

## Appendix A

### Persistence and Attainment Variables

The persistence and attainment variables used a variety of periods of analysis and each period of analysis utilized a different referent base (institution/degree attempted). Specifically, the following persistence and attainment variables were created:

- Overall persistence and attainment through the first degree (if any) or last enrollment (PERACUM)
- Persistence toward postsecondary awards (PERAAA, PERABA, PERACT)
- Persistence and attainment relative to the institution with the first, longest, and last continuous spell of enrollment (PERAFIRS, PERALONG, PERALAST)
- Persistence and attainment by academic year (PERA8990, PERA9091, PERA9192, PERA9293, PERA9394)

The variation in the referent institution or degree attempted which occurred among these methods is critical, because it resulted in different classification on the factors used to define persistence and attainment patterns. These factors included:

- present status—whether students had attained a degree or certificate, or if they did not attain a degree whether they are still working towards a degree;
- transfer—whether students had changed institutions permanently;
- continuity of enrollment—whether or not students had been continuously enrolled without a break of more than 4 months.

Attainment was given priority in the classification schemes. Students who expected to receive a degree by summer 1994 were classified as attainers if they were interviewed prior to having received a degree. Second follow-up interviews began in late March 1994.

Students were classified as transfers in these variables only if they transferred before receiving a degree during the particular period of analysis. Students who were enrolled in more than one institution, but did not permanently leave the referent institution, were not classified as transfers. Excluded from the definition of transfer were those students taking courses at two institutions simultaneously, attending summer school at a different institution, or attending a second institution temporarily and then returning to the referent institution.

The decision rules for creating the four major types of persistence and attainment variables used either in the essay or in the compendium tables of this report are described below.

I. Overall persistence and attainment through the first degree (if any) or last enrollment (PERACUM)

Overall persistence and attainment was examined for the entire sample by tracing students' persistence paths in the postsecondary education system from initial enrollment in the NPSAS institution until attainment of first degree (if any) or last enrollment as of spring 1994. For all students, status on three factors determined their persistence and attainment pattern. These were:

attainment/enrollment—attainment of first degree was given priority. If students had not attained a degree their enrollment status was examined. Students were defined as enrolled at the time of follow-up if they were still enrolled during the spring of 1994.

transfer—students were defined as having transferred if they left one postsecondary institution before attaining a degree and enrolled at a different postsecondary institution without returning to the first institution.

continuity of enrollment—students were considered continuously enrolled if they did not have any period of more than 4 months of nonenrollment at any postsecondary institution.

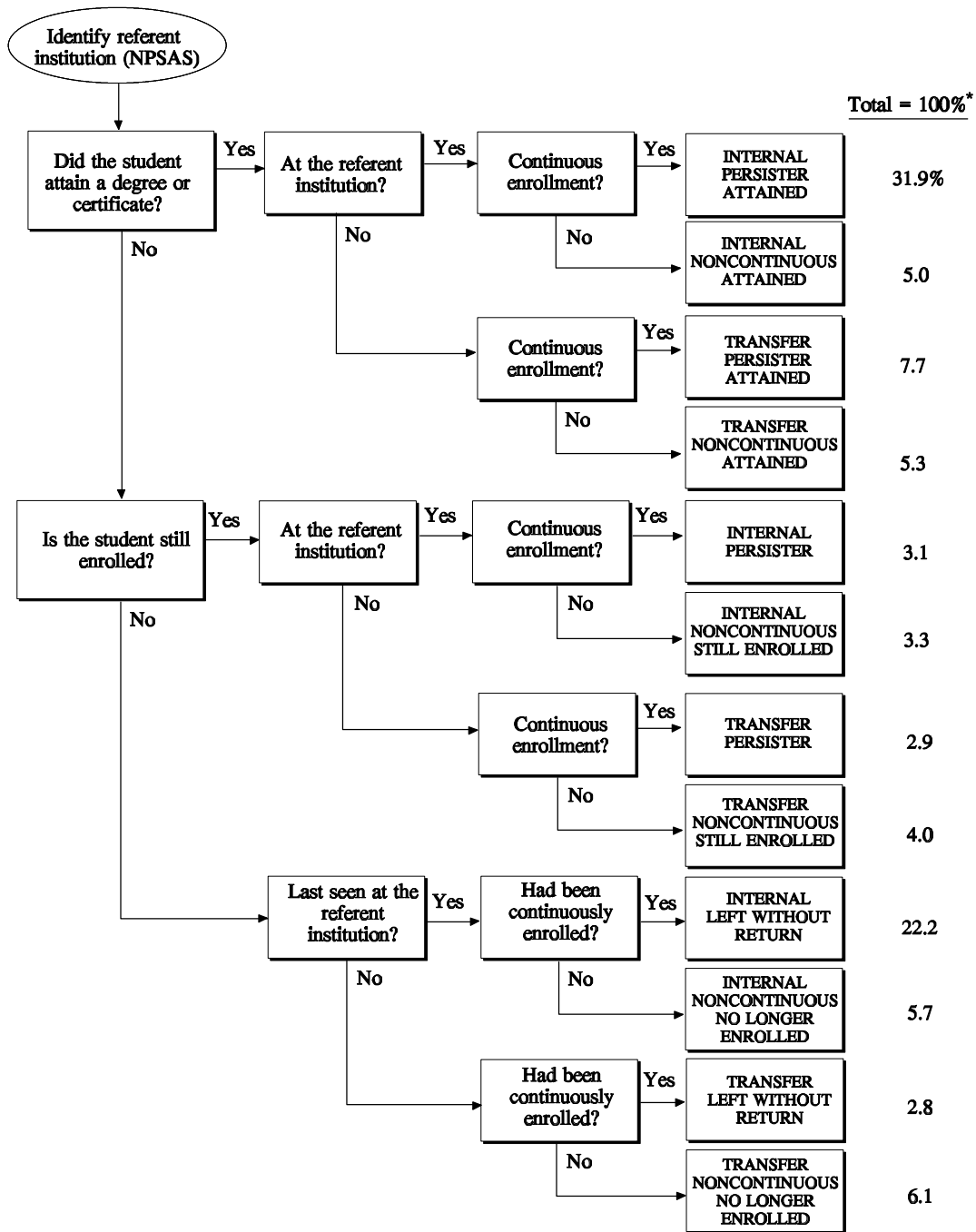
The 12 outcome categories of PERACUM were aggregated into a variety of combinations to create the categories discussed in the first part of the essay, including the following:

- Overall persistence and attainment (table 2);
- Attainment and retention at the first institution (table 3);
- Overall persistence and attainment including transfer status (table 4);
- Transfer status and enrollment continuity (tables 13 and 14).

The specific combination of categories used in each of these is described in the glossary, appendix B, in the section on Persistence and Attainment Patterns.

The flow chart on the following page illustrates the sequence of questions that determined a student's classification on the overall persistence and attainment through the first degree variable.

Figure A1—Overall persistence and attainment through the first degree



\*Percentage of 1989–90 beginning postsecondary students in each category as of spring 1994.

II. Persistence toward and attainment of postsecondary awards  
(PERAAA, PERABA, PERACT)

The persistence and attainment patterns of students seeking vocational certificates, associate's degrees, and bachelor's degrees were examined separately. Students were categorized on the specific degree variable if they reported ever working toward the degree, therefore some students were classified on more than one of these variables.

Persistence toward and attainment of each degree was examined by tracing students' persistence paths in the postsecondary education system from the institution where they began working toward the specific postsecondary award until follow-up in 1994. For all students, status on three factors determined their persistence and attainment pattern. These were:

attainment/enrollment—attainment of the degree was given first priority. If students had not attained a degree their enrollment status was examined. Students were defined as enrolled at the time of follow-up if they were still enrolled toward the same degree during the spring of 1994.

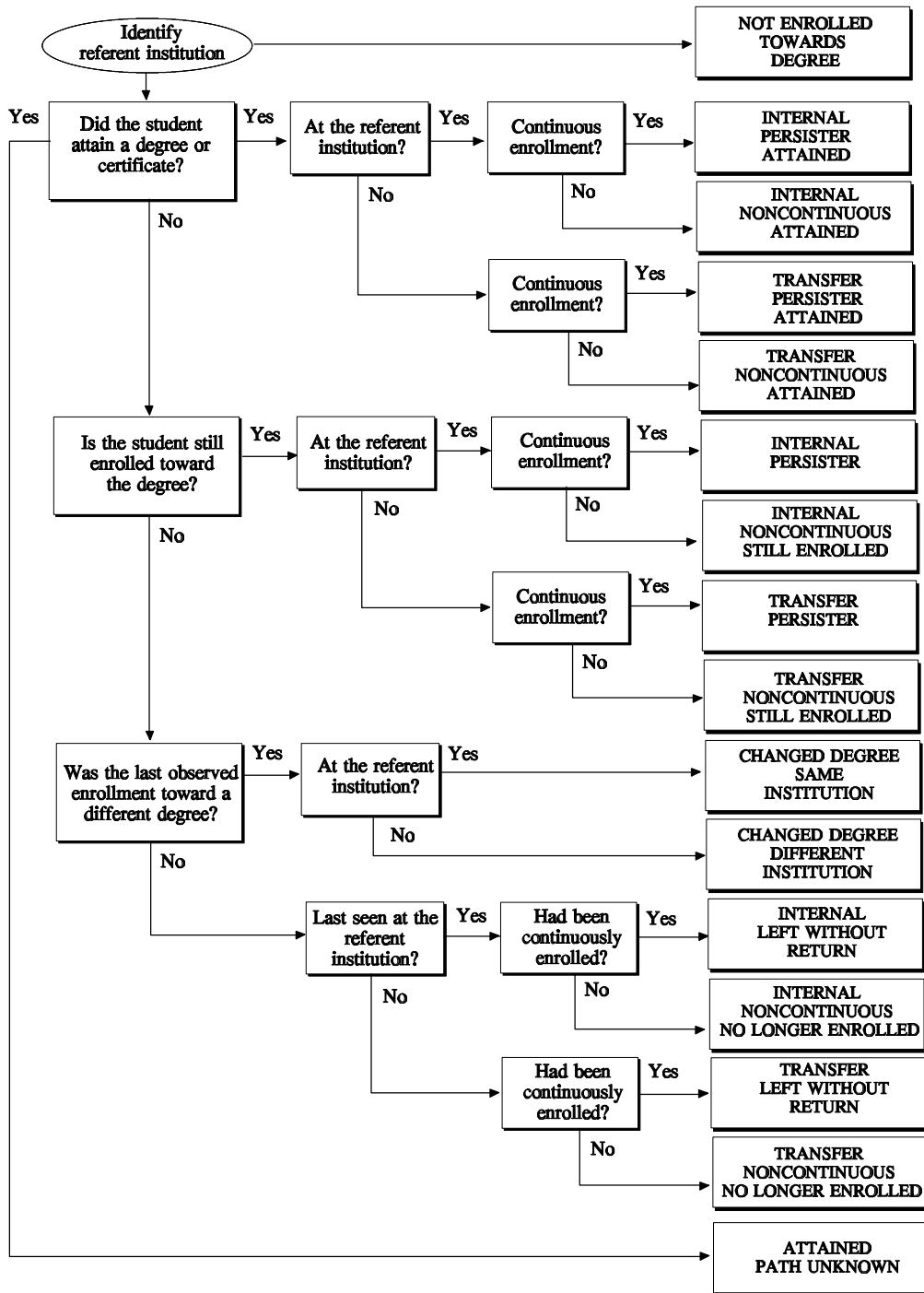
transfer—students were defined as having transferred if they left one postsecondary institution and enrolled at a different postsecondary institution without returning to that institution.

continuity of enrollment—students were considered continuously enrolled if they did not have any period of more than 4 months of nonenrollment towards the degree at any postsecondary institution.

If students changed the degree they reported working toward they were classified as having done so either at the same institution or a different institution. Students who changed their degree objective were then reclassified into PERAAA, PERABA, or PERACT according to the new objective. Finally, students who reported having attained the degree, but had no enrollment history toward the specific degree, were classified as attained path unknown.

The flow chart on the following page illustrates the sequence of questions that determined a student's classification on the three persistence patterns toward and attainment of postsecondary award variables (certificate, associate's, bachelor's).

Figure A2—Persistence toward and attainment of postsecondary awards



### III. Persistence and attainment in relation to spells of continuous enrollment (PERAFIRS, PERALONG, PERALAST)

The persistence and attainment patterns of the sample were examined in relation to the institution they attended first (always the NPSAS institution), longest, and last by examining spells of continuous enrollment at these institutions. Spells were defined by the first, longest, and last period of continuous enrollment. Continuous enrollment was defined as no period of nonenrollment of more than 4 months at the referent institution.

The enrollment spell outcomes identified students' status relative to the referent institution at the end of the spell, taking future activity into account. The central issue was to determine whether students left the referent institution, and if so, how. The specific spell outcomes appear below:

attained—attained degree or certificate at the referent institution.

still enrolled—continuously enrolled at referent institution and still enrolled at follow-up.

same-year transfer\*—left the referent institution and enrolled at a different institution during the same year.

subsequent transfer\*—enrolled throughout the year at the referent institution but enrolled at a different institution the following fall, or left referent institution during the year, and enrolled at a different institution after the following summer or fall.

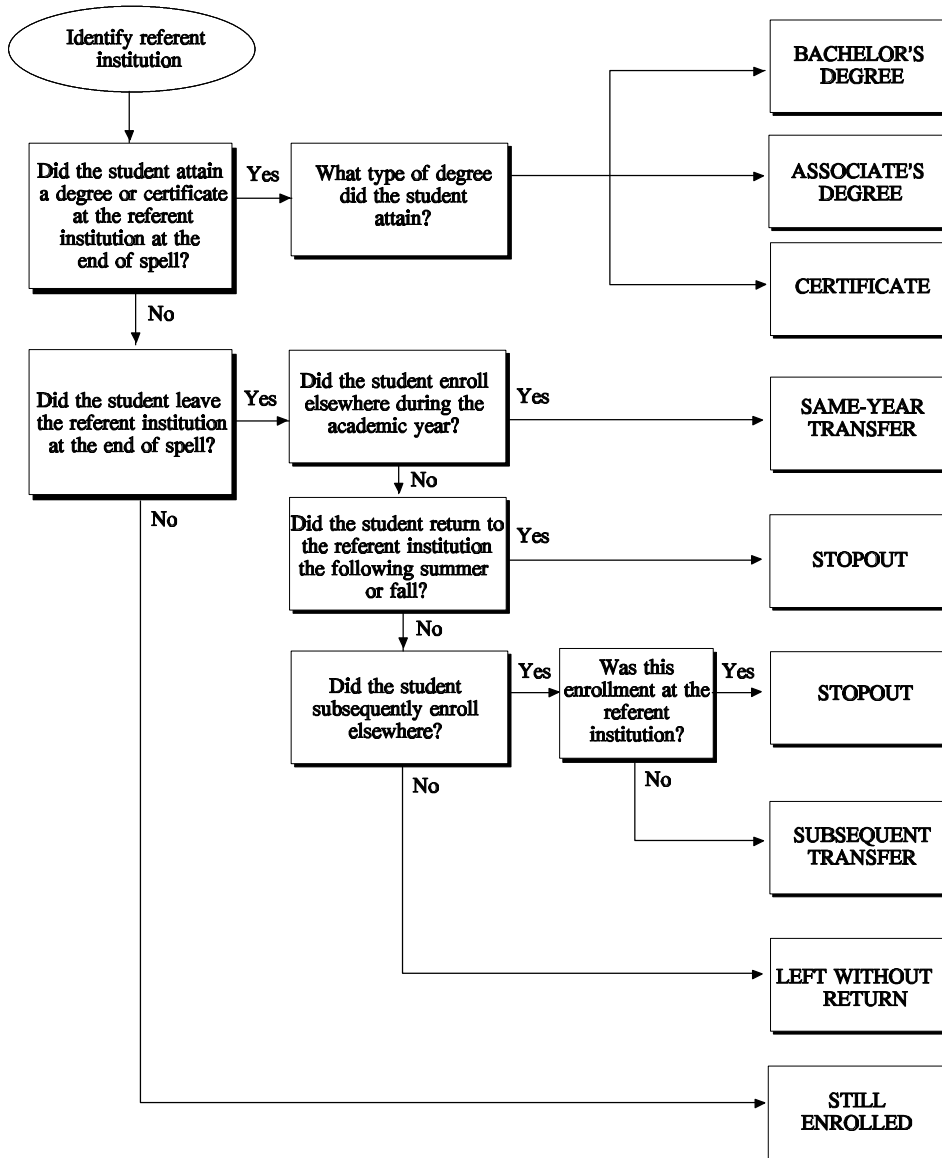
stopout\*—left the referent institution during an academic year or did not return following fall, t enroll at any other institution, and later returned to the referent institution.

left without return—enrolled continuously at referent institution, left the institution, did not attain, with no subsequent return or enrollment elsewhere.

\*Note that for the last institution attended, since subsequent enrollment was not observed, the possible outcomes were limited to: attained, still enrolled, and left without return.

The flow chart on the following page illustrates the sequence of questions that determined a student's classification on the three persistence and attainment patterns in relation to spells of continuous enrollment variables.

Figure A3—Persistence and attainment in relation to spells of continuous enrollment



For the first continuous spell of enrollment, the choice of the referent institution was predetermined to be the NPSAS institution. However, because many students attended more than one institution during postsecondary education, it was necessary to establish a set of decision rules for identifying the longest and last referent institutions. These referent institutions were identified as follows:

- a. Institution attended longest—where more than one institution was attended for the same length of time, the following hierarchical decision rules determined the referent institution:
  - 1) The institution where the student attained a credential;
  - 2) The institution with the greatest enrollment intensity, where: full time > half time > less than half time;
  - 3) The highest level institution, where: 4-year doctoral > 4-year non-doctoral > 2–3 year > less than 2-year.
  
- b. Institution attended last—where the student attended more than one institution during the last spell of continuous enrollment, the following hierarchical decision rules determined the referent institution:
  - 1) The institution where the student attained a credential;
  - 2) The institution with the greatest enrollment intensity, where: full time > half time > less than half time;
  - 3) The highest level institution, where: 4-year doctoral > 4-year non-doctoral > 2–3 year > less than 2-year.
  - 4) The institution entered last.



IV. Academic year persistence and attainment  
(PERA8990, PERA9091, PERA9192, PERA9293, PERA9394)

A. General

Persistence and attainment were examined for each academic year relative to the institution attended in that year (the referent institution for that year). For each of the 5 academic years in BPS:90/94, variables identify students' status relative to the referent institution at the end of the academic year, taking future activity into account.

The central issue was to determine whether students left the referent institution, and if so, how (attained a certificate or degree from the institution; stopped out; transferred to another institution; or dropped out). The specific academic year outcomes appear below:

attained—attained degree or certificate at the referent institution during the AYyy.<sup>1</sup>

persist\*—enrolled at the referent institution throughout the year and returned the following summer or fall.

same-year transfer—left the referent institution and enrolled at a different institution during the same year.

subsequent transfer\*—enrolled throughout the year at the referent institution but enrolled at a different institution the following fall, or left referent institution during the year, and enrolled at a different institution after the following summer or fall.

stopout—left the referent institution during the year or did not return the following summer or fall, did not enroll at any other institution, and later returned to the referent institution.

left without return—enrolled for some or all of the year at referent institution, did not attain, with no subsequent return or enrollment elsewhere.

not enrolled—no enrollment in AYyy.

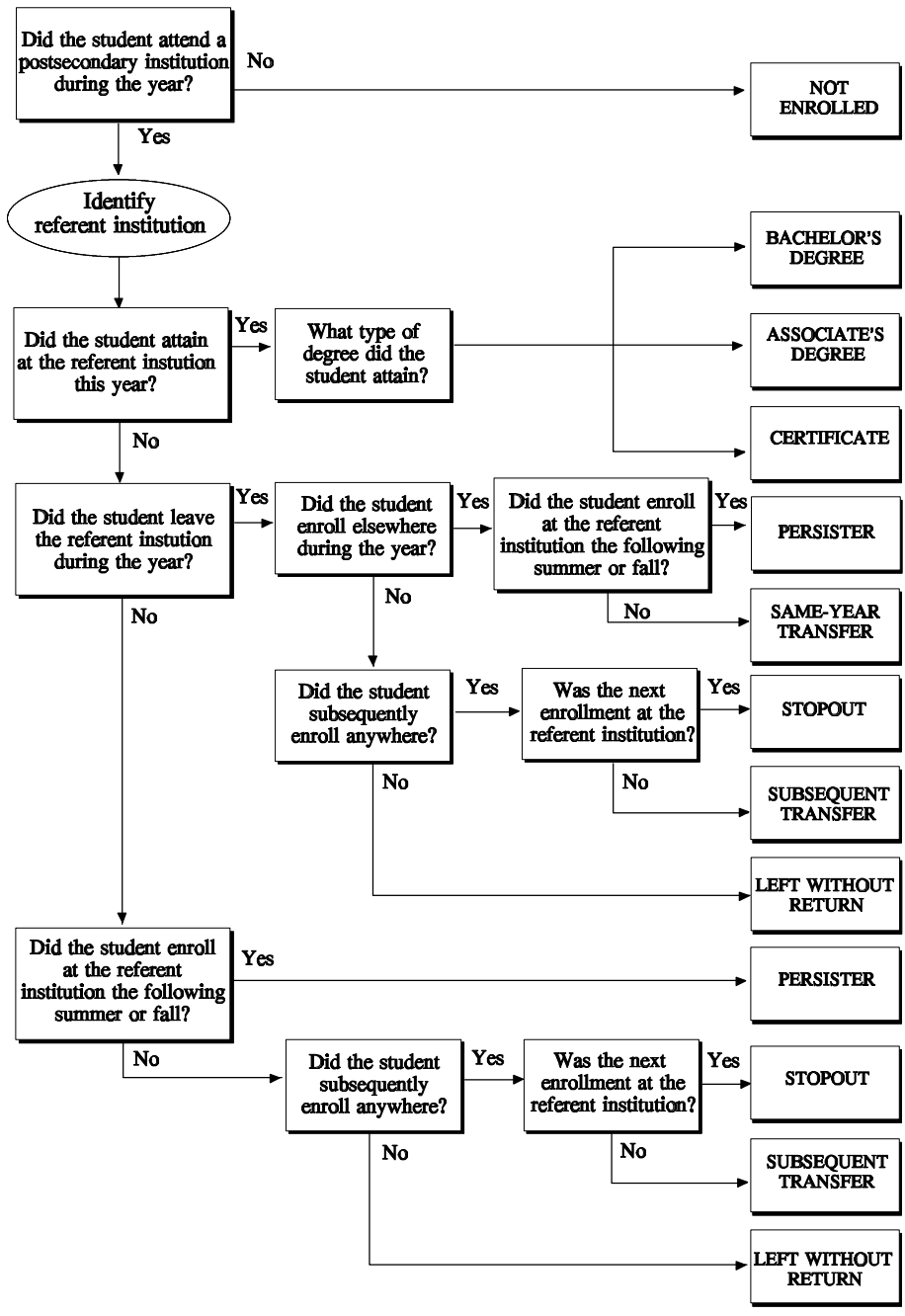
\*Note that for 1993–94, since subsequent enrollment was not observed, the possible outcomes were limited to: attained, still enrolled (replaced persist\*), stopout, same-year transfer, delayed transfer, left without return, and not enrolled.

The flow chart on the following page illustrates the sequence of questions that determined a student's classification on the academic year persistence and attainment variables.

---

<sup>1</sup>AYyy refers to the academic year.

Figure A4—Academic year persistence and attainment



If a student attended more than one institution in a year, it was necessary to establish a set of decision rules for identifying the referent institution; that is, the institution where a student's end-of-year status would be characterized on the academic year outcome variables. The referent institution for each academic year was identified as follows:

- a. Special case for 1989–90:
  - The NPSAS institution was the referent institution.
- b. Sequential precedence relations. For students classified as persisters or transfers in 1989–90 through 1992–93, the choice of referent institution for the subsequent year was predetermined.
  - If a student was classified as a persister in a given year (meaning the student returned to the same institution the following fall), the same institution was the referent institution for the following year.
  - Similarly, if a student transferred, the institution transferred to became the referent institution for the following year.
- c. The remaining cases of multiple attendance requiring arbitration were those for academic years 1990–91 through 1993–94 in which a student's prior year classification was attained, not enrolled, or dropout. In these cases, the following hierarchical decision rules determined the referent institution:
  - 1) Student's designation of principal institution for that year;
  - 2) Any institution where the student attained a credential that year;
  - 3) Institution attended the longest in that year;
  - 4) Institution with the greatest enrollment intensity, where: full time > half time > less than half time;
  - 5) Level of institution, where: 4-year doctoral > 4-year non-doctoral > 2–3 year > less than 2-year.

## B. Persistence toward the bachelor's degree

After constructing this set of academic year persistence variables for all students, a second set of variables was created for tracing persistence toward the bachelor's degree.<sup>2</sup> These variables shifted the emphasis from persistence within an institution to persistence toward the bachelor's degree in the 4-year sector. Consequently, certain end-of-year outcomes were redefined. Students identified as transfers on the academic year variables were broken into two groups: those who transferred to another 4-year institution without any break in continuity, and those who transferred to a less-than-4-year institution or who transferred to a 4-year institution following an interruption in enrollment. Those who continued in the 4-year sector without interruption were classified among persisters. Associate's degree completers were also separated into two groups: those who enrolled for a bachelor's degree at a 4-year institution the following year, and those who did not. Associate's degree completers who went on to a 4-year institution in the next year were classified among persisters.

---

<sup>2</sup>See Essay Persistence Toward the Bachelor's Degree at 4-year Institution, pp. 22.27.