

Creating State-Level Degree Completion Rates from a National Database: Results of an Exploratory Analysis

National Center for Higher Education Management Systems (NCHEMS)

The nation currently lacks the ability to effectively monitor and report on one of the most important aspects of higher education: student progress and success in completing educational credentials. While colleges and universities can track the progress and success of their own students as long as they are enrolled, little information is available about the progress of those who change institutions or stop out several times in the course of earning a degree. For the forty-two states that maintain state-level Student Unit Record (SUR) databases, it is possible to track students from institution to institution within the boundaries of the state (Ewell and Boeke 2007). But the ability to link state SUR databases together to examine student mobility is limited and awkward. To explore an alternative, the Lumina Foundation for Education supported the National Center for Higher Education Management Systems (NCHEMS) to work with the National Student Clearinghouse (NSC) in utilizing NSC's extensive student data holdings to create state-level degree completion rates on a national basis for *Measuring Up* and similar publications.

The NSC Database. Student records are provided to the NSC by the more than 2800 colleges and universities that participate in its enrollment and degree-verify services. These institutions represent over 91% of total U.S. enrollments in higher education in the U.S. Through these data gathering activities, the NSC has the only extant nationwide SUR database. This database covers nearly 15 million currently enrolled students and more than 60 million former students. But despite their volume, NSC data were never intended to be used as a student tracking resource. They were instead compiled to support inquiries about the status of individual students with respect to current and past enrollments and credentials awarded. Accordingly, these data have substantial limitations for conducting longitudinal studies when compared to regular state-level SUR databases. These limitations include the following:

- The institutional coverage of the NSC is not universal and participation rates vary across states. Current high rates of institutional coverage began in the late 1990s, however. (Appendix A provides a table of the proportion of each state's headcount enrollments included in the NSC in 2005.)
- Students are included in the NSC regardless of their enrollment status; most states and IPEDS include only degree-seeking students.
- The data used to generate the NSC statistics exclude all students with any prior enrollment history in NSC records—for example, all high school concurrent students are excluded; IPEDS is supposed to include only first-time students, but registrars have no way to verify this if no transfer credit is claimed.

- The NSC does not distinguish between undergraduate students and graduate students.
- Institutions provide data to the NSC at points in time that do not necessarily correspond to the institutional census dates used for enrollment reporting purposes.
- The NSC has not historically had a data element that indicates when a student first began postsecondary education.

Working with these data therefore required NCHEMS and NSC staff to make some important assumptions and limited the analysis to a subset of student records that could reasonably be assumed to be undergraduates.

Method. The basic method used in this analysis attempted to replicate that of the IPEDS Graduation Rate Survey (GRS) for two historical cohorts—1998 and 1999. The GRS is based on first-time-in-college students entering in a fall term enrolled on a full-time basis. Enrollment and degree status are tracked through subsequent years, and a completion rate calculated at the six year mark for four-year starters and at the three-year mark for two-year starters. To attempt to match this method, the following steps were taken with NSC data:

- Five states were selected to pilot the approach, each of which had high NSC participation rates. The table below reports the percentage of total IPEDS headcount enrollment for each year in each state chosen.

	KY	MN	NV	NY	WA
1998 Cohort	91%	87%	32%	77%	83%
1999 Cohort	91%	84%	67%	95%	80%

- Students beginning collegiate enrollment for the first time in 1998 and in 1999 were selected as the tracking cohorts. By this point in time, institutional participation in the NSC had become fairly widespread, so few institutions were missing. These dates allowed completion rates to be calculated for as much as nine years of enrollment history.
- Students were defined as “enrolled” in a given academic year if they were present in the database between July 1 and June 30. For example, the 2001-2002 academic year was defined as beginning on July 1, 2001 and ending on June 30, 2002. Students were counted only once for enrollment or degree completion purposes within that period.
- First time students were defined as those enrolled in either the 1998 or the 1999 academic years with no prior instance of enrollment in the database for any of the years NSC has data.

- Full time attendance status in the first year of enrollment was mandatory for inclusion in a cohort.
- Students between the ages of 17 years 9 months and 20 years 9 months were selected to try to ensure that only undergraduates were included.

These selection criteria resulted in a total of 136,182 first-time, full-time students for the 1998 cohort and 144,355 for the 1999 cohort in the five states. The table below presents the distribution of these students across state and institutional type.

Table 1: 1998 Cohort Counts by State and Institution Type

	KY	MN	NV	NY	WA	Type Total
2-year	5,091	10,437	637	25,277	15,725	57,167
4-year	12,563	13,486	1,293	43,699	7,974	79,015
State Total	17,654	23,923	1,930	68,976	23,699	136,182

Table2: 1999 Cohort Counts by State and Institution Type

	KY	MN	NV	NY	WA	Type Total
2-year	5,218	11,341	2,746	23,468	17,126	59,899
4-year	10,180	15,156	1,526	40,468	5,849	73,179
State Total	15,398	26,497	4,272	63,936	34,252	133,078

The 1998 cohort was tracked through nine years and the 1999 cohort through eight years, noting the state where these enrollments took place each year and where any degrees were earned. If a student earned a baccalaureate degree, (s)he was not tracked further. But if a student earned an associate degree, tracking was continued to see if a baccalaureate degree was earned. Results were reported for retention and degree completion a) at the same institution, b) at another institution in the state and, c) at another institution anywhere in the country.¹

One issue surrounding the resulting NSC cohorts is the extent to which they match an institution's "official" GRS cohort. On the one hand, the methods that were of necessity used to select students in the NSC database, together with the fact that no state has 100% of its IPEDS-reported enrollment included in that database, means that some actual first-time freshmen were undoubtedly excluded from the NSC study sample. On the other hand, students with prior enrollment histories in postsecondary institutions may be included in the official GRS cohorts for many institutions simply because the student did not report prior enrollment activity. The only way a registrar knows about prior enrollment is if a student supplies a transcript or requests transfer credit.

¹ If a student was enrolled at two institutions simultaneously, one of which was the institution at which (s)he started, the student was counted as enrolled in the starting institution. Random assignment was used in the few other cases of simultaneous enrollment.

In order to investigate the extent of these issues, NSC examined the correspondence between the actual GRS cohorts reported by several institutions and the NSC cohort created by the above method. For selective four-year institutions the NSC method identified some 94% of the institutions' reported GRS cohort, excluding 6% of the reported GRS cohort and including 5% additional students. For less selective four-year institutions, a 75% match rate was achieved, with 6% of the reported GRS cohort excluded and 25% additional students included. For the single two-year institution investigated, a match rate of 83% was achieved, with 17% of the reported GRS cohort excluded and almost 100% more students included. Exclusions were most likely a result of the restricted age-range used by the NSC method. Additional inclusions in the NSC cohorts were probably a result of the large number of non-degree students present at less selective institutions, who were probably excluded from the reported GRS cohorts when the institutions created them.

Results. The sections that follow report results of the analysis. The first section treats graduation rates, the second examines persistence and transfer rates, and the third provides some external validity checks on these estimates using sources like the IPEDS GRS.

Graduation Rates. The tables below report completion rates for two-year and four-year institutions by cohort within the same institution, within any institution in the state, and within any institution in the nation.

Graduation Rates 2 Year 1998 (9 years later)

	KY	MN	NV	NY	WA	Total
Local	20.3%	25.4%	19.0%	26.7%	25.5%	25.5%
All Institutions in the State	22.1%	28.9%	23.5%	29.1%	28.6%	28.2%
National	36.0%	44.7%	34.2%	40.4%	42.4%	41.3%

Graduation Rates 2 Year 1999 (8 years later)

	KY	MN	NV	NY	WA	Total
Local	22.8%	32.7%	14.2%	27.4%	24.7%	26.6%
All Institutions in the State	24.8%	36.2%	17.8%	29.6%	28.0%	29.4%
National	38.2%	49.6%	27.2%	41.2%	41.6%	42.0%

Graduation Rates 4 Year 1998 (9 years later)

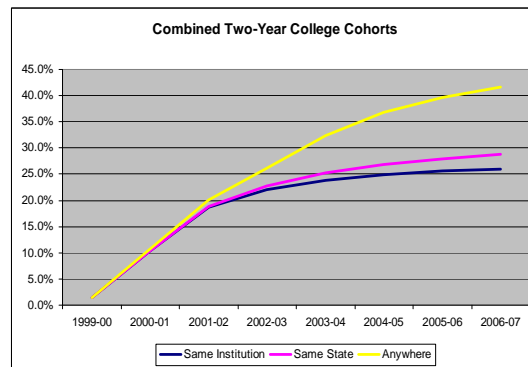
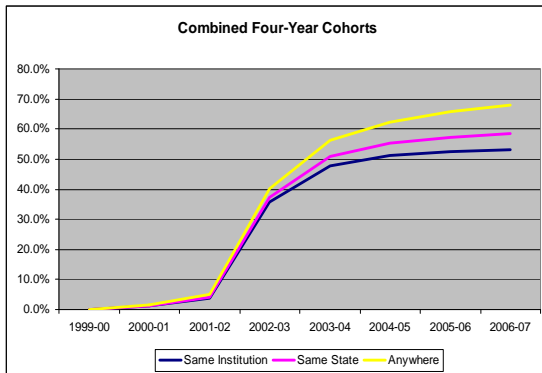
	KY	MN	NV	NY	WA	Total
Local	43.2%	59.7%	54.1%	53.2%	61.4%	53.9%
All Institutions in the State	48.0%	65.8%	61.7%	57.8%	66.9%	59.4%
National	55.6%	76.0%	67.4%	67.1%	78.1%	69.5%

Graduation Rates 4 Year 1999 (8 years later)

	KY	MN	NV	NY	WA	Total
Local	44.3%	50.6%	57.3%	54.9%	59.8%	52.9%
All Institutions in the State	48.3%	57.9%	65.3%	59.5%	67.0%	58.4%
National	56.3%	69.3%	70.4%	69.0%	76.6%	67.9%

As is apparent, graduation rates are boosted about four to six percentage points if all institutions in a state are included, and from ten to twelve additional percentage points if all states are included. These patterns vary a bit by state. For example, Kentucky posts a total of only about twelve additional percentage points if students are tracked nationally, while Minnesota posts a gain of almost twenty percentage points.

Looking at cumulative graduation rates over time also reveals an interesting phenomenon, in that graduation rates taper off quickly for both within-institution and within-state calculations, while they continue to grow in later years when students are tracked nationally. The charts below illustrate this phenomenon for combined four-year and two-year cohorts. This is particularly the case for two-year starters.



Persistence and Inter-institutional Transfer. Tracking over time also reveals significant volatility with respect to changing institutions after the first year of enrollment. The tables below examine these persistence patterns. The cumulative proportion of the cohort that has graduated and the proportion not persisting and not graduating are shown at the bottom of each table.

Persistence Rates for Combined Four-Year Cohorts

	Year1	Year2	Year3	Year4	Year5	Year6	Year7	Year8
<u>At the Same Inst.</u>	100.0%	80.2%	67.8%	26.2%	11.5%	4.7%	2.5%	1.6%
<u>4 Year Inst. Same State</u>	0.0%	4.2%	6.8%	6.6%	5.4%	4.1%	3.1%	2.4%
<u>4 Year Inst. Any State</u>	0.0%	2.7%	4.4%	4.2%	3.2%	2.6%	2.1%	1.8%
<u>2 Year Inst. Same State</u>	0.0%	3.7%	4.2%	3.4%	2.6%	2.0%	1.6%	1.2%
<u>2 Year Inst. Any State</u>	0.0%	0.9%	1.1%	1.0%	0.9%	0.8%	0.7%	0.6%
<u>Graduated</u>	0.0%	1.5%	5.0%	18.6%	56.2%	62.4%	65.6%	67.9%
<u>Not Persisting</u>	0.0%	6.8%	10.7%	13.6%	20.1%	23.5%	24.4%	24.5%

Persistence Rates for Combined Two-Year Cohorts

	Year1	Year2	Year3	Year4	Year5	Year6	Year7	Year8
<u>At the Same Inst.</u>	100.0%	53.2%	25.3%	13.2%	8.1%	5.5%	4.1%	3.2%
<u>4 Year Inst. Same State</u>	0.0%	4.6%	9.8%	10.9%	7.9%	5.1%	3.7%	2.7%
<u>4 Year Inst. Any State</u>	0.0%	1.4%	2.4%	2.6%	2.3%	1.9%	1.7%	1.5%
<u>2 Year Inst. Same State</u>	0.0%	4.3%	4.9%	4.1%	3.2%	2.6%	2.2%	1.8%
<u>2 Year Inst. Any State</u>	0.0%	0.9%	1.2%	1.2%	1.2%	1.1%	1.0%	0.9%
<u>Graduated</u>	0.0%	1.5%	10.7%	20.1%	26.2%	32.4%	36.8%	41.6%
<u>Not Persisting</u>	0.0%	34.1%	45.6%	48.0%	51.2%	51.4%	50.5%	48.3%

While the bulk of students remain enrolled at the institution at which they started in the first four years, some ten percent of both two-year and four-year starters had enrolled at another institution by the end of the tracking period's second year. Interestingly, a fair proportion of those who began at four-year institutions re-enrolled at two year institutions. In the more conventional pattern, over ten percent of two-year college starters had enrolled at a four-year institution in state, but more than five percent transferred to another community college. Over all, tracking on a national basis boosted first-year persistence rates by a bit over four percentage points for four-year college starters and a bit over five percentage points for two-year college starters. As the

following tables suggest, these patterns show relatively little variation across states for four-year starters.

Persistence Rates for KY Four-Year--1998 Cohort

	Year1	Year2	Year3	Year4	Year5	Year6	Year7	Year8
<u>At the Same Inst.</u>	100.0%	75.4%	61.6%	26.6%	16.2%	10.2%	6.2%	4.2%
<u>4 Year Inst. Same State</u>	0.0%	4.1%	6.1%	6.1%	5.1%	3.7%	3.0%	2.2%
<u>4 Year Inst. Any State</u>	0.0%	2.4%	4.0%	4.0%	3.6%	3.1%	2.6%	2.3%
<u>2 Year Inst. Same State</u>	0.0%	4.7%	5.9%	5.1%	3.9%	3.0%	2.3%	1.9%
<u>2 Year Inst. Any State</u>	0.0%	1.2%	1.4%	1.3%	1.3%	1.1%	1.0%	1.0%
<u>Graduated</u>	0.0%	1.5%	4.0%	21.5%	38.8%	47.9%	52.5%	55.6%
<u>Not Persisting</u>	0.0%	10.8%	16.9%	20.4%	26.1%	31.0%	32.3%	32.8%

Persistence Rates for KY Four Year--1999 Cohort

	Year1	Year2	Year3	Year4	Year5	Year6	Year7	Year8
<u>At the Same Inst.</u>	100.0%	77.2%	64.5%	25.7%	13.6%	9.2%	5.3%	3.6%
<u>4 Year Inst. Same State</u>	0.0%	4.2%	6.3%	6.5%	5.2%	4.2%	3.5%	2.7%
<u>4 Year Inst. Any State</u>	0.0%	2.2%	3.4%	3.6%	2.9%	2.4%	2.4%	1.9%
<u>2 Year Inst. Same State</u>	0.0%	4.4%	5.6%	4.8%	4.0%	3.0%	2.1%	2.0%
<u>2 Year Inst. Any State</u>	0.0%	1.0%	1.3%	1.3%	1.0%	0.9%	0.9%	0.8%
<u>Graduated</u>	0.0%	0.6%	2.9%	22.2%	41.2%	49.3%	53.5%	56.3%
<u>Not Persisting</u>	0.0%	10.5%	15.9%	20.8%	27.1%	31.0%	32.3%	32.6%

Persistence Rates for MN Four-Year--1998 Cohort

	Year1	Year2	Year3	Year4	Year5	Year6	Year7	Year8
<u>At the Same Inst.</u>	100.0%	79.1%	65.0%	26.6%	9.6%	3.2%	1.6%	0.9%
<u>4 Year Inst. Same State</u>	0.0%	4.0%	6.1%	5.7%	3.6%	2.3%	1.6%	1.4%
<u>4 Year Inst. Any State</u>	0.0%	3.5%	5.3%	5.0%	3.3%	2.4%	1.7%	1.3%
<u>2 Year Inst. Same State</u>	0.0%	3.5%	3.9%	2.9%	2.0%	1.5%	1.4%	1.1%
<u>2 Year Inst. Any State</u>	0.0%	0.9%	1.1%	0.9%	1.0%	0.7%	0.7%	0.6%
<u>Graduated</u>	0.0%	2.1%	7.1%	45.2%	64.0%	71.0%	74.2%	76.0%
<u>Not Persisting</u>	0.0%	7.0%	11.5%	13.7%	16.4%	18.8%	18.7%	18.7%

Persistence Rates for MN Four Year--1999 Cohort

	Year1	Year2	Year3	Year4	Year5	Year6	Year7	Year8
<u>At the Same Inst.</u>	100.0%	79.8%	67.6%	27.5%	9.8%	3.4%	1.7%	1.0%
<u>4 Year Inst. Same State</u>	0.0%	4.4%	6.7%	6.5%	5.1%	3.8%	3.0%	2.3%
<u>4 Year Inst. Any State</u>	0.0%	3.7%	5.8%	5.6%	4.1%	3.3%	2.4%	2.1%
<u>2 Year Inst. Same State</u>	0.0%	3.1%	3.7%	2.9%	2.2%	1.7%	1.4%	1.1%
<u>2 Year Inst. Any State</u>	0.0%	1.0%	1.1%	1.0%	1.0%	0.9%	0.7%	0.6%
<u>Graduated</u>	0.0%	1.2%	4.2%	35.7%	55.3%	62.9%	66.6%	69.3%
<u>Not Persisting</u>	0.0%	6.8%	10.9%	15.7%	22.4%	24.1%	24.2%	23.5%

Persistence Rates for NV Four-Year--1998 Cohort

	Year1	Year2	Year3	Year4	Year5	Year6	Year7	Year8
<u>At the Same Inst.</u>	100.0%	78.4%	66.0%	34.9%	22.1%	10.9%	6.7%	3.5%
<u>4 Year Inst. Same State</u>	0.0%	0.0%	2.7%	2.9%	2.3%	1.6%	1.2%	0.8%
<u>4 Year Inst. Any State</u>	0.0%	3.1%	5.3%	6.4%	4.4%	3.7%	2.9%	1.6%
<u>2 Year Inst. Same State</u>	0.0%	6.3%	7.4%	5.9%	4.4%	3.4%	3.4%	3.0%
<u>2 Year Inst. Any State</u>	0.0%	1.8%	2.2%	2.3%	2.2%	1.9%	1.6%	1.3%
<u>Graduated</u>	0.0%	1.0%	4.0%	19.0%	48.1%	59.5%	63.6%	67.4%
<u>Not Persisting</u>	0.0%	9.4%	12.5%	13.6%	16.5%	18.9%	20.7%	22.4%

Persistence Rates for NV Four Year--1999 Cohort

	Year1	Year2	Year3	Year4	Year5	Year6	Year7	Year8
<u>At the Same Inst.</u>	100.0%	81.8%	71.3%	36.8%	19.2%	11.0%	6.6%	3.9%
<u>4 Year Inst. Same State</u>	0.0%	1.3%	2.2%	2.0%	1.8%	1.2%	0.9%	0.9%
<u>4 Year Inst. Any State</u>	0.0%	2.8%	5.4%	5.8%	4.3%	3.1%	2.2%	1.8%
<u>2 Year Inst. Same State</u>	0.0%	5.2%	6.0%	5.3%	3.7%	3.9%	3.5%	2.4%
<u>2 Year Inst. Any State</u>	0.0%	1.6%	2.0%	1.8%	1.8%	1.6%	1.0%	0.8%
<u>Graduated</u>	0.0%	0.7%	3.5%	21.1%	49.6%	60.9%	67.1%	70.3%
<u>Not Persisting</u>	0.0%	6.7%	9.6%	12.1%	14.7%	18.2%	18.7%	19.9%

Persistence Rates for NY Four-Year--1998 Cohort

	Year1	Year2	Year3	Year4	Year5	Year6	Year7	Year8
<u>At the Same Inst.</u>	100.0%	81.6%	69.4%	28.8%	10.3%	4.2%	2.1%	1.2%
<u>4 Year Inst. Same State</u>	0.0%	4.7%	7.5%	7.4%	6.6%	5.1%	3.9%	2.9%
<u>4 Year Inst. Any State</u>	0.0%	2.3%	3.8%	3.5%	2.9%	2.3%	2.0%	1.8%
<u>2 Year Inst. Same State</u>	0.0%	3.3%	3.5%	2.8%	2.2%	1.7%	1.3%	1.0%
<u>2 Year Inst. Any State</u>	0.0%	0.7%	0.8%	0.8%	0.7%	0.6%	0.5%	0.5%
<u>Graduated</u>	0.0%	1.5%	5.0%	40.2%	56.2%	62.4%	65.6%	67.9%
<u>Not Persisting</u>	0.0%	6.0%	10.0%	16.7%	21.2%	23.7%	24.4%	24.7%

Persistence Rates for NY Four Year--1999 Cohort

	Year1	Year2	Year3	Year4	Year5	Year6	Year7	Year8
<u>At the Same Inst.</u>	100.0%	81.3%	69.0%	26.0%	8.4%	3.0%	1.5%	1.0%
<u>4 Year Inst. Same State</u>	0.0%	4.7%	7.6%	7.1%	6.2%	4.8%	3.6%	2.7%
<u>4 Year Inst. Any State</u>	0.0%	2.5%	4.1%	3.7%	2.9%	2.3%	1.9%	1.5%
<u>2 Year Inst. Same State</u>	0.0%	3.4%	3.9%	3.0%	2.3%	1.7%	1.4%	1.1%
<u>2 Year Inst. Any State</u>	0.0%	0.9%	1.0%	0.9%	0.9%	0.7%	0.7%	0.6%
<u>Graduated</u>	0.0%	1.2%	4.7%	47.0%	59.6%	64.2%	67.0%	69.0%
<u>Not Persisting</u>	0.0%	6.0%	9.7%	12.3%	19.8%	23.3%	24.0%	24.2%

Persistence Rates for WA Four-Year--1998 Cohort

	Year1	Year2	Year3	Year4	Year5	Year6	Year7	Year8
<u>At the Same Inst.</u>	100.0%	81.4%	70.0%	27.7%	11.8%	4.0%	1.9%	1.1%
<u>4 Year Inst. Same State</u>	0.0%	1.9%	4.9%	5.2%	2.9%	1.8%	1.5%	1.1%
<u>4 Year Inst. Any State</u>	0.0%	2.3%	4.2%	4.8%	3.4%	2.8%	2.3%	1.9%
<u>2 Year Inst. Same State</u>	0.0%	5.9%	5.6%	4.2%	3.1%	2.6%	1.7%	1.5%
<u>2 Year Inst. Any State</u>	0.0%	0.9%	1.3%	1.1%	0.9%	0.7%	0.7%	0.6%
<u>Graduated</u>	0.0%	1.1%	4.6%	36.8%	64.4%	72.6%	76.1%	78.1%
<u>Not Persisting</u>	0.0%	6.5%	9.3%	10.2%	13.5%	15.5%	15.9%	15.8%

Persistence Rates for WA Four Year--1999 Cohort

	Year1	Year2	Year3	Year4	Year5	Year6	Year7	Year8
<u>At the Same Inst.</u>	100.0%	82.7%	71.3%	25.6%	12.4%	4.4%	2.1%	1.3%
<u>4 Year Inst. Same State</u>	0.0%	2.3%	4.1%	4.4%	2.4%	1.6%	1.1%	1.0%
<u>4 Year Inst. Any State</u>	0.0%	3.3%	5.9%	6.0%	4.3%	3.4%	2.5%	2.3%
<u>2 Year Inst. Same State</u>	0.0%	4.0%	4.5%	3.5%	2.9%	1.8%	1.5%	1.3%
<u>2 Year Inst. Any State</u>	0.0%	1.3%	2.0%	1.7%	1.2%	1.1%	1.0%	0.8%
<u>Graduated</u>	0.0%	0.8%	4.1%	39.2%	63.5%	71.6%	74.9%	76.6%
<u>Not Persisting</u>	0.0%	5.7%	8.1%	9.6%	13.2%	16.2%	17.0%	16.8%

For two-year starters, the patterns are for the most part consistent across states, but it is clear that there are some differences in transfer behavior that may be due to state policy. Kentucky, a state with a well developed community college system and transfer policy, shows a peak transfer enrollment at in-state four-year institutions between 12% and 15% in years three and four, while most other states experience only about 8-9%. Washington has similar policies, but does not show strong four-year transfer behavior. New York also has a high in-state transfer rate to four-year institutions of around 12%. Finally, it is interesting to note that some ten percent of starting two-year students remained actively enrolled somewhere, without having earned a bachelors degree, eight years or more after beginning their studies.

Persistence Rates for KY Two-Year--1998 Cohort

	Year1	Year2	Year3	Year4	Year5	Year6	Year7	Year8
<u>At the Same Inst.</u>	100.0%	53.4%	25.3%	15.8%	11.4%	8.2%	6.1%	5.4%
<u>4 Year Inst. Same State</u>	0.0%	8.6%	15.5%	14.2%	10.0%	6.0%	4.4%	2.9%
<u>4 Year Inst. Any State</u>	0.0%	0.9%	1.8%	2.1%	2.2%	1.8%	1.9%	1.5%
<u>2 Year Inst. Same State</u>	0.0%	2.2%	4.8%	4.3%	3.0%	2.5%	2.2%	1.4%
<u>2 Year Inst. Any State</u>	0.0%	0.6%	1.1%	1.1%	0.9%	1.0%	1.1%	1.0%
<u>Graduated</u>	0.0%	3.5%	11.8%	18.4%	25.2%	30.5%	33.5%	36.0%
<u>Not Persisting</u>	0.0%	30.6%	39.8%	44.1%	47.3%	49.9%	50.9%	51.9%

Persistence Rates for KY Two Year--1999 Cohort

	Year1	Year2	Year3	Year4	Year5	Year6	Year7	Year8
<u>At the Same Inst.</u>	100.0%	54.3%	28.1%	15.6%	11.1%	7.1%	5.2%	5.2%
<u>4 Year Inst. Same State</u>	0.0%	7.7%	12.0%	12.8%	9.1%	6.3%	4.4%	3.2%
<u>4 Year Inst. Any State</u>	0.0%	1.3%	1.8%	2.2%	2.1%	1.9%	1.8%	1.5%
<u>2 Year Inst. Same State</u>	0.0%	4.5%	4.9%	3.7%	2.8%	2.0%	1.5%	1.3%
<u>2 Year Inst. Any State</u>	0.0%	0.7%	1.1%	0.9%	0.9%	0.9%	1.0%	1.0%
<u>Graduated</u>	0.0%	5.0%	14.5%	21.3%	27.5%	32.8%	36.2%	38.2%
<u>Not Persisting</u>	0.0%	26.5%	37.6%	43.5%	46.5%	48.9%	49.9%	49.6%

Persistence Rates for MN Two-Year--1998 Cohort

	Year1	Year2	Year3	Year4	Year5	Year6	Year7	Year8
<u>At the Same Inst.</u>	100.0%	46.3%	17.4%	8.6%	4.8%	3.3%	2.4%	1.9%
<u>4 Year Inst. Same State</u>	0.0%	5.8%	11.3%	11.3%	8.2%	5.0%	3.1%	2.2%
<u>4 Year Inst. Any State</u>	0.0%	2.2%	3.6%	3.4%	2.3%	1.8%	1.4%	1.2%
<u>2 Year Inst. Same State</u>	0.0%	5.5%	6.2%	4.9%	3.7%	3.0%	2.5%	2.3%
<u>2 Year Inst. Any State</u>	0.0%	0.9%	1.1%	1.1%	1.0%	0.7%	0.9%	0.7%
<u>Graduated</u>	0.0%	13.2%	21.3%	27.1%	33.8%	39.1%	42.4%	44.7%
<u>Not Persisting</u>	0.0%	26.1%	39.2%	43.7%	46.2%	47.1%	47.3%	47.0%

Persistence Rates for MN Two Year--1999 Cohort

	Year1	Year2	Year3	Year4	Year5	Year6	Year7	Year8
<u>At the Same Inst.</u>	100.0%	43.3%	16.0%	8.0%	4.4%	3.1%	2.3%	1.9%
<u>4 Year Inst. Same State</u>	0.0%	5.2%	9.9%	9.4%	6.4%	4.0%	2.8%	1.9%
<u>4 Year Inst. Any State</u>	0.0%	2.1%	3.5%	3.4%	2.3%	1.6%	1.4%	1.1%
<u>2 Year Inst. Same State</u>	0.0%	5.4%	5.6%	4.6%	3.3%	2.7%	2.3%	2.1%
<u>2 Year Inst. Any State</u>	0.0%	0.9%	1.1%	1.0%	0.9%	0.8%	0.7%	0.7%
<u>Graduated</u>	0.0%	19.9%	28.6%	34.2%	40.6%	44.9%	47.7%	49.6%
<u>Not Persisting</u>	0.0%	23.2%	35.2%	39.4%	42.1%	42.9%	42.8%	42.7%

Persistence Rates for NV Two-Year--1998 Cohort

	Year1	Year2	Year3	Year4	Year5	Year6	Year7	Year8
<u>At the Same Inst.</u>	100.0%	59.6%	36.1%	24.0%	14.9%	11.1%	10.0%	6.5%
<u>4 Year Inst. Same State</u>	0.0%	2.8%	7.4%	9.8%	9.5%	6.5%	4.9%	4.1%
<u>4 Year Inst. Any State</u>	0.0%	1.8%	2.3%	3.9%	3.8%	3.3%	2.8%	2.8%
<u>2 Year Inst. Same State</u>	0.0%	1.1%	1.0%	1.0%	1.8%	2.0%	1.1%	1.0%
<u>2 Year Inst. Any State</u>	0.0%	3.8%	4.7%	2.9%	3.1%	2.8%	2.0%	2.0%
<u>Graduated</u>	0.0%	7.2%	11.3%	15.5%	21.1%	26.5%	30.7%	34.2%
<u>Not Persisting</u>	0.0%	23.7%	37.2%	42.8%	45.9%	47.8%	48.5%	49.5%

Persistence Rates for NV Two Year--1999 Cohort

	Year1	Year2	Year3	Year4	Year5	Year6	Year7	Year8
<u>At the Same Inst.</u>	100.0%	59.3%	40.7%	26.8%	19.9%	15.6%	11.1%	9.1%
<u>4 Year Inst. Same State</u>	0.0%	3.7%	8.2%	10.1%	7.3%	5.5%	4.1%	3.1%
<u>4 Year Inst. Any State</u>	0.0%	1.6%	2.7%	2.7%	3.3%	3.5%	3.1%	3.0%
<u>2 Year Inst. Same State</u>	0.0%	0.4%	0.5%	0.5%	0.5%	0.7%	0.4%	0.4%
<u>2 Year Inst. Any State</u>	0.0%	2.4%	3.1%	3.0%	2.9%	2.1%	2.3%	2.0%
<u>Graduated</u>	0.0%	2.7%	7.3%	11.1%	17.2%	21.8%	25.2%	27.2%
<u>Not Persisting</u>	0.0%	30.0%	37.5%	45.8%	49.0%	50.7%	53.5%	55.2%

Persistence Rates for NY Two-Year--1998 Cohort

	Year1	Year2	Year3	Year4	Year5	Year6	Year7	Year8
<u>At the Same Inst.</u>	100.0%	60.1%	28.5%	14.4%	8.5%	5.6%	4.1%	3.0%
<u>4 Year Inst. Same State</u>	0.0%	4.3%	10.3%	12.0%	9.2%	6.3%	4.9%	3.6%
<u>4 Year Inst. Any State</u>	0.0%	0.9%	1.9%	2.0%	1.7%	1.6%	1.2%	1.1%
<u>2 Year Inst. Same State</u>	0.0%	3.0%	3.9%	3.1%	2.6%	2.1%	1.7%	1.4%
<u>2 Year Inst. Any State</u>	0.0%	0.7%	0.9%	1.0%	0.9%	0.9%	0.9%	0.9%
<u>Graduated</u>	0.0%	9.7%	19.4%	26.0%	31.9%	35.8%	38.4%	40.4%
<u>Not Persisting</u>	0.0%	21.3%	35.1%	41.4%	45.1%	47.8%	48.8%	49.6%

Persistence Rates for NY Two Year--1999 Cohort

	Year1	Year2	Year3	Year4	Year5	Year6	Year7	Year8
<u>At the Same Inst.</u>	100.0%	57.6%	28.9%	14.9%	8.6%	5.6%	4.3%	3.1%
<u>4 Year Inst. Same State</u>	0.0%	4.6%	10.4%	12.0%	9.0%	5.8%	4.2%	3.1%
<u>4 Year Inst. Any State</u>	0.0%	1.1%	2.0%	2.0%	1.8%	1.3%	1.3%	1.3%
<u>2 Year Inst. Same State</u>	0.0%	2.8%	3.3%	2.7%	2.1%	1.8%	1.5%	1.1%
<u>2 Year Inst. Any State</u>	0.0%	0.6%	0.9%	0.9%	0.9%	0.9%	0.9%	0.8%
<u>Graduated</u>	0.0%	11.2%	21.4%	27.6%	33.2%	37.0%	39.4%	41.2%
<u>Not Persisting</u>	0.0%	22.2%	33.2%	40.0%	44.4%	47.6%	48.4%	49.4%

Persistence Rates for WA Two-Year--1998 Cohort

	Year1	Year2	Year3	Year4	Year5	Year6	Year7	Year8
<u>At the Same Inst.</u>	100.0%	49.3%	22.8%	11.9%	7.4%	5.2%	3.8%	3.0%
<u>4 Year Inst. Same State</u>	0.0%	2.8%	7.7%	8.9%	5.9%	3.5%	2.6%	1.9%
<u>4 Year Inst. Any State</u>	0.0%	1.4%	2.4%	2.8%	2.7%	2.5%	2.2%	2.0%
<u>2 Year Inst. Same State</u>	0.0%	6.2%	6.0%	5.3%	4.3%	3.6%	3.2%	2.7%
<u>2 Year Inst. Any State</u>	0.0%	1.1%	1.5%	1.7%	1.6%	1.4%	1.3%	1.2%
<u>Graduated</u>	0.0%	11.2%	20.5%	26.4%	32.8%	37.4%	40.3%	42.3%
<u>Not Persisting</u>	0.0%	28.0%	39.1%	43.0%	45.3%	46.5%	46.6%	46.9%

Persistence Rates for WA Two Year--1999 Cohort

	Year1	Year2	Year3	Year4	Year5	Year6	Year7	Year8
<u>At the Same Inst.</u>	100.0%	49.2%	24.6%	12.2%	7.6%	5.4%	3.9%	3.0%
<u>4 Year Inst. Same State</u>	0.0%	3.7%	7.3%	8.7%	6.1%	4.0%	2.6%	2.1%
<u>4 Year Inst. Any State</u>	0.0%	1.5%	2.7%	3.1%	3.0%	2.5%	2.3%	1.9%
<u>2 Year Inst. Same State</u>	0.0%	6.5%	7.6%	6.2%	4.9%	3.9%	3.4%	2.8%
<u>2 Year Inst. Any State</u>	0.0%	1.2%	1.8%	1.7%	1.5%	1.4%	1.2%	1.0%
<u>Graduated</u>	0.0%	9.9%	18.9%	25.1%	31.5%	36.2%	39.4%	41.6%
<u>Not Persisting</u>	0.0%	27.9%	37.2%	43.0%	45.2%	46.6%	47.1%	47.5%

Some External Checks on NSC Results. Given the many challenges posed by the NSC data, it is useful to try to externally benchmark these results. This can be partially accomplished through three sources. First, several national longitudinal studies have been conducted on beginning postsecondary students or exiting high school students in the past few decades. These studies all yield eventual baccalaureate completion rates in the neighborhood of 65-70%, quite close to the eventual graduation figures based on the NSC data for all states except Kentucky (Adelman 2006). Furthermore, a geographic breakdown of degree awards in the national longitudinal studies revealed significant movement nationwide, just as the NSC data do (Adelman 2007).

Second, at the same time the NSC study was undertaken, NCHEMS conducted a data-exchange partnership project with four states—Kentucky, Ohio, Tennessee, and West Virginia. This effort involved conventional cohort tracking using positively-identified first-time full-time students at institutions in the participating states as reported on the GRS. This meant that it was possible to obtain same-institution and same-state baccalaureate degree completion rates for four-year institutions in Kentucky to compare with NSC rates. Results are provided in the table below:

Multi-State Longitudinal Graduation Rates for Kentucky

	4-Year Starters Six Years Later			
	1998 Cohort		1999 Cohort	
	State Sharing	NSC	State Sharing	NSC
Number of Students	13784	12563	13788	10180
Graduated Same Institution	42.6%	39.2%	41.3%	40.9%
Graduated In State	46.9%	42.5%	44.9%	43.7%
Graduated Anywhere Tracked	48.1%	47.9%	45.7%	49.3%

	4-Year Starters Six Years Later			
	1998 Cohort		1999 Cohort	
	State Sharing	NSC	State Sharing	NSC
Number of Students	13784	12563	13788	10180
Graduated Same Institution	42.6%	43.2%	41.3%	44.3%
Graduated In State Gain	4.3%	3.3%	3.6%	2.8%
Graduated Anywhere Gain	1.2%	5.4%	0.8%	5.6%

As is apparent, the six-year completion rates for four-year institutions in Kentucky within the same institution and same state are within about three percentage points using the two methodologies. Considering the substantial limitations of the NSC data and the cohort selection methodologies that had to be employed, this is quite good.

Finally, data on same-institution six-year completion rates for four-year institutions and three-year completion rates for two-year institutions are publicly available based on the GRS.² These yield the following comparative benchmarks:

Comparison of Selected Same-Institution Graduation Rates

4-Year Starters Six Years Later

	1998 Cohort				
	KY	MN	NV	NY	WA
Reported Through GRS	38.3%	57.2%	35.9%	56.8%	62.7%
NSC	39.2%	57.9%	49.7%	51.8%	60.7%
	1999 Cohort				
	KY	MN	NV	NY	WA
Reported Through GRS	44.3%	58.1%	37.4%	57.1%	63.1%
Clearinghouse	40.9%	48.7%	51.6%	53.7%	57.7%

2-Year Starters Three Years Later

	1998 Cohort				
	KY	MN	NV	NY	WA
Reported Through GRS	27.9%	36.2%	32.0%	26.9%	30.3%
Clearinghouse	10.7%	19.2%	11.0%	18.6%	18.8%
	1999 Cohort				
	KY	MN	NV	NY	WA
Reported Through GRS	29.1%	31.6%	24.2%	27.2%	27.8%
Clearinghouse	12.9%	26.5%	6.3%	20.3%	17.3%

For four-year institutions, these results are again quite close, with the exception of Nevada. The Nevada deviation is probably attributable to the fact that the participation rates of that state in NSC were substantially below those of the other four states for these two cohorts. For two-year institutions, NSC results are substantially below officially reported GRS completion rates. This is almost certainly because many registrars considered by these institutions to be non-degree students were excluded from their official GRS cohorts. Contributing to the mismatch is the likelihood that many first-time

² These data were taken from www.higheredinfo.org.

students in the GRS cohort enrolled at two-year institutions fell outside the age restrictions that had to be used in the NSC methodology.

Conclusions. Results for five states suggest that it may be feasible to use NSC data to construct reasonable estimates of degree completion rates at the state level, and that these rates will be boosted between fifteen and eighteen percentage points over the same-institution rates reported through the GRS. Some of the most important problems of the NSC data have now been addressed: graduate students can now be positively identified, and a first-term of academic history enrollment flag is now present. And more and more institutions are providing data. These developments mean that the database will only get better.

Whatever its limitations, moreover, use of NSC data in the Completion category of *Measuring Up* would have several additional advantages over the GRS, which is currently used. First, only about 80% of institutions report on the GRS each year, a proportion that has been fairly steady. NSC coverage in some states may be more complete. Second, decisions about who to include in the GRS cohort are made independently by each registrar attempting to interpret the NCES definitions (and probably look as good as possible within the rules as well). Under the NSC procedure, all institutions are treated the same. Finally, because the ultimate objective is not to produce accurate rates *per se*, but to array states comparatively in terms of graduation rate performance, a consistent, though biased, estimated of the actual rate is acceptable. As a result, its use as a supplementary measure of collegiate completion to construct state-level indicators for publications such as *Measuring Up* should definitely be explored.

References

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Appendix A

Percent of Headcount Enrollment in NSC in 2005

State	Percent
AL	88.1%
AK	97.2%
AZ	66.5%
AR	89.1%
CA	95.0%
CO	87.7%
CT	88.9%
DE	69.6%
DC	94.6%
FL	84.8%
GA	87.9%
HI	86.7%
ID	98.1%
IL	96.3%
IN	82.4%
IA	87.6%
KS	88.0%
KY	93.8%
LA	84.3%
ME	95.6%
MD	94.2%
MA	89.4%
MI	86.9%
MN	97.0%
MS	95.0%
MO	92.9%
MT	93.0%
NE	98.6%
NV	97.9%
NH	95.2%
NJ	91.1%
NM	84.8%
NY	94.5%
NC	97.4%
ND	93.7%
OH	94.5%
OK	71.8%
OR	93.4%
PA	93.7%
RI	99.1%
SC	96.9%
SD	81.5%
TN	91.8%

TX	85.1%
UT	94.5%
VT	97.6%
VA	97.2%
WA	97.9%
WV	78.3%
WI	98.0%
WY	87.7%