

Gainful Employment Analysis Missouri Methodological Notes

Prepared by Office of Postsecondary Education (OPE) with the
assistance of the
Missouri State Department of Higher Education (DHE)

U.S. Department of Education
Office of Postsecondary Education

What Data Has ED Received from Missouri?

The core of the Missouri data is aggregated information on students who exited public and for-profit institutions in that state between 2006 and 2008. Exiters include *completers*, who earned a credential, and *drop-outs/stop-outs*, who left institutions without doing so. Each group of exiters is further disaggregated by several identifiers, including: campus (i.e., Office of Postsecondary Education identification number), field of study (i.e., 4-digit *Classification of Instructional Programs*, or *CIP*, code), and award level (e.g., certificate, associate’s, bachelor’s). Heuristically, then:

Institution	OPE	Exit Status	CIP	Award Level	Exiters
State U.	123456	Completer	10.01	Bachelor’s	10
State U.	123456	Drop-Out	10.01	Bachelor’s	6

Each row (referred to hereafter as a “case”) in the Missouri dataset represents the smallest possible “unit of analysis” for our work, and is merged with other data from other sources, including:

Education Data	Wage Data
<i>N</i> of exiters with federal loan debt	<i>N</i> of exiters found in Missouri wage system
<i>N</i> of exiters in loan repayment or default	Annual wage distribution by quartiles
Mean and median federal debt	Average annual wage
<i>N</i> of exiters who were Pell recipients	
Mean and median Pell grant	

What Students are Included in the Missouri Data?

In general, students are included in the Missouri data if they “exited” the state’s student unit record system during the study period—that is, they were enrolled at any point between 2006 and 2008, and, in subsequent terms, were unobserved. For students exiting a public institution, at least one year of subsequent term registration data was searched to confirm exiter status. For students exiting a for-profit institution, explicit documentation of completion or withdrawal/termination was required for inclusion.

Several groups are excluded, either:

- (a) Explicitly, including:
 - a. Students who re-enrolled within six months of exiting,
 - b. Students enrolled at not-for-profit institutions of all levels,
 - c. Students enrolled at public, less-than 2-year institutions,
 - d. Non-degree-seeking students,
 - e. Dual enrollment (high school) students,
 - f. Students whose latest loan period end date exceeded their Missouri-verified postsecondary exit dates by at least six months (indicating re-enrollment), and
 - g. Students with non-U.S. origin; as well as

- (b) Implicitly, including:
 - a. Students enrolled at schools that offer instruction only in cosmetology (code 12.04 in the 2000 CIP), because these institutions are regulated by another Missouri state agency, and
 - b. Students enrolled at schools that opted out of providing personal identifiers to MDHE (prohibiting cross-database matching).

How Were Student Records Matched to Other Administrative Data?

MDHE staff matched information on exiters to two sources of administrative data: records maintained as part of the Missouri Department of Labor and Industrial Relations' Unemployment Insurance program (UI) and the National Student Loan Data System (NSLDS).

The UI match captured gross wages for four quarters, beginning with the first full quarter falling approximately six months after a student's exit from postsecondary education. Because wage data was not available for all matched students for an entire year, Missouri provided both annualized and non-annualized wages.

The NSLDS match allowed MDHE staff to distinguish between *all* federal loans a student had accrued as part of their postsecondary education and those taken out during periods of enrollment at a particular institution. In general, it is the latter data that should be used in the present analyses, though it is important to acknowledge the potential effects of transfers from two-year to four-year institutions on these statistics.

The Consequence of Missing Data from Missouri

A total of 3,645 cases are included in the full Missouri data file, representing information on about 137,268 students enrolled at 55 campuses. Three types of missing data occur within the Missouri data:

- (1) Missing wage data. Not all exiters were able to be matched to Missouri UI records. This could be due to voluntary or involuntary unemployment, or because the individual had left the state.
- (2) Missing loan data. Not all exiters were found in NSLDS, presumably because they had accumulated no federal loans.
- (3) Disclosure suppression. To minimize the risk that case-level data could be used to identify a specific individual, MDHE staff suppressed information when: (a) the number of exiters were five or fewer, (b) the number of UI wage matches was five or fewer, or (c) the number of NSLDS matches was five or fewer.

On face, usable cases for Departmental analyses are those that contain both UI and NSLDS data. Because we are specifically interested in loans accrued at a particular institution, a further restriction is that usable data on institution-specific federal loans must be present.

How Representative is the Missouri Data of Title IV Institutions and Students

Because the Missouri data represents only a subset of the postsecondary universe in that state—and, by extension, the nation—understanding the extent to which it can be generalized is important. General descriptive statistics comparing Missouri with the nation as a whole are presented in Table 1.

Institutional Representativeness. Nationally, around 31% of institutions are public, 28% are not-for-profit, and 42% are for-profit. In the entire state of Missouri, 31% of institutions are public, 31% are not-for-profit, and 38% are for-profit. The institutions represented in the Missouri exiter data file, however, are a subset of both those larger universes. First, no data is available on students attending not-for-profit institutions, because these institutions do not participate in the MDHE data system. Second, cosmetology schools—which comprise approximately 38% of Missouri's for-profit

institutions—are not represented in the Missouri data file because they are regulated by the Missouri Division of Professional Registration, not MDHE. As a result, the Missouri data do not completely reflect either postsecondary institutions in that state or, more generally, institutions nation-wide.

Student Representativeness. To determine whether the students represented in the Missouri data file are representative of completing students nationally, we compared completers in the Missouri file to students who identified themselves as completing their degree in the 2007-2008 academic year from NPSAS:2008, a nationally representative sample of undergraduate students attending Title IV institutions. Three demographic contrasts are presented: (a) adjusted gross income, (b) race/ethnicity, and (c) age. Note that statistical tests of difference were not conducted when comparing the Missouri data and NPSAS estimates.

Adjusted gross income data from completers from NPSAS:2008 and the Missouri data file appear broadly consistent with each other (Table 2). For-profit institutions have a higher proportion of completing students with incomes below \$15,000 and public institutions have a higher proportion of completers with higher incomes. Racial/ethnic minorities are visibly less represented in the Missouri completions data than in NPSAS:2008 (Table 3). This is, however, consistent with the demographics of the state. Finally, the distribution of students by age appears broadly comparable between NPSAS and the Missouri completers data (Table 4).

Table 1. State characteristics of Missouri compared with the United States

	Missouri	United States (state average)
State Population & Demographics		
Population (2008 estimate) ¹	5,956,335	6,075,095
Population (percent change 2000-2009) ¹	7.0%	9.1%
Persons under 8 years old (percent) ¹	24.0%	24.3%
Race/Ethnicity (2008 percent non-White) ¹	17.9%	20.2%
Language other than English at home ¹	5.1%	17.9%
State personal income (2008, millions) ²	\$216,344	\$244,724
State per capita income (2008) ^{1,2}	\$36,322	\$40,283
Median household income (2008) ¹	\$46,847	\$52,029
State/local tax revenue per capita (2007) ³	\$3,247	\$4,229
Elementary & Secondary Education⁴		
Number of schools (2007-08)	2,438	1,995
Number of students (2007-08)	917,188	966,519
Female students (2007-08)	48.6%	47.7%
Race/ethnicity (2007-08 percent non-White)	23.8%	45.1%
Free/reduced lunch price eligible (2007-08)	39.5%	40.4%
Postsecondary Education⁵		
Enrollment by sector (2007)		
Public, 4-year and above	133,870	142,935
Private, nonprofit, 4-year and above	141,747	69,289
Private, for-profit, 4-year and above	10,020	17,796
Public, 2-year	89,693	127,491
Private, nonprofit, 2-year	1,823	881
Private, for-profit, 2-year	7,710	6,367
Private, for-profit, less-than-two-year	2,512	4,584
Other less-than-two-year	933	1,338
Female students (2007, percent)	58.1%	57.4%
Race/ethnicity (2007, percent non-White)	27.5%	41.0%
Undergraduate enrollment (2007)	315,170	318,731
Graduate enrollment (2007)	73,138	51,950
Bachelor's degree completions (2007-08)	35,405	31,076
Associates degree completions (2007-08)	14,380	14,940
Undergraduate certificate completions (2007-08) ⁶	9,178	14,864

SOURCES:¹ State & County QuickFacts, U.S. Census Bureau, U.S. Department of Commerce.² Regional Economic Information System, Bureau of Economic Analysis, U.S. Department of Commerce.³ State & Local Government Finance Data Query System, <http://www.taxpolicycenter.org/slf-dqs/pages.cfm>. The Urban Institute-Brookings Institution.⁴ Common Core of Data, National Center for Education Statistics, U.S. Department of Education.⁵ Integrated Postsecondary Education Data System, 2007 Fall Enrollment, Institutional Characteristics, and Completions Components. National Center for Education Statistics, U.S. Department of Education.⁶ These values only reflect certificates earned at Title IV institutions.

Table 2. Comparison of Missouri Completer Cohort with Completing Students in NPSAS:2008, by Sector and Adjusted Gross Income

AGI	Sample	Public (%)		For-Profit (%)	
		4-year	2-year	2-year or greater	Less-than 2-year
\$0 to \$15000	Missouri	28	22	37	37
	NPSAS	23	25	37	47
\$15001 to \$25000	Missouri	11	15	19	21
	NPSAS	10	14	19	16
\$25001 to \$35000	Missouri	9	13	12	11
	NPSAS	9	12	14	10
\$35001 to \$45000	Missouri	8	10	8	8
	NPSAS	7	9	6	7
\$45001 to \$60000	Missouri	10	12	8	8
	NPSAS	9	12	8	6
\$60001 to \$90000	Missouri	16	16	9	8
	NPSAS	17	17	11	8
More than \$90000	Missouri	18	12	6	7
	NPSAS	26	11	5	6

SOURCE: Missouri Completer Data File and U. S. Department of Education, Institute for Education Sciences, National Center for Education Statistics, National Postsecondary Student Aid Study (NPSAS), 2008.

NOTE: Missing AGIs were imputed in NPSAS 2008. AGI information was unavailable for approximately 6.4% of Missouri completers.

Table 3. Comparison of Missouri Completer Cohort with Completing Students in NPSAS: 2008, by Sector and Race

Race/Ethnicity	Sample	Public (%)		For-Profit (%)	
		4-year	2-year	2-year or greater	Less than 2-year
White	Missouri	83%	87%	70%	68%
	NPSAS	68%	61%	53%	42%
African American	Missouri	5%	7%	22%	26%
	NPSAS	10%	14%	22%	21%
Hispanic/Latino	Missouri	2%	2%	2%	2%
	NPSAS	11%	14%	16%	32%
Asian American	Missouri	2%	1%	1%	1%
	NPSAS	8%	6%	5%	2%
All Others	Missouri	8%	4%	5%	3%
	NPSAS	3%	5%	4%	3%

SOURCE: Missouri Completer Data File and U. S. Department of Education, Institute for Education Sciences, National Center for Education Statistics, National Postsecondary Student Aid Study (NPSAS), 2008.

NOTES: African American includes students who identified as Black, Hispanic/Latino indicates students who identified with a Hispanic or Latino regardless of race, Asian American includes only those students who identified as Asian, All Others indicates students who identified as American Indian, Alaskan Native, Pacific Islander, Native Hawaiian, Other, and student who identified with more than one race.

Table 4. Comparison of Missouri Completer Cohort with Completing Students in NPSAS: 2008, by Sector and Age

Race/Ethnicity	Sample	Public (%)		For-Profit (%)	
		4-year	2-year	2-year or greater	Less than 2-year
Less than 18 years	Missouri	0	0	0	0
	NPSAS	0	0	0	0
18-25 years	Missouri	67	51	45	37
	NPSAS	77	53	42	57
26-30 years	Missouri	16	15	21	18
	NPSAS	11	15	25	18
31-40 years	Missouri	10	17	20	20
	NPSAS	7	17	19	15
Over 40 years	Missouri	7	17	14	26
	NPSAS	5	15	14	10

SOURCE: Missouri Completer Data File and U. S. Department of Education, Institute for Education Sciences, National Center for Education Statistics, National Postsecondary Student Aid Study (NPSAS), 2008.

NOTE: Age was observed for all NPSAS 2008 respondents. Age information was unavailable for less than 1% of Missouri completers.