to supply administrative data that could be used to calculate indicators of program performance. The results—both for the gross impact and for the net impact indicators—have been and will continue to be informative for program oversight and workforce policy and resource allocation. As the Commonwealth proceeds with this effort, with more programs and more years of data, the indicators will provide more and more utility. We're confident that the state will be a leader in the movement toward integrated accountability of workforce development systems.

APPENDIX A

GROSS IMPACT INDICATORS, BY SUBGROUP

Table A.1 Levels Indicators for Virginia's Workforce Development Programs for Individuals with Less than 9th Grade Education, FY 2005

Program	Short-term employment/ in school rate	Long-term employment/ in school rate	Short-term earnings level	Long-term earnings level	Credential completion rate	Percent of repeat employer customers
DOE and VCCS programs						
AEL (DOE)	--	--	--	--	--	--
Postsecondary CTE VCCS	--	--	--	--	--	--
DRS and DBVI programs						
DRS	38.43	36.57	2,557	2,529	26.49	17.95
DBVI	37.04	40.74	4,124	4,045	66.67	0.00
DSS programs						
FSET	43.25	41.67	2,413	2,929	0.00	33.33
TANF/VIEW	52.26	54.01	2,637	2,831	1.39	19.64
VEC and Senior Advisor programs						
TAA (VEC)	66.33	67.12	4,124	4,849	70.08	46.67
W/P (VEC)	--	--	--	--	--	--
WIA Adults[a] (Senior Advisor)	70.93	70.93	4,587	4,128	50.00	0.00
WIA Youth (Senior Advisor)	82.35	77.59	1,200	1,265	84.73	38.82

[a]Includes WIA Dislocated Workers.

-- Data not available; or sample size < 10.

Table A.2 Levels Indicators for Virginia's Workforce Development Programs for Individuals with Some High School, FY 2005

Program	Short-term employment/ in school rate	Long-term employment/ in school rate	Short-term earnings level	Long-term earnings level	Credential completion rate	Percent of repeat employer customers
DOE and VCCS programs						
AEL (DOE)	--	--	--	--	--	--
Postsecondary CTE (VCCS)	--	--	--	--	--	--
DRS and DBVI programs						
DRS	56.30	56.76	2,374	2,541	36.61	41.68
DBVI	29.09	29.09	3,080	3,281	41.82	10.00
DSS programs						
FSET	49.13	48.31	2,193	2,149	0.06	59.86
TANF/VIEW	59.72	58.19	2,650	2,692	1.13	46.15
VEC and Senior Advisor programs						
TAA (VEC)	60.00	62.50	3,920	4,504	51.67	18.18
W/P (VEC)	--	--	--	--	--	--
WIA Adults[a] (Senior Advisor)	70.82	69.14	3,440	3,845	56.69	37.30
WIA Youth (Senior Advisor)	64.27	58.42	1,490	1,742	82.54	42.44

[a]Includes WIA Dislocated Workers.
-- Data not available; or sample size < 10.

Table A.3 Levels Indicators for Virginia's Workforce Development Programs for High School Graduates with No Postsecondary Education, FY 2005

Program	Short-term employment/ in school rate	Long-term employment/ in school rate	Short-term earnings level	Long-term earnings level	Credential completion rate	Percent of repeat employer customers
DOE and VCCS programs						
AEL (DOE)	--	--	--	--	--	--
Postsecondary CTE (VCCS)	--	--	--	--	--	--
DRS and DBVI programs						
DRS	54.48	53.43	3,091	3,330	5.44	34.98
DBVI	43.48	43.48	3,370	3,598	7.61	6.67
DSS programs						
FSET	58.02	56.18	2,867	3,177	0.18	64.15
TANF/VIEW	66.84	64.74	3,358	3,594	0.98	51.82
VEC and Senior Advisor programs						
TAA (VEC)	70.04	70.39	4,322	4,852	61.34	33.90
W/P (VEC)	72.58	71.63	4,277	4,733	0.79	83.16
WIA Adults[a] (Senior Advisor)	76.93	74.87	4,378	4,607	56.24	47.15
WIA Youth (Senior Advisor)	73.37	71.11	2,510	2,985	71.11	37.04

[a]Includes WIA Dislocated Workers.
-- Data not available; or sample size < 10.

Table A.4 Levels Indicators for Virginia's Workforce Development Programs for High School Graduates with Less than Two Years of Postsecondary Education, FY 2005

Program	Short-term employment/ in school rate	Long-term employment/ in school rate	Short-term earnings level	Long-term earnings level	Credential completion rate	Percent of repeat employer customers
DOE and VCS programs						
AEL (DOE)	--	--	--	--	--	--
Postsecondary CTE (VCCS)	--	--	--	--	--	--
DRS and DBVI programs						
DRS	55.06	52.53	3,515	3,840	8.74	30.56
DBVI	25.00	30.77	4,262	3,617	15.38	16.67
DSS programs						
FSET	59.30	57.04	3,288	3,479	0.87	40.00
TANF/VIEW	65.58	66.67	4,335	4,415	1.63	27.69
VEC and Senior Advisor programs						
TAA (VEC)	--	--	--	--	--	--
W/P (VEC)	--	--	--	--	--	--
WIA Adults[a] (Senior Advisor)	75.76	72.51	4,699	5,392	54.11	23.58
WIA Youth (Senior Advisor)	58.33	66.67	4,605	3,676	83.33	20.00

[a] Includes WIA Dislocated Workers.

-- Data not available; or sample size < 10.

Table A.5 Levels Indicators for Virginia's Workforce Development Programs for Individuals with an Associate Degree or More, FY 2005

Program	Short-term employment/ in school rate	Long-term employment/ in school rate	Short-term earnings level	Long-term earnings level	Credential completion rate	Percent of repeat employer customers
DOE and VCCS programs						
AEL (DOE)	--	--	--	--	--	--
Postsecondary CTE (VCCS)	--	--	--	--	--	--
DRS and DBVI programs						
DRS	55.58	52.12	3,723	4,340	2.05	24.68
DBVI	47.95	50.68	7,250	7,096	4.11	7.14
DSS programs						
FSET	62.14	57.95	3,741	4,342	0.47	46.21
TANF/VIEW	67.94	65.08	4,366	4,895	1.72	29.17
VEC and Senior Advisor programs						
TAA (VEC)	69.32	69.08	4,933	5,493	65.70	23.53
W/P (VEC)	66.54	66.69	8,278	9,505	0.22	61.12
WIA Adults[a] (Senior Advisor)	77.56	76.41	5,456	6,213	49.62	31.34
WIA Youth (Senior Advisor)	73.33	86.67	3,965	2,563	86.67	0.00

[a]Includes WIA Dislocated Workers.
-- Data not available; or sample size < 10.

Table A.6. Levels Indicators for Virginia's Workforce Development Programs for Individuals Aged Less than 21, FY 2005

Program	Short-term employment/ in school rate	Long-term employment/ in school rate	Short-term earnings level	Long-term earnings level	Credential completion rate	Percent of repeat employer customers
DOE and VCCS programs						
AEL (DOE)	57.82	55.56	2,011	2,323	80.83	52.17
Postsecondary CTE (VCCS)	70.31	73.15	2,984	3,537	20.38	28.14
DRS and DBVI programs						
DRS	62.57	64.75	2,611	2,801	46.92	33.19
DBVI	36.36	45.45	1,741	3,123	90.91	0.00
DSS programs						
FSET	57.91	57.56	1,677	1,991	0.09	59.83
TANF/VIEW	64.13	64.13	2,220	2,207	2.72	14.63
VEC and Senior Advisor programs						
TAA (VEC)	--	--	--	--	--	--
W/P (VEC)	71.12	70.78	2,255	2,602	0.69	69.22
WIA Adults[a] (Senior Advisor)	71.57	75.49	3,829	3,525	56.86	11.54
WIA Youth (Senior Advisor)	71.96	67.40	1,419	1,611	83.54	48.78

[a]Includes WIA Dislocated Workers.
-- Data not available; or sample size < 10.

Table A.7 Levels Indicators for Virginia's Workforce Development Programs for Individuals Aged 21–30, FY 2005

Program	Short-term employment/ in school rate	Long-term employment/ in school rate	Short-term earnings level	Long-term earnings level	Credential completion rate	Percent of repeat employer customers
DOE and VCCS programs						
AEL (DOE)	60.17	60.76	3,329	3,548	68.90	37.50
Postsecondary CTE (VCCS)	73.87	74.55	4,609	5,294	23.36	41.57
DRS and DBVI programs						
DRS	58.62	58.29	2,778	2,938	32.76	40.87
DBVI	33.93	39.29	4,157	4,159	42.86	14.29
DSS programs						
FSET	60.15	59.64	2,507	2,719	0.20	60.77
TANF/VIEW	64.41	61.49	3,000	3,235	1.16	53.62
VEC and Senior Advisor programs						
TAA (VEC)	74.92	74.92	4,088	4,922	65.55	34.92
W/P (VEC)	73.37	71.55	3,720	4,217	0.73	78.82
WIA Adults[a] (Senior Advisor)	77.95	74.20	3,792	3,927	54.06	43.51
WIA Youth (Senior Advisor)	69.90	65.31	2,643	2,840	70.92	32.10

[a]Includes WIA Dislocated Workers.

Table A.8 Levels Indicators for Virginia's Workforce Development Programs for Individuals Aged 31–40, FY 2005

Program	Short-term employment/ in school rate	Long-term employment/ in school rate	Short-term earnings level	Long-term earnings level	Credential completion rate	Percent of repeat employer customers
DOE and VCCS programs						
AEL (DOE)	59.54	58.94	4,817	4,997	57.62	24.32
Postsecondary CTE (VCCS)	73.81	73.61	6,699	7,280	26.13	37.03
DRS and DBVI programs						
DRS	56.22	54.64	3,005	3,148	6.10	32.56
DBVI	44.00	44.00	4,492	4,045	14.67	10.00
DSS programs						
FSET	57.58	54.27	3,087	3,386	0.20	55.85
TANF/VIEW	63.55	63.95	3,431	3,573	1.26	47.73
VEC and Senior Advisor programs						
TAA (VEC)	79.23	79.78	4,421	5,177	74.26	31.25
W/P (VEC)	73.01	72.34	4,799	5,292	0.68	76.45
WIA Adults[a] (Senior Advisor)	75.90	74.73	4,547	4,918	54.80	41.05
WIA Youth (Senior Advisor)	--	--	--	--	--	--

[a]Includes WIA Dislocated Workers.
-- Data not available; or sample size < 10.

Table A.9 Levels Indicators for Virginia's Workforce Development Programs for Individuals Aged 41–50, FY 2005

Program	Short-term employment/ in school rate	Long-term employment/ in school rate	Short-term earnings level	Long-term earnings level	Credential completion rate	Percent of repeat employer customers
DOE and VCCS programs						
AEL (DOE)	62.16	61.37	5,085	5,361	51.96	26.92
Postsecondary CTE (VCCS)	72.54	72.46	6,993	7,477	29.36	34.05
DRS and DBVI programs						
DRS	49.76	48.44	2,956	3,188	5.89	33.19
DBVI	44.07	42.37	3,570	4,940	13.56	9.09
DSS programs						
FSET	52.18	49.85	2,817	3,070	0.26	56.23
TANF/VIEW	60.92	59.53	3,687	3,686	0.43	35.77
VEC and Senior Advisor programs						
TAA (VEC)	70.55	72.12	4,593	5,131	72.77	38.02
W/P (VEC)	71.63	70.84	4,981	5,420	0.62	75.67
WIA Adults[a] (Senior Advisor)	76.41	75.58	4,933	5,422	56.21	36.47
WIA Youth (Senior Advisor)	--	--	--	--	--	--

[a]Includes WIA Dislocated Workers.
-- Data not available; or sample size < 10.

Table A.10 Levels Indicators for Virginia's Workforce Development Programs for Individuals Aged 51+, FY 2005

Program	Short-term employment/ in school rate	Long-term employment/ in school rate	Short-term earnings level	Long-term earnings level	Credential completion rate	Percent of repeat employer customers
DOE and VCCS programs						
AEL (DOE)	64.44	64.02	5,185	5,351	47.70	5.56
Postsecondary CTE (VCCS)	65.78	64.36	6,410	6,902	29.79	31.14
DRS and DBVI programs						
DRS	45.59	42.01	3,012	3,348	5.12	27.46
DBVI	33.33	37.63	3,903	4,020	6.45	5.88
DSS programs						
FSET	43.23	42.50	3,177	3,411	0.15	44.54
TANF/VIEW	50.00	47.62	3,973	4,455	0.00	13.33
VEC and Senior Advisor programs						
TAA (VEC)	52.07	51.92	4,085	4,536	48.23	43.04
W/P (VEC)	63.36	62.81	4,721	5,113	0.44	72.56
WIA Adults[a] (Senior Advisor)	72.91	70.54	4,645	5,299	54.31	31.46
WIA Youth (Senior Advisor)	--	--	--	--	--	--

[a]Includes WIA Dislocated Workers.
-- Data not available; or sample size < 10.

Table A.11 Levels Indicators for Virginia's Workforce Development Programs for Individuals Whose Race/Ethnicity is White, FY 2005

Program	Short-term employment/ in school rate	Long-term employment/ in school rate	Short-term earnings level	Long-term earnings level	Credential completion rate	Percent of repeat employer customers
DOE and VCCS programs						
AEL (DOE)	57.58	58.14	3,277	3,617	86.18	41.44
Postsecondary CTE (VCCS)	72.96	73.18	5,624	6,256	27.67	40.16
DRS and DBVI programs						
DRS	54.99	54.10	3,079	3,409	21.47	39.85
DBVI	39.78	39.78	4,369	4,421	18.82	13.64
DSS programs						
FSET	50.30	49.20	2,779	2,886	0.14	49.42
TANF/VIEW	56.67	55.00	3,045	3,206	1.56	40.88
VEC and Senior Advisor programs						
TAA (VEC)	65.86	65.73	4,583	5,184	64.50	41.59
W/P (VEC)	71.34	70.44	4,671	5,174	0.79	79.68
WIA Adults[a] (Senior Advisor)	75.73	73.71	4,668	5,130	54.31	41.53
WIA Youth (Senior Advisor)	68.32	63.91	2,124	2,126	85.40	28.95

[a]Includes WIA Dislocated Workers.

Table A.12 Levels Indicators for Virginia's Workforce Development Programs for Individuals Whose Race/Ethnicity is Black, FY 2005

Program	Short-term employment/ in school rate	Long-term employment/ in school rate	Short-term earnings level	Long-term earnings level	Credential completion rate	Percent of repeat employer customers
DOE and VCCS programs						
AEL (DOE)	62.16	60.16	3,104	3,262	62.07	56.34
Postsecondary CTE (VCCS)	73.26	73.83	4,744	5,353	21.48	46.38
DRS and DBVI programs						
DRS	54.34	53.52	2,321	2,516	17.84	46.89
DBVI	37.37	39.39	3,813	3,668	18.18	5.26
DSS programs						
FSET	57.22	55.15	2,618	2,921	0.24	70.94
TANF/VIEW	68.13	66.68	3,262	3,435	0.80	60.10
VEC and Senior Advisor programs						
TAA (VEC)	72.73	74.31	3,886	4,529	65.95	49.18
W/P (VEC)	71.95	71.15	3,780	4,198	0.59	84.09
WIA Adults[a] (Senior Advisor)	76.50	74.89	3,993	4,248	56.79	53.81
WIA Youth (Senior Advisor)	73.27	68.75	1,397	1,618	80.40	55.12

[a]Includes WIA Dislocated Workers.

Table A.13 Levels Indicators for Virginia's Workforce Development Programs for Individuals Whose Race/Ethnicity is Hispanic, FY 2005

Program	Short-term employment/ in school rate	Long-term employment/ in school rate	Short-term earnings level	Long-term earnings level	Credential completion rate	Percent of repeat employer customers
DOE and VCCS programs						
AEL (DOE)	64.67	62.99	5,578	5,619	20.75	23.33
Postsecondary CTE (VCCS)	70.29	68.68	6,377	7,374	20.02	21.88
DRS and DBVI programs						
DRS	64.96	63.50	3,860	4,051	21.17	21.28
DBVI	--	--	--	--	--	--
DSS programs						
FSET	57.93	56.39	3,725	3,789	0.00	27.78
TANF/VIEW	63.67	60.82	4,066	4,205	1.22	22.22
VEC and Senior Advisor programs						
TAA (VEC)	70.00	80.00	4,764	5,401	80.00	0.00
W/P (VEC)	70.56	66.80	4,779	5,420	0.14	64.88
WIA Adults[a] (Senior Advisor)	73.33	70.00	5,271	5,580	38.89	13.33
WIA Youth (Senior Advisor)	74.47	65.96	2,404	3,036	74.47	10.00

[a]Includes WIA Dislocated Workers.
-- Data not available; or sample size < 10.

Table A.14 Levels Indicators for Virginia's Workforce Development Programs for Individuals Whose Race/Ethnicity is Mixed, FY 2005

Program	Short-term employment/ in school rate	Long-term employment/ in school rate	Short-term earnings level	Long-term earnings level	Credential completion rate	Percent of repeat employer customers
DOE and VCCS programs						
AEL (DOE)	--	--	--	--	--	--
Postsecondary CTE (VCCS)	--	--	--	--	--	--
DRS and DBVI programs						
DRS	46.67	36.67	2,142	2,480	10.00	0.00
DBVI	--	--	--	--	--	--
DSS programs						
FSET	--	--	--	--	--	--
TANF/VIEW	--	--	--	--	--	--
VEC and Senior Advisor programs						
TAA (VEC)	52.38	61.90	4,616	4,377	61.90	--
W/P (VEC)	71.20	67.84	4,105	4,450	0.70	57.23
WIA Adults[a] (Senior Advisor)	--	--	--	--	--	--
WIA Youth (Senior Advisor)	--	--	--	--	--	--

[a]Includes WIA Dislocated Workers.
-- Data not available; or sample size < 10.

Table A.15 Levels Indicators for Virginia's Workforce Development Programs for Individuals Whose Race/Ethnicity is Other, FY 2005

Program	Short-term employment/ in school rate	Long-term employment/ in school rate	Short-term earnings level	Long-term earnings level	Credential completion rate	Percent of repeat employer customers
DOE and VCCS programs						
AEL (DOE)	60.63	58.89	4,611	4,673	17.07	36.84
Postsecondary CTE (VCCS)	69.58	69.79	6,660	7,285	22.11	24.56
DRS and DBVI programs						
DRS	50.00	51.79	2,578	3,220	23.21	11.54
DBVI	30.00	60.00	2,742	4,259	50.00	0.00
DSS programs						
FSET	48.04	44.61	3,607	4,186	0.00	33.33
TANF/VIEW	50.00	55.10	5,098	4,127	1.02	14.29
VEC and Senior Advisor programs						
TAA (VEC)	--	--	--	--	--	--
W/P (VEC)	69.03	68.54	5,420	6,075	0.42	54.19
WIA Adults[a] (Senior Advisor)	76.92	71.43	5,385	6,431	43.96	10.00
WIA Youth (Senior Advisor)	81.82	45.45	1,929	3,326	72.73	0.00

[a]Includes WIA Dislocated Workers.
-- Data not available; or sample size < 10.

Table A.16 Levels Indicators for Virginia's Workforce Development Programs for Individuals Who Are Disabled, FY 2005

Program	Short-term employment/ in school rate	Long-term employment/ in school rate	Short-term earnings level	Long-term earnings level	Credential completion rate	Percent of repeat employer customers
DOE and VCCS programs						
AEL (DOE)	43.75	34.38	1,159	1,985	68.75	0.00
Postsecondary CTE (VCCS)	--	--	--	--	--	--
DRS and DBVI programs						
DRS	--	--	--	--	--	--
DBVI	--	--	--	--	--	--
DSS programs						
FSET	--	--	--	--	--	--
TANF/VIEW	--	--	--	--	--	--
VEC and Senior Advisor programs						
TAA (VEC)	--	--	--	--	--	--
W/P (VEC)	56.10	55.10	4,509	4,988	0.56	62.69
WIA Adults[a] (Senior Advisor)	67.23	63.03	4,052	4,642	40.34	7.69
WIA Youth (Senior Advisor)	66.79	60.00	1,497	1,880	88.07	31.25

[a]Includes WIA Dislocated Workers.
-- Data not available; or sample size < 10.

Table A.17 Levels Indicators for Virginia's Workforce Development Programs for Individuals Who Are Not Disabled, FY 2005

Program	Short-term employment/ in school rate	Long-term employment/ in school rate	Short-term earnings level	Long-term earnings level	Credential completion rate	Percent of repeat employer customers
DOE and VCCS programs						
AEL (DOE)	60.11	59.57	3,581	3,826	66.17	50.69
Postsecondary CTE (VCCS)	--	--	--	--	--	--
DRS and DBVI programs						
DRS	--	--	--	--	--	--
DBVI	--	--	--	--	--	--
DSS programs						
FSET	--	--	--	--	--	--
TANF/VIEW	--	--	--	--	--	--
VEC and Senior Advisor programs						
TAA (VEC)	67.98	68.52	4,368	4,968	65.05	45.51
W/P (VEC)	71.67	70.66	4,252	4,724	0.65	84.36
WIA Adults[a] (Senior Advisor)	76.20	74.40	4,445	4,737	55.28	51.31
WIA Youth (Senior Advisor)	73.11	69.23	1,678	1,726	79.32	50.79

[a]Includes WIA Dislocated Workers.
-- Data not available; or sample size < 10.

Table A.18 Levels Indicators for Virginia's Workforce Development Programs for Males, FY 2005

Program	Short-term employment/ in school rate	Long-term employment/ in school rate	Short-term earnings level	Long-term earnings level	Credential completion rate	Percent of repeat employer customers
DOE and VCCS programs						
AEL (DOE)	56.89	55.36	4,041	4,584	70.78	37.01
Postsecondary CTE (VCCS)	72.92	73.66	6,493	7,321	23.05	39.26
DRS and DBVI programs						
DRS	54.61	54.61	3,033	3,267	21.82	39.44
DBVI	38.16	43.42	3,984	3,991	18.42	4.76
DSS programs						
FSET	51.97	48.98	2,981	3,263	0.13	57.49
TANF/VIEW	55.72	54.68	3,827	4,094	1.04	25.60
VEC and Senior Advisor programs						
TAA (VEC)	64.17	62.86	5,174	5,945	58.45	42.34
W/P (VEC)	70.72	69.13	4,920	5,472	0.49	82.95
WIA Adults[a] (Senior Advisor)	73.52	71.76	5,434	6,097	52.83	34.95
WIA Youth (Senior Advisor)	70.34	64.87	1,484	1,704	82.52	40.59

[a]Includes WIA Dislocated Workers.

Table A.19 Levels Indicators for Virginia's Workforce Development Programs for Females, FY 2005

Program	Short-term employment/ in school rate	Long-term employment/ in school rate	Short-term earnings level	Long-term earnings level	Credential completion rate	Percent of repeat employer customers
DOE and VCCS programs						
AEL (DOE)	62.94	63.22	3,235	3,452	61.80	56.44
Postsecondary CTE (VCCS)	72.66	72.63	4,901	5,411	26.91	43.16
DRS and DBVI programs						
DRS	55.11	53.30	2,672	2,887	18.46	44.66
DBVI	38.10	36.73	4,780	4,724	21.09	8.70
DSS programs						
FSET	57.05	56.14	2,564	2,803	0.25	67.36
TANF/VIEW	64.80	63.22	3,126	3,288	1.12	60.58
VEC and Senior Advisor programs						
TAA (VEC)	70.05	71.67	4,002	4,532	68.85	43.67
W/P (VEC)	71.63	71.29	3,664	4,092	0.83	79.93
WIA Adults[a] (Senior Advisor)	77.16	75.25	4,137	4,324	55.91	53.46
WIA Youth (Senior Advisor)	72.84	69.15	1,729	1,839	80.29	48.89

[a]Includes WIA Dislocated Workers.

APPENDIX B

GROSS IMPACT INDICATORS, BY REGION

Table B.1 Levels Indicators for Virginia's Workforce Development Programs for Southwest Virginia (WIB_1), FY 2005

Program	Short-term employment/ in school rate	Long-term employment/ in school rate	Short-term earnings level	Long-term earnings level	Credential completion rate	Percent of repeat employer customers
DOE and VCCS programs						
AEL (DOE)	43.72	43.22	2,462	2,595	97.99	25.00
Postsecondary CTE (VCCS)	63.29	64.32	4,008	4,538	22.92	53.34
DRS and DBVI programs						
DRS	51.06	52.84	3,859	4,036	26.24	46.88
DBVI	23.53	23.53	4,419	5,110	17.65	0.00
DSS programs						
FSET	48.31	49.15	2,661	2,537	0.85	50.00
TANF/VIEW	49.22	50.59	2,917	2,974	2.54	53.19
VEC and Senior Advisor programs						
TAA (VEC)	67.35	71.43	4,916	5,716	77.55	11.11
W/P (VEC)	69.75	68.57	4,295	4,694	1.20	85.70
WIA Adults[a] (Senior Advisor)	76.81	73.49	4,514	4,972	62.65	44.16
WIA Youth (Senior Advisor)	67.68	69.19	2,580	2,338	90.91	40.00

[a]Includes WIA Dislocated Workers.

Table B.2 Levels Indicators for Virginia's Workforce Development Programs for New River/Mount Rogers (WIB_2), FY 2005

Program	Short-term employment/ in school rate	Long-term employment/ in school rate	Short-term earnings level	Long-term earnings level	Credential completion rate	Percent of repeat employer customers
DOE and VCCS programs						
AEL (DOE)	59.89	63.32	3,282	3,280	89.71	57.89
Postsecondary CTE (VCCS)	74.10	74.05	4,755	5,304	32.38	47.08
DRS and DBVI programs						
DRS	50.00	49.38	3,075	3,214	27.07	40.96
DBVI	29.41	35.29	4,035	4,559	23.53	0.00
DSS programs						
FSET	44.35	48.51	2,257	2,244	0.00	45.65
TANF/VIEW	57.14	50.79	2,935	3,340	1.59	52.11
VEC and Senior Advisor programs						
TAA (VEC)	58.52	57.39	4,434	4,702	47.54	40.32
W/P (VEC)	66.05	64.62	3,941	4,349	1.14	83.66
WIA Adults[a] (Senior Advisor)	72.19	69.25	4,274	4,237	47.06	41.75
WIA Youth (Senior Advisor)	75.65	64.25	1,937	1,933	94.82	31.71

[a]Includes WIA Dislocated Workers.

Table B.3 Levels Indicators for Virginia's Workforce Development Programs for Western Virginia (WIB_3), FY 2005

Program	Short-term employment/ in school rate	Long-term employment/ in school rate	Short-term earnings level	Long-term earnings level	Credential completion rate	Percent of repeat employer customers
DOE and VCCS programs						
AEL (DOE)	55.17	55.17	2,682	2,947	94.25	0.00
Postsecondary CTE (VCCS)	78.22	76.77	5,084	5,675	23.34	45.36
DRS and DBVI programs						
DRS	58.05	56.73	2,798	2,998	20.58	37.31
DBVI	47.37	42.11	5,818	6,149	10.53	0.00
DSS programs						
FSET	61.72	58.55	2,540	2,627	0.11	77.78
TANF/VIEW	64.32	66.49	2,890	3,299	1.35	54.24
VEC and Senior Advisor programs						
TAA (VEC)	59.38	65.63	4,710	5,395	59.38	46.15
W/P (VEC)	75.39	74.49	4,261	4,643	0.33	81.40
WIA Adults[a] (Senior Advisor)	87.73	84.66	4,681	5,511	53.37	27.66
WIA Youth (Senior Advisor)	79.49	70.09	1,401	1,840	94.02	20.00

[a]Includes WIA Dislocated Workers.

Table B.4 Levels Indicators for Virginia's Workforce Development Programs for Shenandoah Valley (WIB_4), FY 2005

Program	Short-term employment/ in school rate	Long-term employment/ in school rate	Short-term earnings level	Long-term earnings level	Credential completion rate	Percent of repeat employer customers
DOE and VCCS programs						
AEL (DOE)	65.22	72.46	4,975	4,572	97.10	--
Postsecondary CTE (VCCS)	79.44	80.45	5,205	5,862	29.72	41.55
DRS and DBVI programs						
DRS	58.02	55.06	2,961	3,572	20.04	42.11
DBVI	36.84	36.84	2,559	1,308	21.05	33.33
DSS programs						
FSET	52.00	51.00	3,540	2,945	1.00	53.85
TANF/VIEW	63.79	64.37	3,348	3,290	1.15	32.00
VEC and Senior Advisor programs						
TAA (VEC)	87.50	83.33	4,282	4,726	90.28	33.33
W/P (VEC)	77.68	76.15	4,277	4,667	0.25	80.29
WIA Adults[a] (Senior Advisor)	84.01	79.93	4,753	5,265	53.40	48.53
WIA Youth (Senior Advisor)	60.27	60.27	1,989	1,761	78.08	20.00

[a]Includes WIA Dislocated Workers.
-- Data not available; or sample size < 10.

Table B.5 Levels Indicators for Virginia's Workforce Development Programs for North Shenandoah Valley (WIB_5), FY 2005

Program	Short-term employment/ in school rate	Long-term employment/ in school rate	Short-term earnings level	Long-term earnings level	Credential completion rate	Percent of repeat employer customers
DOE and VCCS programs						
AEL (DOE)	59.44	53.85	2,840	4,772	99.30	25.00
Postsecondary CTE (VCCS)	75.85	77.55	5,930	6,703	38.24	29.90
DRS and DBVI programs						
DRS	48.89	49.78	3,134	2,846	9.33	48.72
DBVI	--	--	--	--	--	--
DSS programs						
FSET	--	--	--	--	--	--
TANF/VIEW	53.52	50.70	3,402	2,472	1.41	42.86
VEC and Senior Advisor programs						
TAA (VEC)	76.29	79.38	5,557	6,703	94.85	23.53
W/P (VEC)	77.95	76.00	4,988	5,529	0.19	70.07
WIA Adults[a] (Senior Advisor)	77.86	82.14	5,138	5,657	67.14	41.67
WIA Youth (Senior Advisor)	67.86	67.86	1,712	1,756	91.07	25.00

[a]Includes WIA Dislocated Workers.
-- Data not available; or sample size < 10.

Table B.6 Levels Indicators for Virginia's Workforce Development Programs for Workforce Today (WIB_6), FY 2005

Program	Short-term employment/ in school rate	Long-term employment/ in school rate	Short-term earnings level	Long-term earnings level	Credential completion rate	Percent of repeat employer customers
DOE and VCCS programs						
AEL (DOE)	51.52	53.03	4,040	4,683	78.79	0.00
Postsecondary CTE (VCCS)	78.47	78.69	6,461	7,190	30.97	31.01
DRS and DBVI programs						
DRS	57.06	55.88	2,989	3,354	25.59	48.39
DBVI	61.11	66.67	3,626	3,800	11.11	33.33
DSS programs						
FSET	--	--	--	--	--	--
TANF/VIEW	71.62	65.77	3,255	3,263	0.00	53.33
VEC and Senior Advisor programs						
TAA (VEC)	75.32	80.52	5,938	6,418	94.81	30.00
W/P (VEC)	70.65	69.53	4,395	4,797	0.20	72.86
WIA Adults[a] (Senior Advisor)	76.25	78.75	5,959	5,906	47.50	30.56
WIA Youth (Senior Advisor)	82.54	69.84	1,969	3,391	93.65	42.86

[a]Includes WIA Dislocated Workers.
-- Data not available; or sample size < 10.

Table B.7 Levels Indicators for Virginia's Workforce Development Programs for Region 2000/Central Virginia (WIB_7), FY 2005

Program	Short-term employment/ in school rate	Long-term employment/ in school rate	Short-term earnings level	Long-term earnings level	Credential completion rate	Percent of repeat employer customers
DOE and VCCS programs						
AEL (DOE)	69.28	59.64	2,895	2,954	92.17	47.06
Postsecondary CTE (VCCS)	80.41	80.62	5,133	5,868	31.65	38.31
DRS and DBVI programs						
DRS	48.53	48.90	3,042	3,300	23.90	35.14
DBVI	--	--	--	--	--	00.00
DSS programs						
FSET	--	--	--	--	--	--
TANF/VIEW	60.66	60.66	2,774	3,236	0.41	52.73
VEC and Senior Advisor programs						
TAA (VEC)	78.95	78.20	4,754	5,229	59.40	21.43
W/P (VEC)	79.62	79.99	4,380	4,853	0.62	83.70
WIA Adults[a] (Senior Advisor)	79.53	79.53	4,927	5,240	43.31	50.00
WIA Youth (Senior Advisor)	82.07	64.67	1,409	1,406	68.48	0.00

[a]Includes WIA Dislocated Workers.
-- Data not available; or sample size < 10.

Table B.8 Levels Indicators for Virginia's Workforce Development Programs for South Central Virginia (WIB_8), FY 2005

Program	Short-term employment/ in school rate	Long-term employment/ in school rate	Short-term earnings level	Long-term earnings level	Credential completion rate	Percent of repeat employer customers
DOE and VCCS programs						
AEL (DOE)	64.00	64.00	2,785	3,753	100.00	0.00
Postsecondary CTE (VCCS)	73.41	73.79	4,213	4,891	31.49	45.47
DRS and DBVI programs						
DRS	56.03	54.47	2,763	3,176	15.95	33.90
DBVI	--	--	--	--	--	0.00
DSS programs						
FSET	49.59	52.89	2,737	3,390	0.83	35.71
TANF/VIEW	66.33	62.81	3,219	3,077	4.52	41.30
VEC and Senior Advisor programs						
TAA (VEC)	70.37	70.83	4,346	4,933	68.98	42.59
W/P (VEC)	67.60	66.06	3,415	3,806	2.57	76.81
WIA Adults[a] (Senior Advisor)	74.35	71.77	4,026	4,268	62.99	60.14
WIA Youth (Senior Advisor)	62.50	62.50	2,637	2,853	50.00	43.75

[a]Includes WIA Dislocated Workers.
-- Data not available; or sample size < 10.

Table B.9 Levels Indicators for Virginia's Workforce Development Programs for Capital Area (WIB_9), FY 2005

Program	Short-term employment/ in school rate	Long-term employment/ in school rate	Short-term earnings level	Long-term earnings level	Credential completion rate	Percent of repeat employer customers
DOE and VCCS programs						
AEL (DOE)	56.21	55.37	3,966	4,222	81.36	30.00
Postsecondary CTE (VCCS)	79.69	79.22	6,602	7,311	25.62	36.27
DRS and DBVI programs						
DRS	59.56	60.41	2,920	3,068	24.06	26.92
DBVI	48.65	51.35	4,197	4,803	8.11	0.00
DSS programs						
FSET	--	--	--	--	--	--
TANF/VIEW	69.93	69.21	3,843	4,002	0.48	39.36
VEC and Senior Advisor programs						
TAA (VEC)	--	--	--	--	--	--
W/P (VEC)	72.65	73.07	3,991	4,640	0.28	75.77
WIA Adults[a] (Senior Advisor)	79.03	79.03	6,166	6,640	32.26	18.42
WIA Youth (Senior Advisor)	89.13	80.43	1,170	1,328	26.09	40.00

[a]Includes WIA Dislocated Workers.

-- Data not available; or sample size < 10.

Table B.10 Levels Indicators for Virginia's Workforce Development Programs for City of Richmond (WIB_10), FY 2005

Program	Short-term employment/ in school rate	Long-term employment/ in school rate	Short-term earnings level	Long-term earnings level	Credential completion rate	Percent of repeat employer customers
DOE and VCCS programs						
AEL (DOE)	75.79	70.53	3,444	3,805	24.21	--
Postsecondary CTE (VCCS)	76.95	78.23	5,743	6,453	19.56	34.00
DRS and DBVI programs						
DRS	54.04	49.58	1,807	2,106	5.85	44.30
DBVI	34.62	30.77	4,262	4,755	15.38	0.00
DSS programs						
FSET	52.98	51.78	2,774	3,010	0.06	65.16
TANF/VIEW	63.91	61.26	2,892	2,986	0.33	63.92
VEC and Senior Advisor programs						
TAA (VEC)	76.47	70.59	5,172	6,837	58.82	14.29
W/P (VEC)	74.33	73.62	4,639	5,408	0.23	71.96
WIA Adults[a] (Senior Advisor)	79.20	74.40	3,732	4,076	35.20	40.38
WIA Youth (Senior Advisor)	60.47	62.79	1,590	1,680	86.05	14.29

[a]Includes WIA Dislocated Workers.
-- Data not available; or sample size < 10.

Table B.11 Levels Indicators for Virginia's Workforce Development Programs for Northern Virginia (WIB_11), FY 2005

Program	Short-term employment/ in school rate	Long-term employment/ in school rate	Short-term earnings level	Long-term earnings level	Credential completion rate	Percent of repeat employer customers
DOE and VCCS programs						
AEL (DOE)	67.32	67.32	5,633	5,820	18.54	25.00
Postsecondary CTE (VCCS)	70.37	71.73	8,304	8,973	21.16	35.85
DRS and DBVI programs						
DRS	59.93	58.55	3,560	3,948	15.38	38.46
DBVI	41.67	41.67	6,013	3,568	38.89	33.33
DSS programs						
FSET	57.32	53.82	3,561	4,189	0.09	51.75
TANF/VIEW	68.15	66.52	4,640	4,659	1.93	47.79
VEC and Senior Advisor programs						
TAA (VEC)	68.00	56.00	6,071	7,012	80.00	100.00
W/P (VEC)	71.18	70.88	6,538	7,223	0.26	72.96
WIA Adults[a] (Senior Advisor)	76.04	70.51	6,225	7,535	27.19	26.58
WIA Youth (Senior Advisor)	73.91	67.39	3,255	3,559	82.61	33.33

[a]Includes WIA Dislocated Workers.

Table B.12 Levels Indicators for Virginia's Workforce Development Programs for Alexandria/Arlington (WIB_12), FY 2005

Program	Short-term employment/ in school rate	Long-term employment/ in school rate	Short-term earnings level	Long-term earnings level	Credential completion rate	Percent of repeat employer customers
DOE and VCCS programs						
AEL (DOE)	42.31	50.00	7,410	5,466	96.15	--
Postsecondary CTE (VCCS)	70.60	71.99	8,408	8,973	20.64	26.63
DRS and DBVI programs						
DRS	51.47	47.79	2,897	4,049	10.29	33.33
DBVI	35.29	35.29	8,824	9,354	17.65	0.00
DSS programs						
FSET	56.00	54.82	3,021	3,902	0.00	48.48
TANF/VIEW	67.04	66.48	3,897	4,597	0.00	19.05
VEC and Senior Advisor programs						
TAA (VEC)	--	--	--	--	--	--
W/P (VEC)	67.81	68.33	6,270	7,147	0.19	67.95
WIA Adults[a] (Senior Advisor)	58.41	67.26	6,572	7,278	75.22	16.67
WIA Youth (Senior Advisor)	--	--	--	--	--	0.00

[a]Includes WIA Dislocated Workers.
-- Data not available; or sample size < 10.

Table B.13 Levels Indicators for Virginia's Workforce Development Programs for Bay Area (WIB_13), FY 2005

Program	Short-term employment/ in school rate	Long-term employment/ in school rate	Short-term earnings level	Long-term earnings level	Credential completion rate	Percent of repeat employer customers
DOE and VCCS programs						
AEL (DOE)	51.72	57.05	3,696	3,879	91.85	50.00
Postsecondary CTE (VCCS)	76.77	77.77	5,161	5,740	27.49	38.02
DRS and DBVI programs						
DRS	58.01	58.44	3,444	3,810	17.32	28.85
DBVI	33.33	33.33	3,636	2,274	25.00	0.00
DSS programs						
FSET	69.23	73.08	3,908	3,857	0.00	0.00
TANF/VIEW	66.45	68.11	2,818	3,152	0.00	40.00
VEC and Senior Advisor programs						
TAA (VEC)	86.11	88.89	3,504	4,064	91.67	21.43
W/P (VEC)	70.89	67.54	4,071	4,544	0.44	74.21
WIA Adults[a] (Senior Advisor)	76.38	77.12	4,000	4,330	82.66	25.00
WIA Youth (Senior Advisor)	78.33	68.33	2,098	2,199	86.67	27.27

[a]Includes WIA Dislocated Workers.

-- Data not available; or sample size < 10.

Table B.14 Levels Indicators for Virginia's Workforce Development Programs for Peninsula Worklink (WIB_14), FY 2005

Program	Short-term employment/ in school rate	Long-term employment/ in school rate	Short-term earnings level	Long-term earnings level	Credential completion rate	Percent of repeat employer customers
DOE and VCCS programs						
AEL (DOE)	54.43	55.06	2,793	2,732	99.37	25.00
Postsecondary CTE (VCCS)	71.94	71.20	4,853	5,435	21.55	37.36
DRS and DBVI programs						
DRS	59.36	56.42	2,278	2,401	18.45	45.16
DBVI	28.57	33.33	6,286	4,891	14.29	0.00
DSS programs						
FSET	58.54	55.45	2,808	2,969	0.22	70.07
TANF/VIEW	63.51	61.02	2,998	3,212	0.47	58.51
VEC and Senior Advisor programs						
TAA (VEC)	80.00	77.50	4,464	4,771	41.67	52.63
W/P (VEC)	72.67	71.28	4,116	4,578	0.35	80.85
WIA Adults[a] (Senior Advisor)	74.50	74.50	5,091	5,179	35.50	36.36
WIA Youth (Senior Advisor)	56.05	57.32	1,145	1,933	76.43	63.16

[a]Includes WIA Dislocated Workers.

Table B.15 Levels Indicators for Virginia's Workforce Development Programs for Crater Area (WIB_15), FY 2005

Program	Short-term employment/ in school rate	Long-term employment/ in school rate	Short-term earnings level	Long-term earnings level	Credential completion rate	Percent of repeat employer customers
DOE and VCCS programs						
AEL (DOE)	62.15	66.36	3,663	3,702	67.76	33.33
Postsecondary CTE (VCCS)	75.08	76.57	5,119	5,816	20.13	38.54
DRS and DBVI programs						
DRS	56.07	55.61	2,595	3,028	23.36	26.79
DBVI	--	--	--	--	--	0.00
DSS programs						
FSET	58.33	58.33	3,265	3,283	1.39	57.14
TANF/VIEW	64.19	63.26	3,688	3,610	0.47	42.11
VEC and Senior Advisor programs						
TAA (VEC)	--	--	--	--	--	--
W/P (VEC)	68.99	68.44	4,100	4,610	0.25	79.09
WIA Adults[a] (Senior Advisor)	71.43	70.59	4,561	5,289	54.62	37.93
WIA Youth (Senior Advisor)	62.35	71.76	1,358	1,641	85.88	27.27

[a]Includes WIA Dislocated Workers.
-- Data not available; or sample size < 10.

Table B.16 Levels Indicators for Virginia's Workforce Development Programs for Opportunity Inc. (WIB_16), FY 2005

Program	Short-term employment/ in school rate	Long-term employment/ in school rate	Short-term earnings level	Long-term earnings level	Credential completion rate	Percent of repeat employer customers
DOE and VCCS programs						
AEL (DOE)	63.80	58.50	2,946	3,291	39.07	46.96
Postsecondary CTE (VCCS)	67.41	66.56	5,325	5,869	18.91	42.13
DRS and DBVI programs						
DRS	52.40	51.96	1,981	2,086	24.40	45.69
DBVI	33.33	40.74	3,668	3,443	25.93	50.00
DSS programs						
FSET	55.27	53.13	2,539	2,771	0.09	72.17
TANF/VIEW	64.08	63.37	3,178	3,345	0.62	61.46
VEC and Senior Advisor programs						
TAA (VEC)	--	--	--	--	--	--
W/P (VEC)	72.21	70.94	4,011	4,503	0.31	82.85
WIA Adults[a] (Senior Advisor)	76.94	72.43	3,578	3,811	76.69	45.05
WIA Youth (Senior Advisor)	79.00	74.80	1,150	1,334	84.01	54.55

[a]Includes WIA Dislocated Workers.
-- Data not available; or sample size < 10.

Table B.17 Levels Indicators for Virginia's Workforce Development Programs for West Piedmont (WIB_17), FY 2005

Program	Short-term employment/ in school rate	Long-term employment/ in school rate	Short-term earnings level	Long-term earnings level	Credential completion rate	Percent of repeat employer customers
DOE and VCCS programs						
AEL (DOE)	51.40	54.67	3,234	3,482	92.99	36.36
Postsecondary CTE (VCCS)	73.92	74.02	4,153	4,786	39.05	48.57
DRS and DBVI programs						
DRS	42.60	44.38	2,869	2,744	22.49	38.89
DBVI	--	--	--	--	--	--
DSS programs						
FSET	50.15	49.33	2,493	2,815	0.60	63.21
TANF/VIEW	59.09	52.48	2,447	2,732	3.31	62.79
VEC and Senior Advisor programs						
TAA (VEC)	66.71	68.31	3,926	4,581	69.79	52.38
W/P (VEC)	65.40	64.90	3,580	3,894	1.81	81.92
WIA Adults[a] (Senior Advisor)	74.81	73.02	4,256	4,457	47.92	64.06
WIA Youth (Senior Advisor)	51.85	51.85	1,495	2,159	70.37	42.86

[a]Includes WIA Dislocated Workers.
-- Data not available; or sample size < 10.

APPENDIX C

DATA FILE EDITING AND KEY VARIABLE CONSTRUCTION

Appendix C

Data File Editing and Key Variable Construction

Overview

After all of the appropriate confidentiality memoranda of understanding had been signed, agency staff provided project staff individual-level administrative data for each of the 10 programs. The administrative data bases contain basic demographic variables such as gender, race, and date of birth, program-specific information such as training received and credential accomplished, and, in most cases, the dates the person started and exited the program.

Wage records from the Unemployment Insurance system of all the participants were also supplied to us, so the employment and earnings outcomes could be evaluated. Wage records from both in-state and out-of-state employers were matched and added to the data set for all the participants.

The organizing structure of our analysis data file was a unique person-program participation spell data set. That is, a record was created for an individual for each spell in a specific program. If an individual had more than one exit from a program in FY2005, then they had more than one record. If a person exited from more than one program, then they had a record for each program. For each participant, the registration, or start, date and exit date define the beginning and the end of the spell. The time-dependent variables such as age, education, program- and spell-related variables such as training received and credential earned, as well as the time-invariant personal characteristics such as gender and race were all derived from the administrative data base and stored in the person's record for the spell. The quarterly wage records from all employers, in-state and out-of-state, were summed up for each participant to create a unique person-quarter wage file. The aggregated quarterly wage data was then merged into the participant's record for each spell that he/she was in the program. The wage records are indexed to the exit quarter, thus allowing us to analyze the employment activities after the participant exited from a program.

However, the nature of the administrative data renders many complications. Both the program files and wage records needed cleaning and editing before they could be merged together. In some cases, records were dropped to maintain a clean and reliable file. In section 1 below, four types of data problems are addressed and the editing and cleaning are explained in detail. Because the information provided in the administrative files varies, some of the subgroups and outcome indicators are not defined uniformly for all the programs. Subgroup definitions are discussed in Section 2. In Section 3, the construction of the outcomes Credential Completion Rate, Program Completion Rate, Training Rate, and Training Length are documented in detail for all 10 programs.

C.1: Data Cleaning for Program Administrative Files and Wage Records

Erroneous Social Security Numbers

Records from the administrative agency's data that had missing SSN were dropped. Further, we used the following simple algorithm to test for erroneous SSNs. All SSNs have three fields and are of the form "aaa bb ccc". An SSN is not legitimate if any of the following conditions is true:

- If any of the 9 digits is not numeric.
- If any of the three fields, aaa, bb, or ccc, is all zero.
- If aaa is larger than 770.

If an SSN met any of these criteria, the records that belong to that SSN were completely dropped from the analysis.

Exit Reason

When the exit reason listed in the file was either 'Death' or 'In Institution', the person's records were dropped from the analysis.

Multiple Spells

Multiple spells in a program occurred when people exited multiple times between 2004:Q3 and 2005:Q2. Multiple spells were found in all but two programs: FSET and VIEW. Our general rule was to treat multiple spells as independent records if the spells didn't overlap.

However, overlapping spells were found in AEL, VCCS, and WIA Adult programs. The treatment of these records is discussed below:

- AEL – All of the overlapping spells had the same start and exit dates (educational agency differed). In these cases, one record was chosen randomly; 65 records were dropped.
- VCCS – There were three people with overlapping spells. For each person, we kept the record with the most total credits earned.
- WIA Adult – The following rules were applied to a person's multiple records:
    1) Keep one record for the person if exit dates among the repeated records were seven days or less apart, regardless whether the spells overlapped or not. However, the selection of the record is not random because the repeated records were not the complete replica of one another. The record was selected in the following order of funding source preference: adult, dislocated worker, national emergency grant—100 records were deleted due to same exit date and 14 due to seven days or less apart
    2) If exit dates were more than seven days apart and the spells overlapped, one record was picked to be retained in the same manner as described in 1) above; 32 records were deleted.
    3) If the registration dates and exit dates clearly indicated separate spells and exit dates were more than seven days apart, all spells were kept and treated as independent records.

Wage Records: Same SSN with Different Names

We received two sets of wage records. The first set included Virginia wage records and WRIS, the out-out-state employment records, for the eight quarters between 1st quarter of 2005 and 4th quarter of 2006. These eight quarters of combined in-state and out-of-state wage records were used to define employment and earnings level outcome variables. The second set of wage records contained 35 quarters of wage data from 3rd quarter of 1998 to 1st quarter of 2007. This longer series of wage data was used to construct employment history variables used in the statistical matching that was done in order to calculate the differences indicators.

Many of the wage records had different names for the same SSN. Often, the names were similar to each, while others were completely different. The names were examined individually, and some of the wage records were dropped because it was not possible to reconcile the differences. This resulted in a handful of participants in various programs with no matched wage records even though their SSNs did exist in the wage record file. The following table shows the number of people with affected wage records.

Table C.1 Number of Program Participants with Wage Records Dropped

	8-Quarter Wage Records		35-Quarter Wage Records	
Program	Wage Records Dropped Completely	Wage Records Dropped Partially	Wage Records Dropped Completely	Wage Records Dropped Partially
AEL	3	0	0	4
FSET	1	2	0	6
TAA	0	0	0	1
VCCS	0	2	1	18
VIEW	0	3	0	6
W/P	18	16	0	104

Table C.2 summarizes the impacts on the sample sizes for each of the ten programs due to the data cleaning procedures stated above.

Table C.2 Summary of Results of Administrative Record Editing and Wage Record Matching

Program	Original sample size	Number of Records Dropped			Final record number	Unique number of SSN	# of Persons matched with 8-Q wage records	# of Persons matched with 35-Q wage records
		Bad SSN	Exit reason	Mult. spells				
DOE and VCCS programs								
AEL (DOE)	4,322	131	0	65	4,126	4,105	3,353	3,716
Postsecondary CTE (VCCS)	31,406	1	0	3	31,402	31,398	27,223	30,058
DRS and DBVI programs								
DRS	6,803	3	60	0	6,740	6,724	4,963	6,128
DBVI	302	0	3	0	299	298	153	230
DSS programs								
FSET	11,216	106	0	0	11,110	11,110	9,115	10,440
TANF/VIEW	6,595	13	0	0	6,582	6.582	5,833	6,373
VEC and Senior Advisor programs								
TAA (VEC)	2,268	0	0	4	2,264	2,264	1,832	2,254
W/P (VEC)	284,318	98	0	0	284,220	244,823	226,817	237,000
WIA Adults (Senior Advisor)	5,046	0	163	146	4,737	4,735	4,321	4,659
WIA Youth (Senior Advisor)	2,362	0	62	0	2,300	2,298	1,922	2,113

VCCS Start and Exit Dates Editing

There was no explicit start and exit date in VCCS administrative file concerning postsecondary CTE. However, VCCS did record the first and last enrollment year and terms for the completers (i.e., graduates). For the 8,000 credential completers in the academic year of 2004/05, the earliest enrollment year-term is used to determine the start date and the most recent enrollment year-term is used for the exit date. According to VCCS, there are three terms in an academic year: Spring, Summer, and Fall. The chart below maps each term to an assumed start and end date for the participants' enrollment spell:

Enrollment Term	Spring	Summer	Fall
Start date	January 1st	May 1st	September 1st
End date	May 15th	August 15th	December 15th

There were 25 completers with no information regarding when they first enrolled. The start dates were set to missing for these people.

For the 23,402 non-completers, start dates were set to missing and exit dates were set to July 1, 2004. The logic here was that non-completers were students who were enrolled in the prior year and had not returned to the community college when the new academic year began. We chose the date in the middle of the summer term in the prior academic year to be the exit date for all such students.

C.2: Subgroup Definitions

There were five different demographic characteristics used to differentiate subgroups in this analysis: education, age, race, disability status, and gender. Depending on the data availability, not all of them could be defined for all ten workforce programs. Each of the subgroups is discussed below.

Education Subgroups. The participants in each of the workforce programs were divided into five subgroups by their education level at the time when they entered the program. The five groups were:

- Less than 9th grade education
- Some high school education
- High school diploma or GED
- Less than two years of post-secondary education
- Associate degree or beyond

The following table summarizes the education subgroups in each of the 10 programs.

Table C.3 Education Subgroup Distribution for All 10 Programs

Program	Percent of subgroups						Details
	< 9th grade	Some high school	HS grad. or GED	<2 years post-second	Ass. Degree or more	Missing	
DOE and VCCS programs							
AEL (DOE)	--	--	--	--	--	--	Education information is not available.
Postsecondary CTE (VCCS)	--	--	--	--	--	--	96% of the people in administrative file have missing values in previous degree field.
DRS and DBVI programs							
DRS	4.0	44.5	27.0	12.9	11.6	--	
DBVI	9.0	18.4	30.8	17.4	24.4	--	
DSS programs							
FSET	6.3	29.6	49.3	5.2	9.7	--	The education field reports the most recent education attainment. Note that update is not guaranteed.
TANF/VIEW	4.4	26.9	51.3	5.6	8.0	3.9	There are two education variables; one for earlier and one for later attainment. Both are subject to updates. The Earlier education is used here.
VEC and Senior Advisor programs							
TAA (VEC)	38.8	5.3	37.6	18.3	--	--	The majority (96%) of people with less than 9th grade report zero years of schooling.
W/P (VEC)	--	--	74.0	--	2.1	23.9	
WIA Adults (Senior Advisor)	1.8	11.4	59.4	9.8	16.5	1.2	
WIA Youth (Senior Advisor)	31.4	49.0	17.3	1.0	0.7	0.9	

Age subgroups. The participants in each of the workforce programs were divided into five subgroups based on the age when the participants entered the program. The five groups were:

- Younger than 21
- Between 21 and 30
- Between 31 and 40
- Between 41 and 50
- 51 and older

The age subgroup analysis excludes participants that were younger than 14 or older than 70. These people were in the missing category. Table C.4 summarizes the details of the age subgroups in each of the 10 programs.

Table C.4 Age Subgroup Distribution for All 10 Programs

Program	Percent of subgroups						Details
	< 21	21–30	31–40	41–50	51 and older	Missing	
DOE and VCCS programs							
AEL (DOE)	24.7	36.9	20.2	12.4	5.8	0.1	
Postsecondary CTE (VCCS)	4.5	45.2	24.7	17.5	8.1	0.1	See Section 1 for exit date determination for non-completers.
DRS and DBVI programs							
DRS	14.2	31.8	17.8	21.4	14.5	0.3	
DBVI	3.7	18.7	25.1	19.7	31.1	1.7	
DSS programs							
FSET	10.2	23.0	26.7	27.9	12.3	--	
TANF/VIEW	2.8	47.3	33.8	14.2	1.9	--	
VEC and Senior Advisor programs							
TAA (VEC)	0.1	13.2	24.0	33.8	28.8	.0.1	
W/P (VEC)	6.8	30.2	25.0	23.0	14.6	0.4	
WIA Adults (Senior Advisor)	2.2	26.5	28.8	25.5	16.9	0.1	
WIA Youth (Senior Advisor)	83.0	17.0	--	--	--	--	

Race/Ethinicity Subgroups. The participants in each of the workforce programs were divided into five racial/ethnic subgroups: White, African American, Hispanic, mixed, and other race. Race and ethnicity were not always coded the same across different programs. The following steps were used to define consistent race subgroups for all programs:

1. A participant belongs to the Hispanic subgroup if race or ethnicity indicates he/she is a Hispanic.
2. If the race variable indicates that the participant is Asian, native Hawaiian, or other Pacific Islander, and indicates he/she is neither White nor Black, the participant is classified as Asian and is in 'Other' race subgroup.
3. Mixed race can be defined for the following five programs: DRS, DBVI, W/P, and WIA Adults and Youth. For non-Hispanic and non-Asian participants, if the race variables show that he/she belongs to more than one race group, he/she is in the mixed race group.
4. A participant who was identified as African American was so classified as long as he/she was non-Hispanic nor in the mixed race group.
5. Similarly, a participant who was identified as White was so classified as long as he/she was non-Hispanic and did not belong to the mixed race group.

The following table summarizes the race subgroups in each of the 10 programs.

Table C.5 Race Subgroup Distribution for All 10 Programs

Program	Percent of subgroups						Details
	White	African American	Hispanic	Mixed	Other	Missing	
DOE and VCCS programs							
AEL (DOE)	52.3	27.8	13.0	--	7.0	--	
Postsecondary CTE (VCCS)	64.7	26.3	3.0	--	6.1	--	
DRS and DBVI programs							
DRS	61.5	34.4	2.0	0.5	1.7	--	
DBVI	62.2	33.1	1.3	--	3.3	--	
DSS programs							
FSET	31.1	63.0	4.1	--	1.8	--	
TANF/VIEW	38.0	56.8	3.7	--	1.5	--	
VEC and Senior Advisor programs							
TAA (VEC)	67.8	30.6	0.4	0.9	--	0.2	There were five people with missing race code.
W/P (VEC)	44.1	39.2	4.5	0.8	2.1	9.4	26,779 people did not identify their race.
WIA Adults (Senior Advisor)	50.2	43.4	1.9	0.2	1.9	2.5	116 people did not identify their race.
WIA Youth (Senior Advisor)	31.6	63.4	2.0	0.2	0.5	2.3	53 people did not identify their race.

Disability Subgroup. A disability indicator variable was not available for all the workforce programs. For DRS and DBVI, all participants were assumed to be disabled, so the disability subgroup analysis was not conducted for these two programs. The following table summarizes the disability subgroups in each of the 10 programs.

Table C.6 Disability Subgroup Distribution for All 10 Programs

Program	Percent of subgroups			Details
	Disabled	Not Disabled	Missing	
DOE and VCCS programs				
AEL (DOE)	0.8	99.2	--	
Postsecondary CTE (VCCS)	--	--	--	There was no disability indicator.
DRS and DBVI programs				
DRS	100.0	0.0	--	Everyone disabled, by assumption.
DBVI	100.0	0.0	--	Everyone disabled, by assumption.
DSS programs				
FSET	--	--	--	There was no disability indicator.
TANF/VIEW	--	--	--	There was no disability indicator.
VEC and Senior Advisor programs				
TAA (VEC)	0.3	99.5	0.2	Only 7 participants were disabled.
W/P (VEC)	3.4	96.6	--	
WIA Adults (Senior Advisor)	2.5	97.5	--	
WIA Youth (Senior Advisor)	23.7	76.3	--	

Gender Subgroup. Gender is rarely missing. The TAA program did have five records with this variable missing. These records also had missing values for race and disability variables. The following table summarizes the gender subgroups in each of the 10 programs.

Table C.6 Gender Subgroup Distribution for All 10 Programs

Program	Percent of subgroups			Details
	Male	Female	Missing	
DOE and VCCS programs				
AEL (DOE)	48.9	51.1	--	
Postsecondary CTE (VCCS)	37.2	62.8	--	
DRS and DBVI programs				
DRS	51.6	48.4	--	
DBVI	50.8	49.2	--	
DSS programs				
FSET	41.6	58.4	--	
TANF/VIEW	16.1	83.9	--	
VEC and Senior Advisor programs				
TAA (VEC)	37.1	62.7	0.2	Five people with missing gender code.
W/P (VEC)	53.4	46.6	--	
WIA Adults (Senior Advisor)	32.4	67.6	--	
WIA Youth (Senior Advisor)	49.3	50.7	--	

Workforce Investment Board (WIB) Subgroup. In addition to the demographic subgroups, results were generated by Workforce Investment Board (WIB) regions. During FY2005, there were 17 WIBs. For WIA Adult and Youth programs, the WIB code was provided in the administrative file. For Wagner-Peyser, the WIB code was assigned using the mapping between local office number and WIB codes. For TAA, a different mapping file between sampling unit of the local office and WIB was used to assign WIB code to each participant. For the other six programs, mapping between FIPS county code and WIB was used. Table C.7 summarizes the WIB subgroups in each of the 10 programs.

Table 7. WIB Subgroup Distribution for All 10 Programs

WIB	AEL	CTE	DRS	DBVI	FSET	VIEW	TAA	W/P	Adult	Youth
Southwest VA	4.8	8.7	4.2	5.7	2.1	7.8	2.2	4.6	7.0	8.6
New River/Mount Rogers	9.2	7.0	7.2	5.7	3.0	5.7	23.3	11.4	7.9	8.4
Western VA	2.1	5.7	5.6	6.4	8.0	5.6	2.8	6.1	3.4	5.1
Shenandoah Valley	1.7	2.9	7.0	6.4	0.9	2.6	3.2	4.8	6.2	3.2
N. Shenandoah Valley	3.5	2.1	3.3	2.0	--	1.1	4.3	2.2	3.0	2.4
Workforce Today	3.2	3.0	5.0	6.0	0.01	3.4	3.4	3.6	3.4	2.7
Region 2000/Central VA	4.0	3.0	4.0	2.0	0.02	3.7	5.9	3.9	2.7	8.0
South Central	1.2	5.9	3.8	1.7	1.1	3.0	9.5	4.2	12.3	2.1
Capital Area	8.6	7.3	8.7	12.4	0.04	6.4	--	4.1	1.3	2.0
City of Richmond	2.3	2.7	5.3	8.7	15.7	9.2	0.8	4.5	2.6	1.9
Northern VA	14.9	13.6	12.9	12.0	10.0	10.3	1.1	6.7	4.6	2.0
Alexandria/Arlington	0.6	3.9	2.0	5.7	3.8	2.7	--	5.0	2.4	0.4
Bay Area	7.7	5.1	3.4	4.0	0.2	4.6	1.6	5.2	5.7	5.2
Peninsula Worklink	3.8	6.5	5.6	7.0	12.6	9.8	5.3	7.2	4.2	6.8
Crater Area	5.2	1.9	3.2	3.0	0.7	3.3	0.3	5.1	2.5	3.7
Opportunity Inc.	22..0	14.3	13.6	9.0	29.8	17.2	0.1	14.0	8.4	26.9
West Piedmont	5.2	6.6	5.0	2.3	12.1	3.7	35.8	7.3	22.4	10.6
Missing WIB	--	0.0*	--	--	--	--	0.4*	0.0*	--	--

* There are people with missing WIB code: one in CTE, 10 in TAA, and 14 in W/P.

C.3: Indicator and Outcome Variable Construction

In this section, the construction of non-labor-market outcome variables is discussed. Four outcomes—Credential Completion Rate, Program Completion Rate, Training Rate, and Training Length—were derived from the administrative files. Because the information provided in those files was not the same across all the programs, the construction of these variables varied. The table below summarizes how each outcome was defined in general, and illustrates the specific derivation of the variables for each program separately.

Table C.8. Outcome/Indicator Variable Specification

OUTCOME/INDICATOR AND PROGRAM	VARIABLE DESCRIPTION
Credential Completion Rate:	Percentage completed certificate/credential while in the program. The denominator is number of all participants.
DOE and VCCS programs	
AEL (DOE)	The participant met the goal of obtaining GED.
Postsecondary CTE (VCCS)	The participant earned credential – credential completion field is 1.
DRS and DBVI programs	
DRS	The participant completed credential if education level at closure is higher than that at application.
DBVI	Same as DRS.
DSS programs	
FSET	Information was not available. The indicator was set to missing.
TANF/VIEW	The two education level variables, earlier education level (education_1) and the recent education updates (education_2), were compared. If there was any advancement in education, credential completion was achieved. Note that when the updated education level (education_2) was missing, it was interpreted as no advancement in education was made and there was no credential completed.
VEC and Senior Advisor programs	
TAA (VEC)	Credential is completed if training was completed.
W/P (VEC)	Information was not available. The indicator was set to missing.
WIA Adults (Senior Advisor)	Credential is completed if the credential attainment variable indicated the following were attained: HS diploma, GED, AA/AS, BA/BS, Occupational Skills License/Certificate/Credential, or Other Credentials.
WIA Youth (Senior Advisor)	Same as Adults, or if the youth education attainment flag indicated HS diploma/GED was attained.
Program Completion Rate:	Percentage completed the program successfully. The denominator is number of all participants.
DOE and VCCS programs	
AEL (DOE)	If any of the goals set by the participant were met, the program was completed. All participants completed the program.
Postsecondary CTE (VCCS)	The participant completed the program successfully if he/she earned any credential while in the program. This is the same definition as the credential completion.

OUTCOME/INDICATOR AND PROGRAM	VARIABLE DESCRIPTION
DRS and DBVI programs	
DRS	The program was completed successfully if closure code was 26-rehabilitated.
DBVI	Same as DRS.
DSS programs	
FSET	Information not available. The indicator was set to missing.
TANF/VIEW	Information not available. The indicator was set to missing.
VEC and Senior Advisor programs	
TAA (VEC)	Everyone completed the program.
W/P (VEC)	Everyone completed the program.
WIA Adults (Senior Advisor)	Everyone completed the program.
WIA Youth (Senior Advisor)	Everyone completed the program.
Training Rate and Training Length:	Percentage receiving training while in the program. The denominator is number of all participants. Training length wais also computed separately for each program.
DOE and VCCS programs	
AEL (DOE)	Everyone received training, by assumption. Training length is number of days elapsed between start and exit dates.
Postsecondary CTE (VCCS)	Everyone received training, by assumption. Training length is the days elapsed between start and exit dates. For the non-completers, training length is set to missing because the start dates were not available.
DRS and DBVI programs	
DRS	There are 35 services that are classified as training services. A participant had training if he/she received any of these 35 services while in the program. Training dates were available, but training length was set to missing for all because the majority of the training lasted longer than a year.
DBVI	There are five services that are classified as training services. A participant had training if he/she received any of these five services while in the program. Training dates are not available so training length was missing for everyone.
DSS programs	
FSET	Information is not available. The indicator was set to missing.
TANF/VIEW	Information is not available. The indicator was set to missing.
VEC and Senior Advisor programs	
TAA (VEC)	The participant had training if there is recorded training start date. Training length is the days elapsed between the training start and training end dates.
W/P (VEC)	No one received training services in W/P.
WIA Adults (Senior Advisor)	The participant had training if there was a recorded training start date. There was no training end date. Training length was defined as the days between training start date and program exit date.
WIA Youth (Senior Advisor)	The participant had training if there was recorded training start date. There was no training end date. Training length was defined as the days between training start date and program exit date.