

ANALYSIS OF BCDSS WAGE SUBSIDY AND SKILLS TRAINING PROGRAM PLACEMENTS

Submitted to:

Baltimore City Department of Social Services
Family Investment Administration
1910 N. Broadway
Baltimore, MD 21213

Submitted by:

Susan Christiansen, PhD ABD
The Jacob France Institute
University of Baltimore
1420 North Charles Street, BC-368
Baltimore, MD 21201-5779
schristiansen@ubalt.edu
410-837-5276

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The author of this report is Susan Christiansen, PhD ABD. She accepts full responsibility for the accuracy of the data presented, statements made, and conclusions reached.

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1.0 Executive Summary

The Jacob France Institute (JFI) was retained by the Baltimore City Department of Social Services (BCDSS) Family Investment Administration (FIA) to analyze the pre- and post-training employment and wage dynamics of BCDSS Temporary Cash Assistance (TCA) recipients participating in selected skills training and wage subsidy programs. BCDSS provided both programmatic and administrative data (described in Section 2.0 below), which JFI used to link with Unemployment Insurance (UI) wage records data, which show employment, employment sector, and pre- and post-training earnings.

The main findings are as follows:

- There are indications that BCDSS job training program participants experience increases in median earnings and increases in the percent of participants earning reported wages two quarters after program entry.
- The JFI has proposed to update this analysis in its FY2020 BCDSS contract in order to include more program completers and a longer time period of wage data to increase confidence in job training program outcomes and permit analysis by more subgroups.
- Results for non-completers provide an intriguing and compelling argument to consider allocating resources to better understand the experience of non-completers to help better serve all of the BCDSS clients.

2.0 Data Sources

There are three data sources used in this report: BCDSS-created participant data, Unemployment Insurance (UI) wage record data, and the Quarterly Census of Employment and Wages (QCEW).

BCDSS provided a file with data on participants, including: 1. individual demographic information (age, sex, marital status, education level, race); 2. programmatic information (program type, business partner, cost, enrollment date, participant end date, end result, credential earned); and 3. records of any employment gained post-participation. The contents of this file are discussed in greater detail in Section 3.0.

JFI has access to UI wage record data via a data agreement with the Maryland Department of Labor, Licensing and Regulation (DLLR). DLLR approved the research use of the data for this study. Data include individuals' quarterly earnings and employer identification code. However, these data do not include federal government employees and only include Maryland civilian workers who are covered under the UI law, thus excluding independent contractors and other uncovered employment. Additionally, these data only include aggregate earnings and no indication of the type of employment (full-time, part-time, seasonal, etc.) or the hours worked to receive the reported earnings.

The QCEW database is administered by the Bureau of Labor Statistics that publishes quarterly employment data for approximately 95 percent of jobs in the US.¹ Specific to the purposes of this report, QCEW can link the employer code from the UI wage record data to the employer's North American Industry Classification System (NAICS) code, which identifies the industry subsector in which the individuals in this report are employed.

3.0 Methodology and Preliminary Findings

There are two main complications of this analysis. The first is that there are many combinations of earning patterns. Because we are looking at four total quarters of earnings (two pre- and two post-program entry), and because each individual either has or does not have earnings each quarter, there are two to the fourth, or sixteen, potential combinations of earning patterns across the four quarters. For cases in which there are earnings in all four quarters, the comparison of pre versus post earnings is simple. But how does one categorize someone who only had earnings in the first quarter after program entry but not the second quarter? And can one compare the change in earnings for someone who has four quarters of earnings to someone who only has earnings in two of the four quarters?

This leads to the second main complication of this analysis, which is that, at this point, only two quarters of wage records data are available after program entry. If there were a longer period of data post-program entry, the income patterns would likely become much clearer. JFI crafted the methodology for this analysis with these complications as a main driver for their decisions.

The BCDSS participant file was delivered to JFI in February 2018. There were 1,175 records with completion dates ranging from January 2016 to December 2017. After editing the file to remove duplicate entries and participants with missing social security numbers (SSN) or program reference dates, the number of usable records totaled 1,049.

Participants were overwhelmingly female (97 percent) and Black/African-American (96 percent). The median highest grade level completed by participants was twelfth grade, with a range of second through 16th grade. The average age was 29, but ranged from 18 to 72.

Of the approximately 90 percent of individuals who participated in a training program, the median cost of the training was \$3,350, with a range of \$1,000 to \$5,000. The other approximately ten percent of the records were for those who participated in the Wage Subsidy program. The sample of Wage Subsidy program participants was too small to run separate analyses for this program in this report. Of the total 1,049 usable records, 46.6 percent (N=489) had a successful training program completion and the remaining 53.4 percent (N=560) did not complete their program.

In order to be able to pull wage records for two quarters preceding program enrollment and two quarters post-program completion (or post-enrollment for non-completers), the second quarter of 2017 was chosen as the program completion cutoff point for this report. This allowed JFI to analyze 321 completers and 271 non-completers. Had JFI chosen instead the third quarter of

¹ Available at: <https://www.bls.gov/cew/home.htm>.

2017 as the program completion cutoff point for this report, JFI would have had a higher number of individuals for which earnings could be compared, but the tradeoff would have been having wages for only one quarter after program completion. Given the high fluctuation in employment and earnings for this population immediately post-training, it seemed more important to have two quarters of earnings than a higher number of participants in the sample.

In addition to the Maryland UI wage record data, participants were also matched with the QCEW database to examine employer industry affiliation via NAICS codes. Once these matches were finalized, various cuts of the data were done to look at employment and earnings by available subgroups.

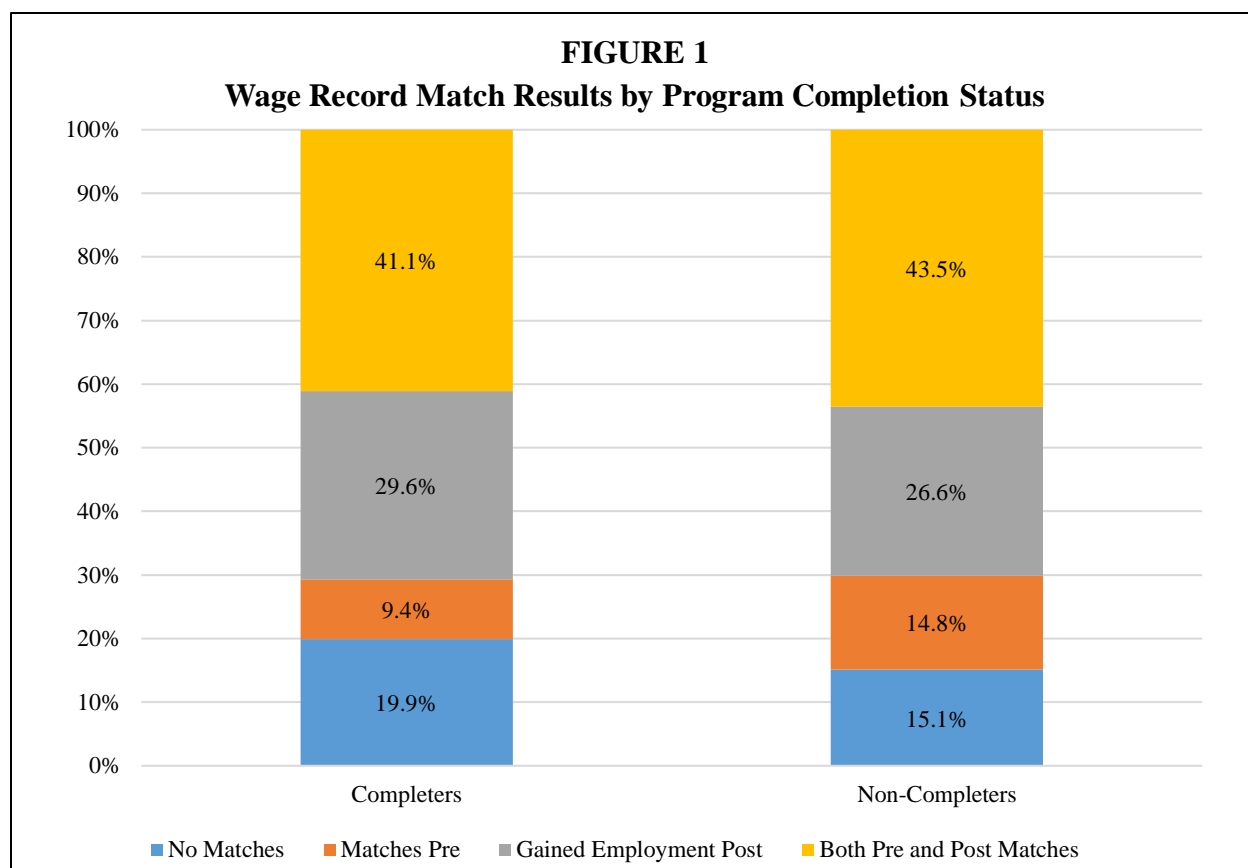
When additional wage records become available, this analysis can be updated to include both more participants and more quarters of earnings.

4.0 Results

Because of the complexity of earning patterns described in Section 3.0, Table 1 below explains the breakdown of earning pattern categories selected for comparisons in this analysis.

Table 1 shows that, of completers (N=321), 19.9 percent (N=64) had no wage record matches for either pre-program enrollment or post-program completion. An additional 9.4 percent (N=30) had some type of pre-program wage record matches but no post-program matches. Thus, 29.3 percent did not gain employment in the first two quarters after completing a program. Approximately 29.6 percent (N=95) of completers had no pre-program matches but gained employment in either the first or second quarter after program completion. Of this group, 64.2 percent (N=61) had post-program employment in both quarters after completion. The final category with 41.1 percent (N=132) had both pre- and post-program wages in at least one of the two quarters before program entry and one of the two quarters after program completion. A total of 49.5 percent (N=159) had employment in both quarters following program completion. However, only 16.2 percent (N=52) had employment continuously from two quarters before program start through two quarters after program completion. Of those with some type of earnings, 52.8 percent had a wage increase.

The percent breakdown for non-completers is fairly similar to that for completers, with the biggest difference being that 14.8 percent of non-completers (versus 9.4 percent of completers) had reported wages before training but not after training.



4.1 All Participants

The first section of results examines the pool of all participants by completion status. Table 1 lists the median wages and percent of participants with wages by quarter from two quarters before program entry through two quarters after program entry. Not all of the program completers and non-completers had wage record matches and not all of the participants with matches have data at all five time points. However, there is a general increasing trend in both the wages earned and the percent of participants with wages for both the completer and non-completer subgroups. Again, there are relatively few data points both in terms of the number of individuals with wage record matches and the number of quarters of wage data available. Future iterations of this analysis will have greater detail due to increases in sample size of these two measures.

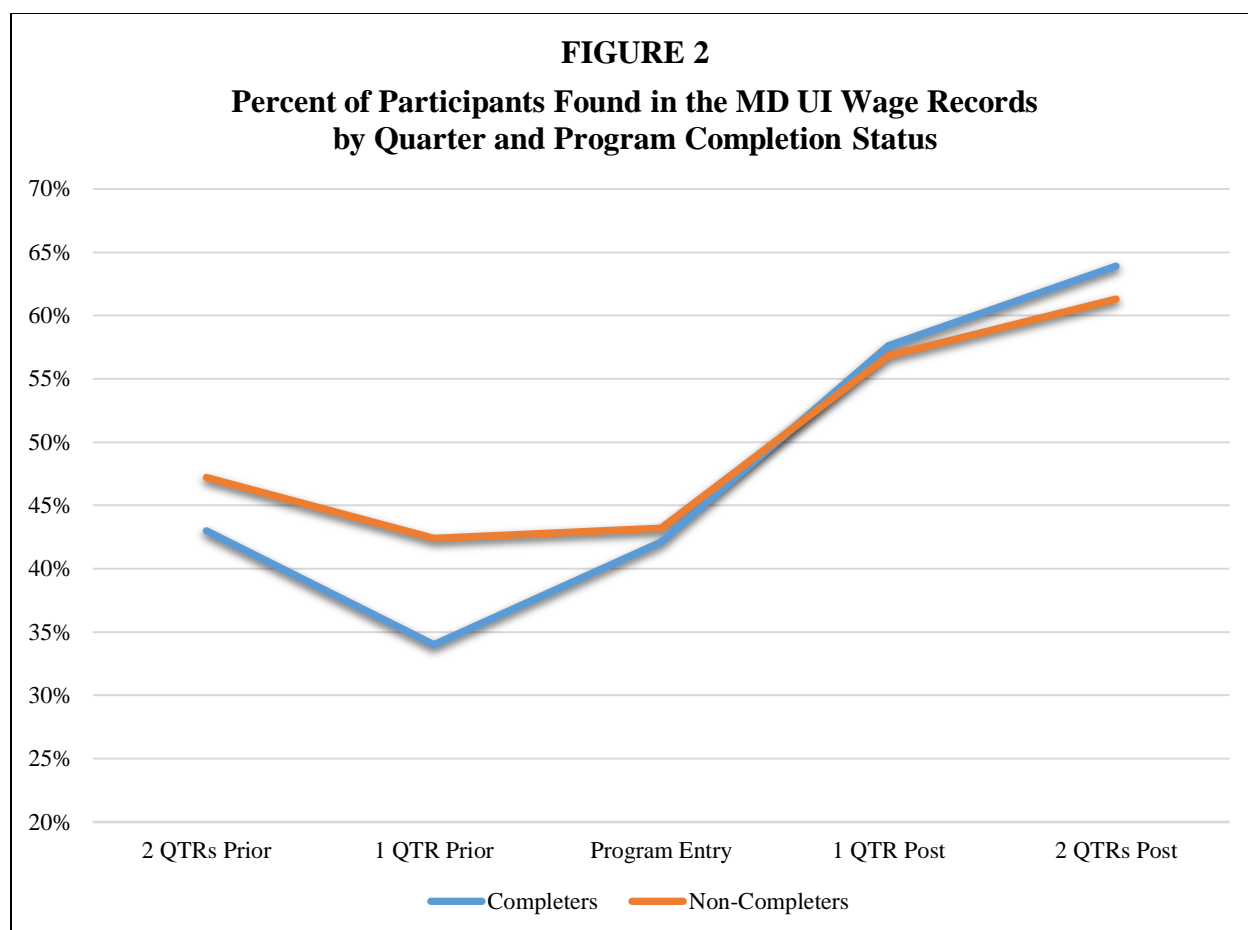
TABLE 1**Median Earnings of All Participants with Wages & Percent with Wages by Quarter and Completion Status**

	Percent of Participants with Wages						Median Earnings of Participants with Wages					
	Program					-1Q to +2Q Change	Program					-1Q to +2Q Change
	-2 Qtr	-1 Qtr	Entry	+1 Qtr	+2 Qtr		-2 Qtr	-1 Qtr	Entry	+1 Qtr	+2 Qtr	
Completers (N=321)	43.0%	34.0%	43.2%	57.6%	63.9%	29.9%	\$1,881	\$1,362	\$1,019	\$2,680	\$3,086	\$1,724
Non-Completers (N=271)	47.2%	42.4%	42.1%	56.8%	61.3%	18.9%	\$1,819	\$1,325	\$1,471	\$2,194	\$2,811	\$1,486

Source: The Jacob France Institute, University of Baltimore, June 2018. See Section 2.0 for detail on data used.

Figure 2 is the graphical representation of the left panel of Table 1, showing the percent of participants with earnings reported in the UI wage record data by quarter and program completion status. As expected, there is a dip in the percent with wages just prior to and during program entry, since one might expect a drop in wages might spur one to pursue TCA benefits and job training. There is a higher percent of participants with earnings in the wage records after program completion regardless of completion status. It is also interesting to note that, although very similar, the group of program completers show a greater percent change in percent of participants with wages, both starting at a lower percent (34 versus 42.4 percent) and ending at a higher percent (63.9 versus 61.3 percent).

Beyond the scope of this report but still important is the fact that the non-completer group also had a jump in the percent with wages in the quarter immediately following program entry. It could be that non-completers found a job and subsequently quit the training program. This does not mean, however, that the job training programs do not help the completers, since those who complete the program may differ in important ways from those who do not complete. It may merit follow-up on why some individuals do not complete the training or what differences may exist between completers and non-completers to better understand this trend.

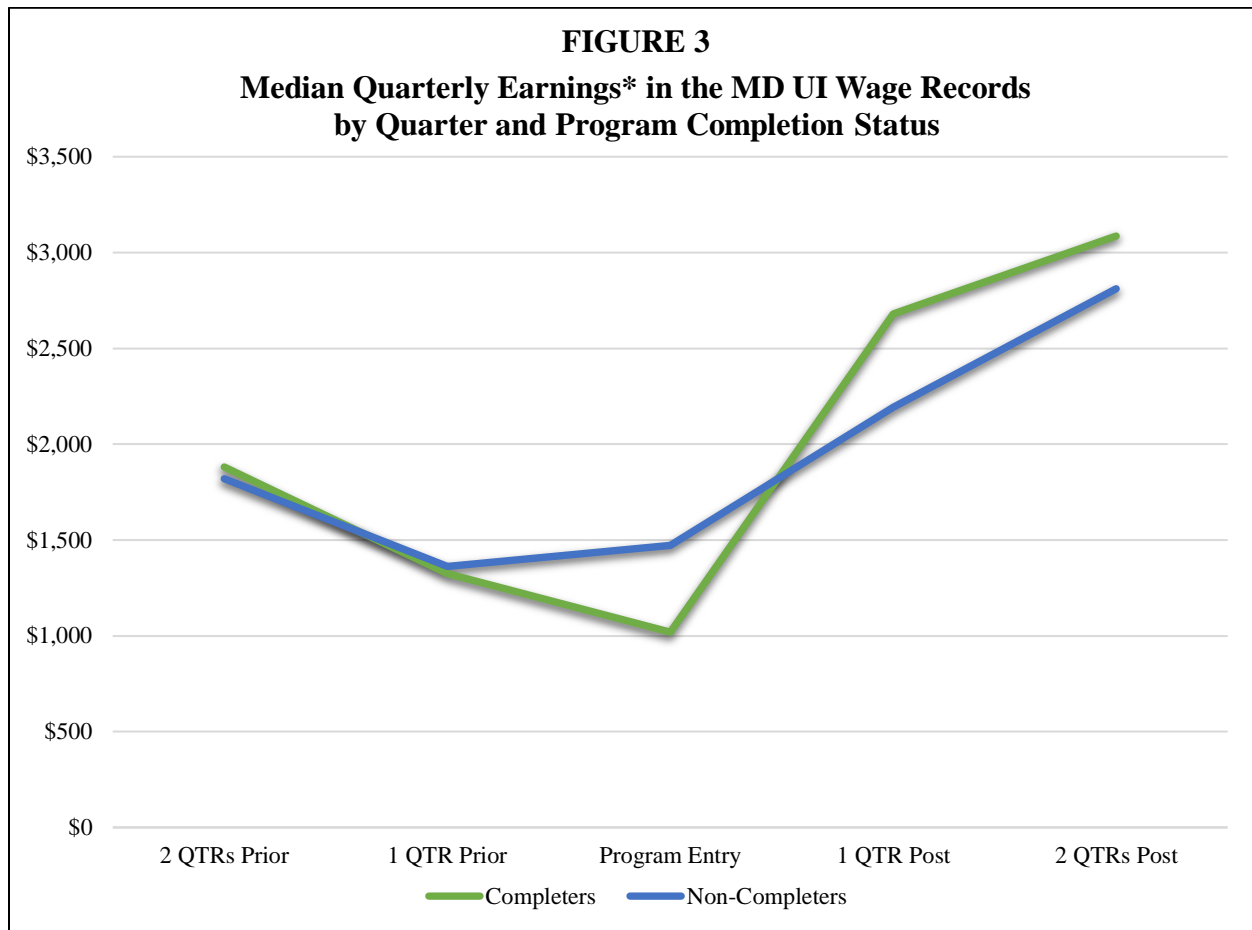


Similar to Figure 2, Figure 3 is the graphical representation of the right panel of Table 1, showing the trend in median earnings by quarter and program completion status. Although the percent with any wages in the wage records data only slightly dipped during enrollment in Figure 2, there is a greater dip in earnings in Figure 3 at program entry. This is to be expected because people could be working fewer total hours in the quarter in which they lose their job and start a job training program, leading to lower wages, versus a binary wage record match.

Because dates of employment loss and gain are likely fairly independent of the start and end dates of a calendar quarter, one would expect a more gradual change in quarterly income as one loses and gains employment. For individuals who find new work within the next calendar quarter, they would not show up as having zero quarterly wages in these data, but they would show lower quarterly wages than during previous quarters with the former employer.

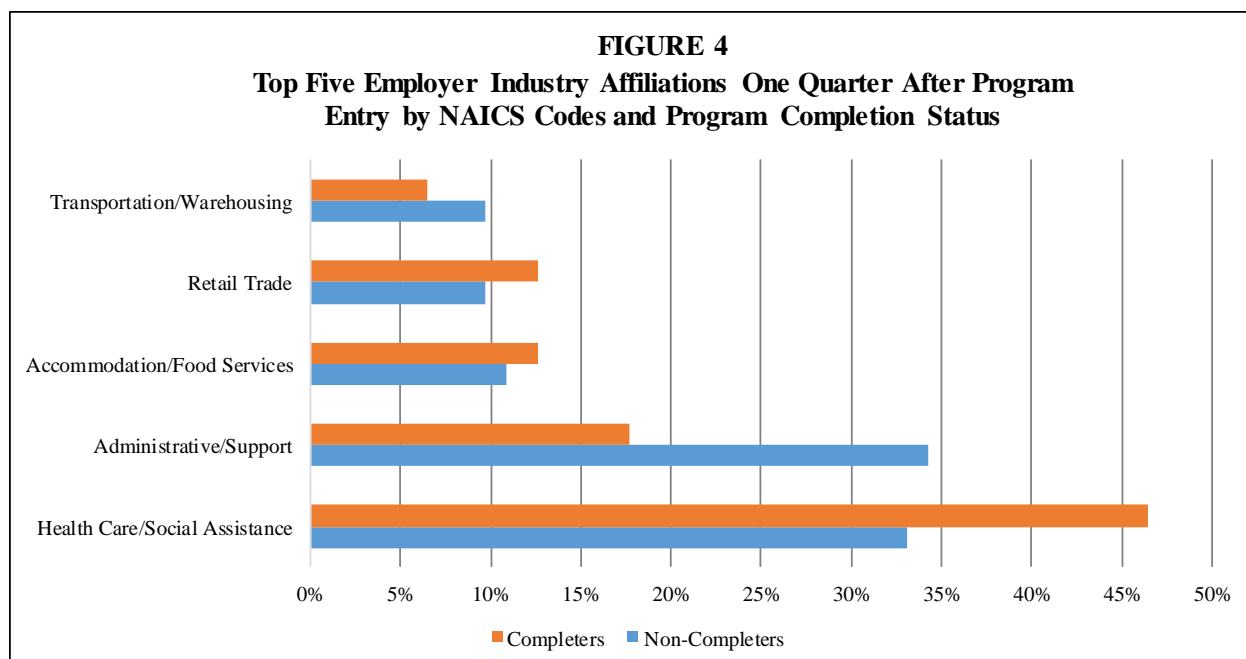
For this reason, it is important to look at both measures in Table 1 because Figure 2 could understate the burden of unemployment in the population at the time of enrollment.

Figure 3 shows that earnings for both completers and non-completers are higher in the two quarters after program entry than the quarters before. This figure also shows median earnings being higher for completers than non-completers. However, because of the sample size and because all individuals do not have wages in each quarter, it is not necessarily sound to compare the two groups directly.



*Earnings have been adjusted for inflation.

Figure 4 shows the breakdown of employment one quarter after program entry by industry and program completion status. Note that Figure 4 only shows the top five industry affiliations, so the percent figures will not sum to 100. Health Care/Social Assistance is the most frequent industry category for both completers and non-completers. The group of non-completers has approximately twice the rate of employment in Administrative/Support industries, potentially suggesting that non-completers may engage in more temporary work, which is frequently categorized into this industry.



Sample size: completers N=321; non-completers N=271.

4.2 Completers by Vendor

This section examines outcomes by vendor for program completers only. Note that the results can only be reported by vendor when the sample size meets the minimum disclosure limitations.²

As was also the case in Table 1, not all individuals have data for all five time points in Table 2. The sample size, which is noted in the far left column for each vendor, is also fairly small. Because of these limitations, interpretations of these results should be made with caution.

In general, there is an increase in both the percent of program completers with earnings and the median earnings. Although the vendors serve different populations in different scenarios, MOED has the highest increase in the percent of participants employed, increasing by 51.1 percentage points from 25.5 percent to 76.6 percent. America Works' participants had the highest increase in earnings, with a median increase in quarterly earnings of \$3,643, as well as the highest median earnings at two quarters post-program entry, at \$4,472.

² JFI's agreement with DLLR requires that no fewer than five individuals contribute to each aggregate reported result. Thus, JFI cannot publish any figures for any subgroup with fewer than five individuals to protect participants' personal information.

TABLE 2**Median Earnings of Program Completers with Wages & Percent with Wages by Quarter and Vendor**

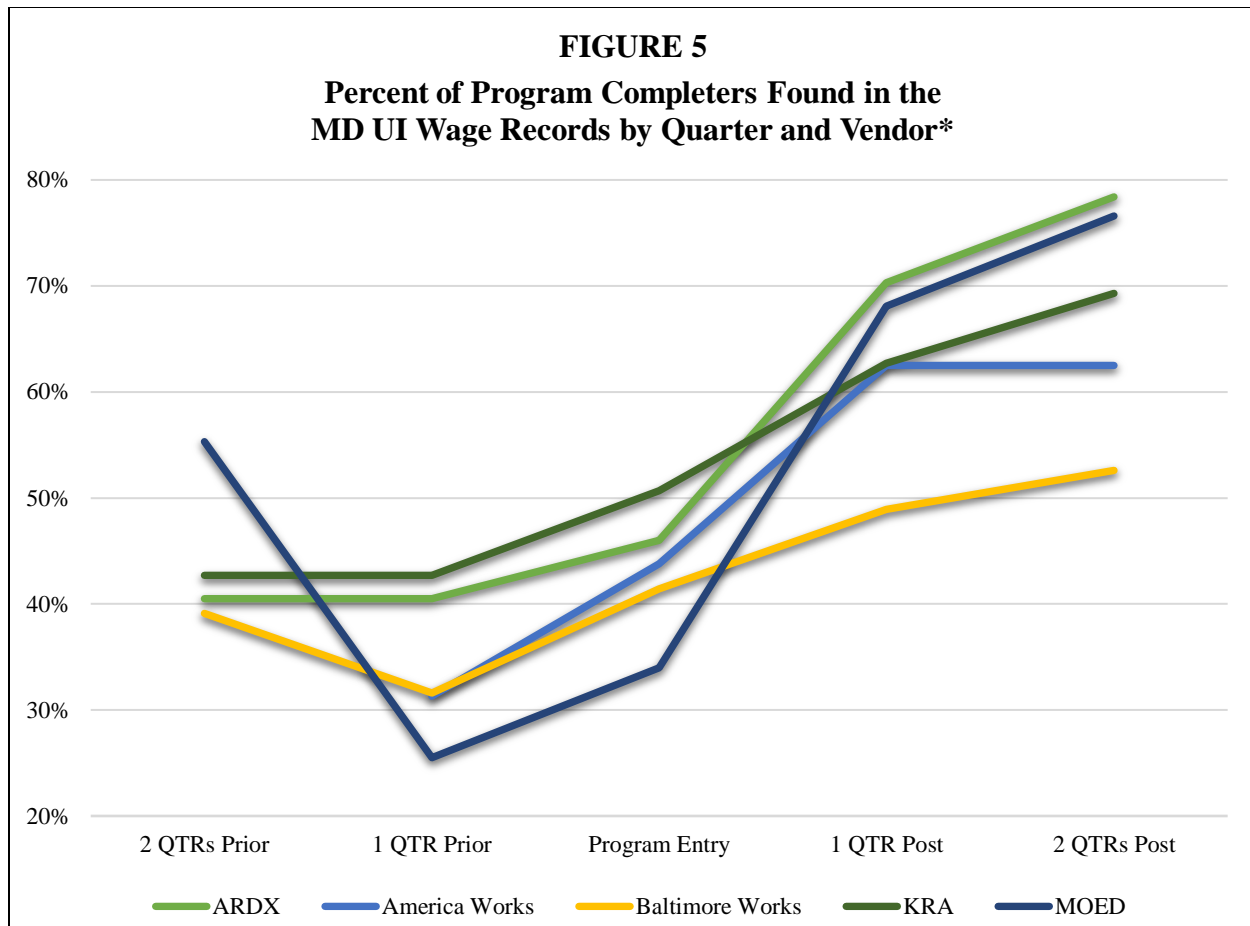
	Percent of Participants with Wages						Median Earnings of Participants with Wages					
	Program			-1Q to +2Q			Program			-1Q to +2Q		
	-2 Qtr	-1 Qtr	Entry	+1 Qtr	+2 Qtr	Change	-2 Qtr	-1 Qtr	Entry	+1 Qtr	+2 Qtr	Change
America Works (N=16)	*	31.3%	43.8%	62.5%	62.5%	31.2%	*	\$829	\$558	\$1,970	\$4,472	\$3,643
ARDX (N=37)	40.5%	40.5%	46.0%	70.3%	78.4%	37.5%	\$2,148	\$1,991	\$1,934	\$2,713	\$2,141	\$150
Baltimore Works (N=133)	39.1%	31.6%	41.4%	48.9%	52.6%	21.0%	\$2,112	\$1,057	\$1,015	\$2,846	\$3,029	\$1,972
Business Interface (N=11)	*	*	*	45.5%	63.6%	n/a	*	*	*	\$2,586	\$3,321	n/a
KRA (N=75)	42.7%	42.7%	50.7%	62.7%	69.3%	26.6%	\$1,910	\$1,343	\$881	\$2,747	\$3,274	\$1,931
MOED (N=47)	55.3%	25.5%	34.0%	68.1%	76.6%	51.1%	\$1,056	\$1,664	\$1,013	\$2,738	\$3,118	\$1,454

Source: The Jacob France Institute, University of Baltimore, June 2018. See Section 2.0 for detail on data used.

Figure 5 is similar to Figure 2 but contains data for program completers only and also breaks down the percent by vendor. Again, data are presented only for vendors who have a large enough sample size to meet the minimum disclosure requirements.

The trend in the percent of program participants who have reported wages is very similar for four of the five vendors, with MOED participants having the most unique trend. In general, there is an increase in the percent of program completers who have reported wages across time. All vendors except for America Works have a strictly increasing percent of participants with reported wages starting from the quarter of program exit.

Baltimore Works has the lowest starting and ending percent of participants with reported wages. This highlights the importance of interpreting these results with nuance, as it is possible that the population served by Baltimore Works may be different in some way from those served by other vendors. However, examining these potential differences is beyond the scope of this report.

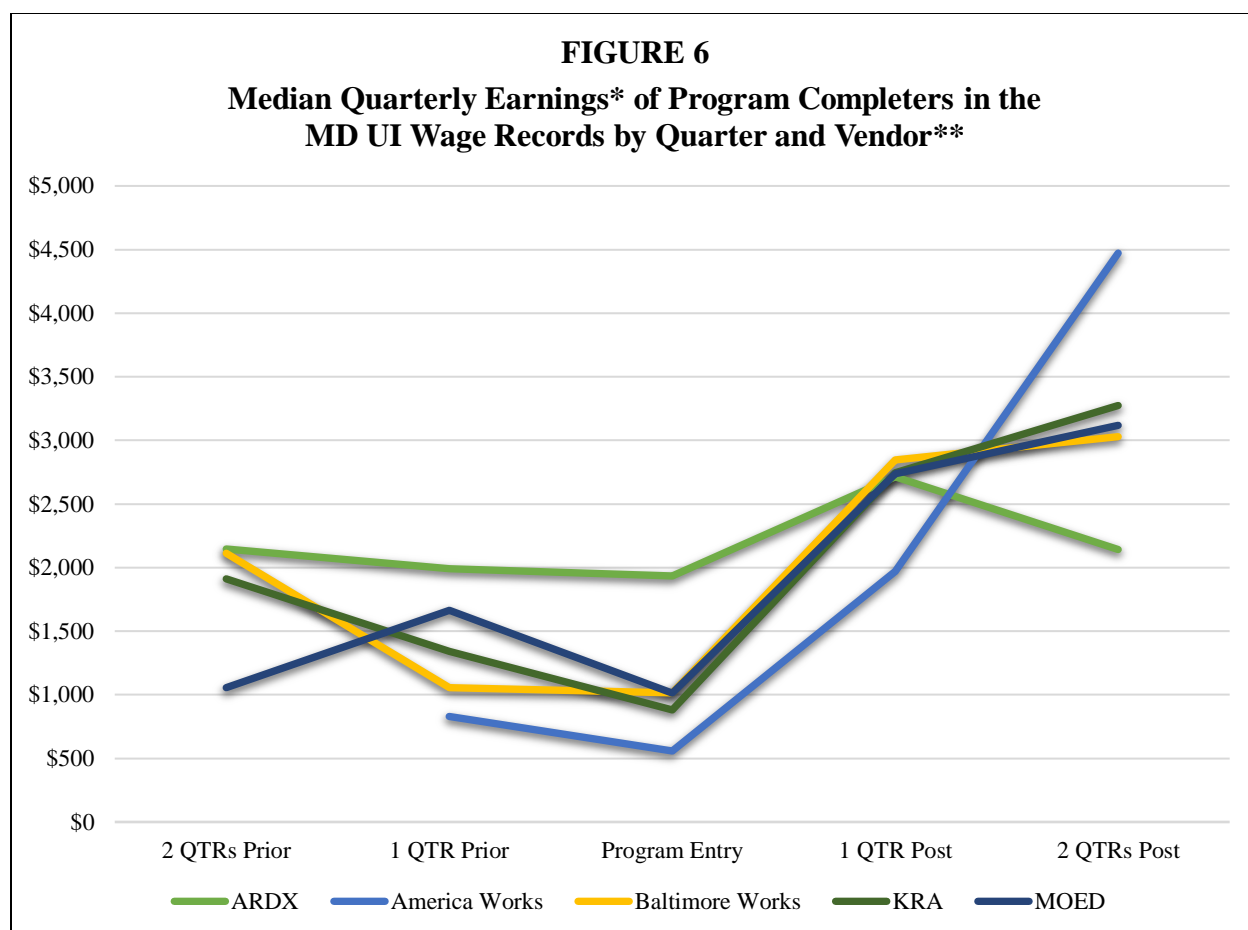


*There were not enough participants in America Works to disclose the percentage for two quarters prior to program entry. There were not enough participants in Business Interface to include this vendor in any quarter.

Figure 6 is similar to Figure 3 in structure (median quarterly earnings) but similar to Figure 5 in population (only program completers and grouped by vendor). Again, only data are presented that meet minimum disclosure guidelines.

In general, there is an increase in median earnings across time with the lowest earnings during the quarter of program participation. This is expected, as explained in the discussion of Figure 3 in Section 4.1. The trend lines for median earnings are fairly similar across vendors. All vendors except for ARDX show sustained increases in median earnings after the quarter of program entry.

Although ARDX shows an initial increase in earnings in the first quarter after program entry, the median earnings drop back to nearly the level of median earnings during program participation. However, again, not all participants have data at each of the five time periods and sample sizes are small. Clearer trends would emerge with more data in future iterations of this report.

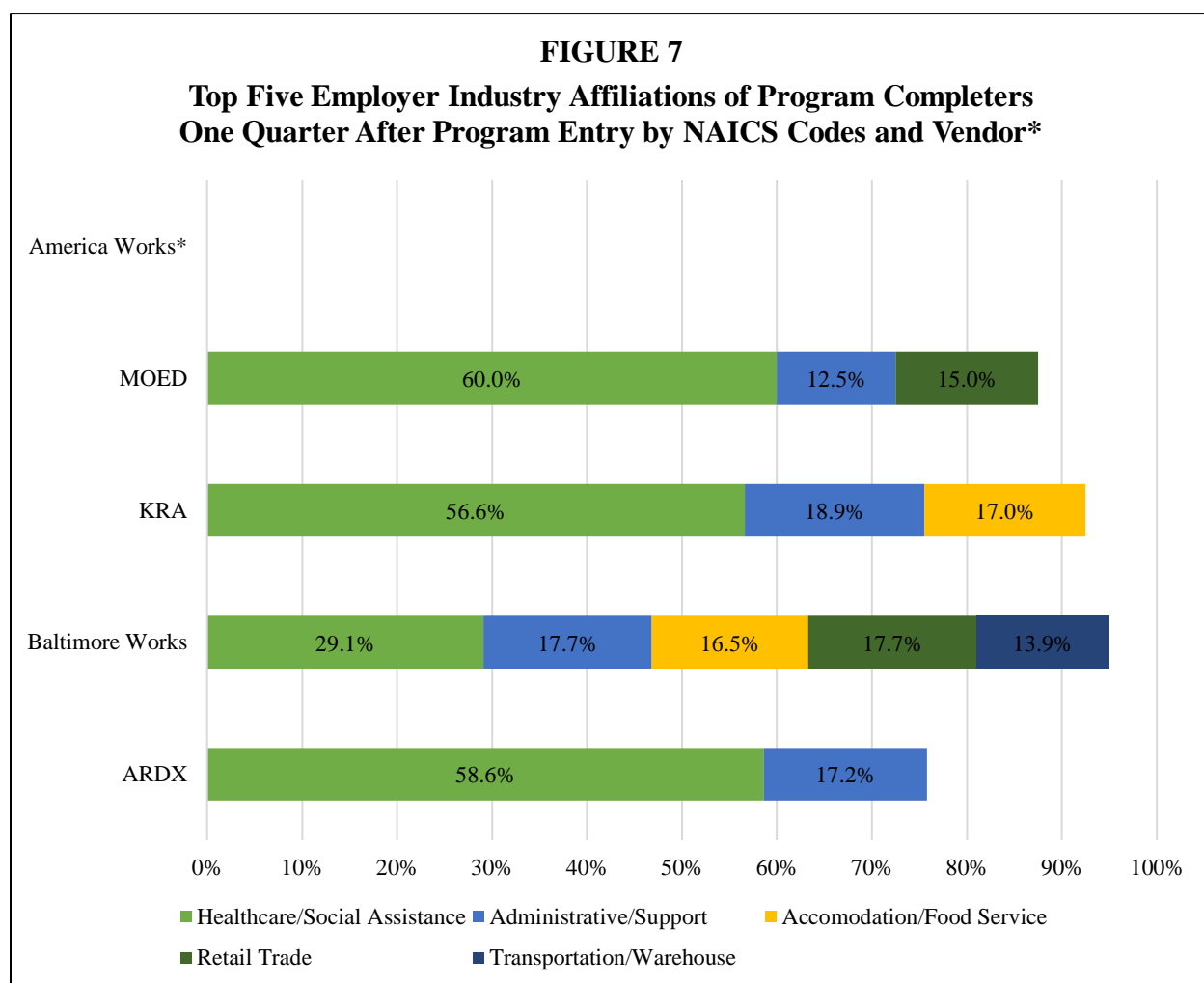


*Earnings have been adjusted for inflation.

**There were not enough participants in America Works to disclose the percentage for two quarters prior to program entry. There were not enough participants in Business Interface to include this vendor in any quarter.

Figure 7 is similar to Figure 4, but shows the top five employer industry affiliations only for program completers and also grouped by vendor. Again, because this table only shows the top five industry categories, the percent figures will not sum to 100 for each vendor.

ARDX has program participants working in only two of the top five industry affiliations, while Baltimore Works has program participants with employment in all five of the top five industry affiliations. The sample size is small, with exact figures listed in the footnotes, but this chart gives the general idea about the distribution of the types of industries targeted by each vendor.



*There were not enough participants in America Works or Business Interface to disclose. Sample size: MOED N=47; KRA N=75; Baltimore Works N=133; ARDX N=37.

4.3 Non-Completers by Vendor

Last, attention now briefly turns to program non-completers. As was said previously, there could be many confounding variables related to the performance of completers and non-completers. That analysis is beyond the scope of this report, but a short discussion of the results of non-completers is helpful in better understanding the best path forward for future analyses.

Table 3 below is identical to Table 2, but for program non-completers instead of completers. There is the same general trend of higher median earnings and a higher percent of participants with earnings. One exception is that ARDX shows a 3.8 percent decrease in the percent of participants with any reported wages between the quarter prior to program entry and two quarters after program entry. Again, because sample size is small, readers should be cautious in their interpretations of the data.

It is interesting to note, however, that the results seen in Table 2 show a greater increase in median wages and a greater increase in the percent of participants with reported wages for completers than for non-completers in Table 3. The only exception to this is ARDX, which shows an increase in median wages from one quarter pre- to two quarters post-program entry of \$1,711 for non-completers compared to only \$150 for completers.

Again, sample size is small, so repeating this analysis with either more participants, more quarters of wage data, or both would be beneficial in helping to clarify the emerging trends seen here.

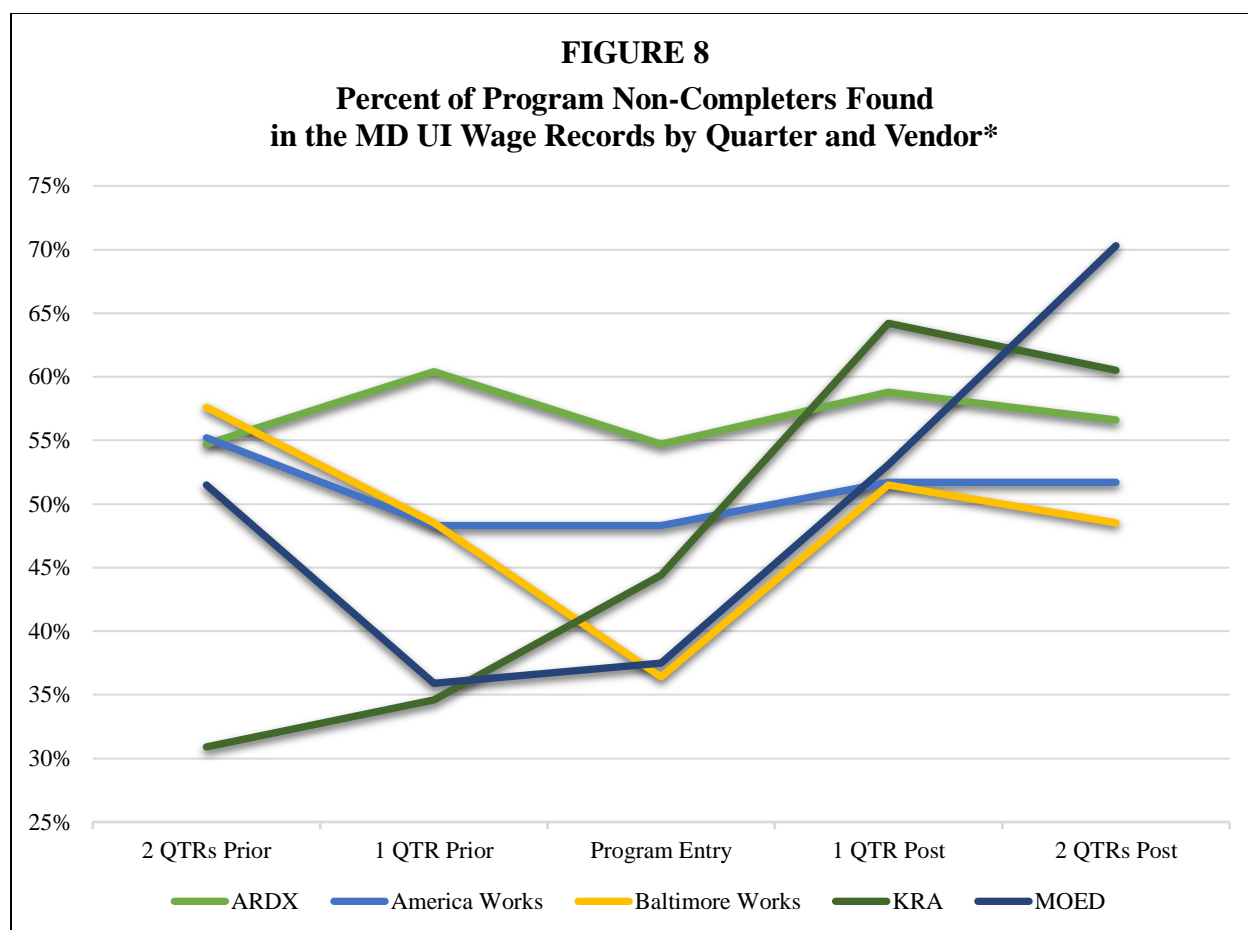
TABLE 3**Median Earnings of Program Non-Completers with Wages & Percent with Wages by Quarter and Vendor**

	Percent of Participants with Wages						Median Earnings of Participants with Wages					
	-2 Qtr	-1 Qtr	Program Entry	+1 Qtr	+2 Qtr	-1Q to +2Q Change	-2 Qtr	-1 Qtr	Program Entry	+1 Qtr	+2 Qtr	-1Q to +2Q Change
ARDX (N=53)	54.7%	60.4%	54.7%	58.5%	56.6%	-3.8%	\$3,870	\$1,270	\$1,831	\$2,271	\$2,981	\$1,711
America Works (N=29)	55.2%	48.3%	48.3%	51.7%	51.7%	3.4%	\$1,883	\$806	\$1,694	\$2,916	\$3,449	\$2,643
Baltimore Works (N=33)	57.6%	48.5%	36.4%	51.5%	48.5%	0.0%	\$2,501	\$876	\$1,016	\$1,932	\$2,132	\$1,256
Business Interface (N=8)	*	*	*	*	75.0%	n/a	*	*	*	*	\$3,315	n/a
MOED (N=64)	51.6%	35.9%	37.5%	53.1%	70.3%	34.4%	\$1,779	\$1,756	\$1,265	\$2,438	\$2,537	\$781

Source: The Jacob France Institute, University of Baltimore, June 2018. See Section 2.0 for detail on data used.

Figure 8 is identical to Figure 5, but for non-completers instead of completers. Figure 8 shows a less dramatic curve than the trend lines seen for program completers in Figure 5. This is not too surprising because it could be that some participants did not complete the program because they found other employment before the end of the training program.

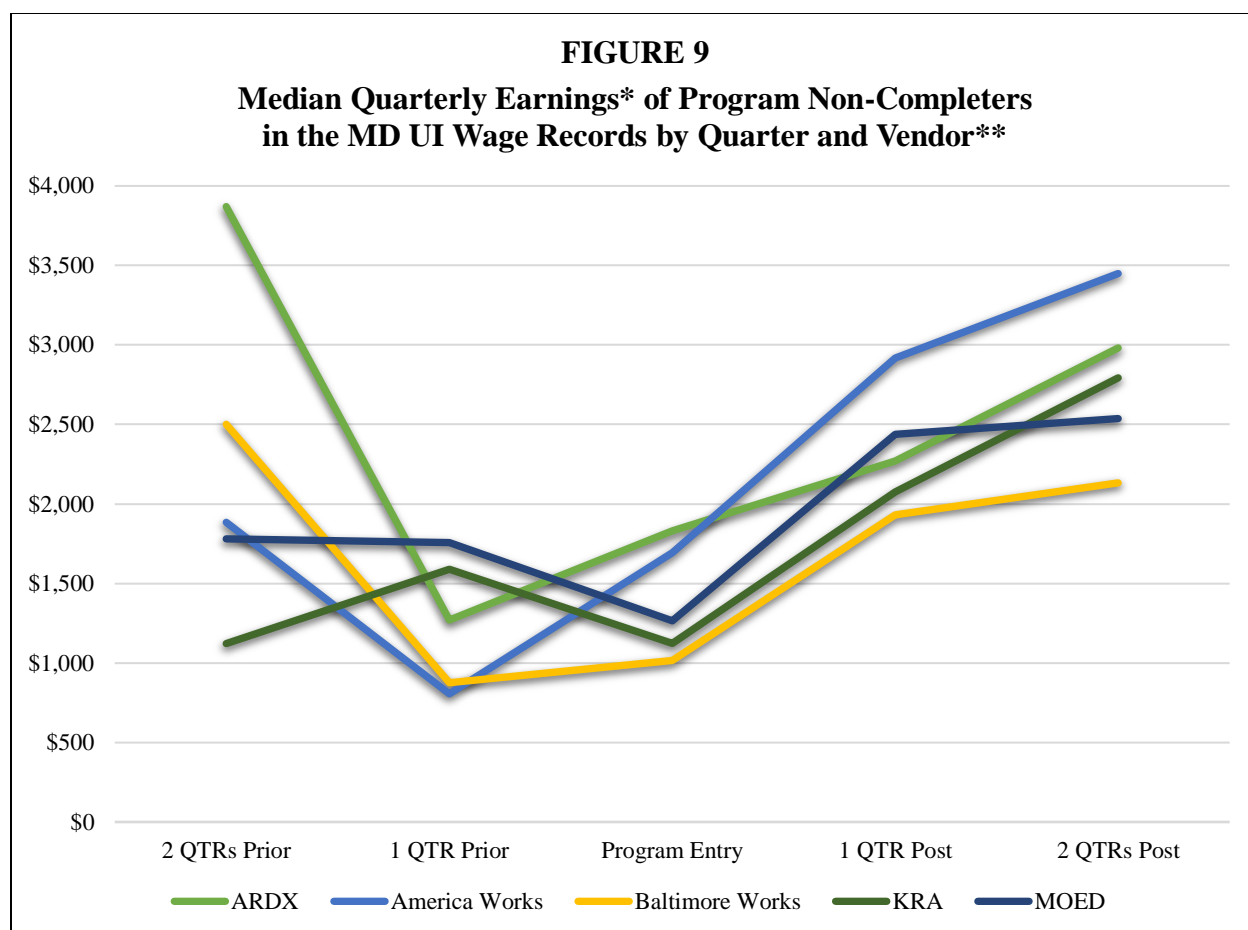
MOED had the largest change in the percent of non-completing program participants with reported wages, nearly doubling from 35.9 percent in the quarter pre-program entry to 70.3 percent two quarters post-program entry. However, this 34.4 percentage point change is smaller than the 51.1 percent change for MOED program completers.



*There were not enough participants in Business Interface to disclose data for any of the quarters.

Figure 9 shows a larger drop in wages for the program non-completers than the program completers in Figure 6. There is also less variation across vendors for program non-completers than program completers. This could be because people who do not complete a program may have had little treatment by the vendors that would differentiate their experience after leaving a program. This could also suggest that people who do not complete a training program may have some similarities that the limited demographic data provided do not capture.

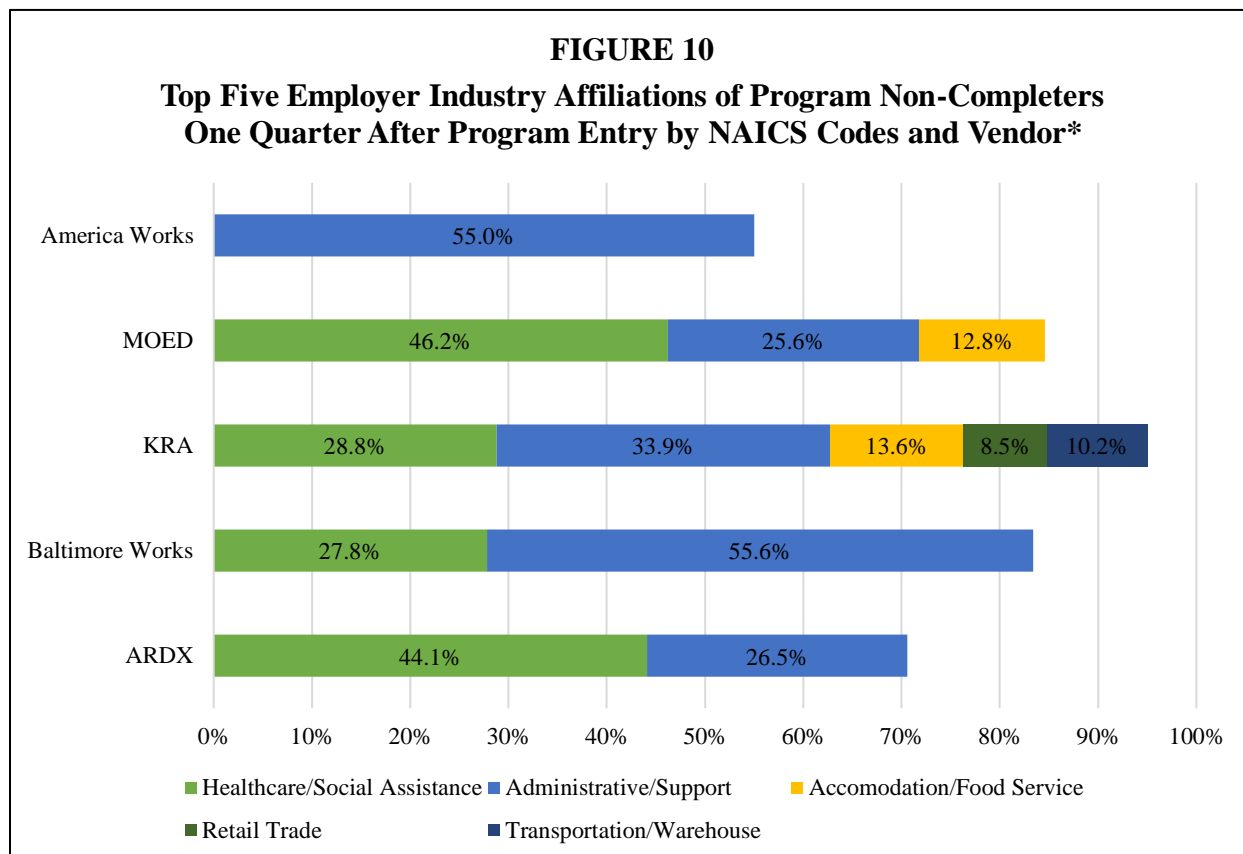
However, despite a potentially small exposure to a job training program, there is still the U curve showing wages recovering in the quarters after program entry. It could be that vendors linked participants to resources that helped them get jobs sooner. It could be that they found other employment on their own. All of these questions provide further encouragement to follow-up with program non-completers to better understand their situations and decisions.



*Earnings have been adjusted for inflation.

**There were not enough participants in Business Interface to disclose data for any of the quarters.

Finally, Figure 10 shows the same industry affiliation breakdown by vendor as in Figure 7 but for program non-completers instead of program completers. The top five employer industry affiliations are the same for both program completers and non-completers, but there is less variation in the industries of program non-completers than completers. There is also a much higher percent of program non-completers working in the Administrative/Support industries, suggesting again that perhaps program non-completers are finding temporary employment, which usually falls into this category.



*There were not enough participants in Business Interface to include data for any of the quarters. Sample size: MOED N=64; KRA N=81; Baltimore Works N=33; ARDX N=53; America Works N=29.

5.0 Conclusions

There are three main conclusions for this report:

- Despite limitations of the data which have been discussed extensively, there are indications that program participants in job training programs through BCDSS experience increases in median earnings and increases in the percent of participants earning reported wages two quarters after program entry.
- These positive trends absolutely do not mean that this analysis should end here; thus the JFI has proposed to continue this analysis under its BCDCC Technical Assistance contract in FY2020. This will allow the JFI to: 1. Add more people to the sample of completers; and 2. Add more time to the analysis so wages can be examined over a longer period of time. There is so much fluctuation in the data used for this report that a larger sample size and a longer time period would help to clarify. The JFI can also examine the impact of these training programs on patterns of TCA exit.

- Although it was not the main purpose of this report, the results seen for the program non-completers provide a compelling argument to also examine whether future resources could be allocated to follow-up with non-completers. If BCDSS could understand why some participants left their programs, they could determine whether services and training programs could be adapted to better serve all participants who begin the job training programs.

JFI looks forward to discussing these findings and ideas for future analyses that will help BCDSS reach its goals of helping the most vulnerable of the City's residents obtain stable employment.

Prepared by:

The Jacob
france
Institute

Merrick School of Business
The University of Baltimore
1420 N. Charles Street
Baltimore, Maryland 21201
<http://www.jacob-france-institute.org/>
(410) 837-4727