

**NSF Grant Reporting Database List Assessment:**

**Can grant reporting databases be used for locating and surveying postdocs?**



**Prepared by  
Natalia Forrat  
*Survey Sciences Group, LLC***

**For the Division of Science Resources Statistics  
National Science Foundation**

**December, 2008**

This page is intentionally left blank.

Draft

## **Executive Summary**

The primary purpose of the quick turnaround list assessment survey for the NSF grant reporting database was to assess the utility of using information from a funding source (i.e., NSF grant reporting database) as a potential list source of postdocs. The challenges in working with the NSF grant reporting database included an absence of contact information for the individuals listed on the grants and a two-year gap between the database and the time of survey.

### ***List Assessment Results***

- The NSF grant reporting database provided names of individuals, affiliated institutions, and basic demographics, but not any contact information. Prior to conducting the list assessment survey, SSG performed a search for contact information for the selected random sample of individuals under the category of “postdocs” reported on grants in fiscal year 2006. This effort took about 35 hours for 314 individuals, or an average of 7 min. per case. Contact information was identified for 75% of the individuals (n=236).
- Overall, the survey resulted in a response rate of 63%, for a total of 131 completed interviews out of 207 sample members who had at least an email address or a street address. The two-year time lag between the information in the database and the survey field date added complexity in reaching the selected sample members. Institution changes that resulted in a subsequent failure to locate a participant was a primary contributor to survey non-response.
- Out of the 131 respondents, 79 (67%) self-reported to be postdocs in 2006.

### ***Career Transitions between 2006 and 2008***

- The sample drawn from the NSF grant reporting database was for fiscal year 2006 and for individuals listed under the category of “postdoc”. The survey was conducted in 2008. Between 2006 and 2008, 45% of the respondents (those who were located and answered the survey) changed their jobs.
- Just over two-thirds of the respondents (68%, n=54) who self-identified as postdocs in 2006 were in a postdoc in 2008.
- A small minority (19%, n=15) of the 79 respondents who self-identified as postdocs in 2006 were in a tenured track faculty position in 2008.

### ***Postdoc Definitional Elements***

- The definitional element, “temporary status” was the single best element to distinguish postdocs from non-postdocs: we observed a 60% difference between postdocs and non-postdocs in reporting “temporary status” as a formal requirement of their position.
- The definitional element, “intention to provide training in research skills” was a second element that distinguished postdocs from non-postdocs: we observed a 44% difference between postdocs and non-postdocs in reporting “intention to provide training in research skills” as a formal requirement of their position.

***Difference between Foreign and Domestic-Degreed Participants and of U.S. citizens and non-U.S. Citizens***

- Non-U.S. citizens with a foreign degree were more likely than non-U.S. citizens with a U.S. degree to self-identify as postdocs. While the percent of official job titles containing the word “postdoctoral” was almost the same in both groups (43% and 41%), 81% of foreign-degreed non-U.S. citizens reported being a postdoc, and only 58% of U.S.-degreed non-U.S. citizens reported so.
- The salary gap was influenced more by citizenship than by the country of degree: the average salary for U.S. citizens was \$57,000, and for non-U.S. citizens – \$47,000 (\$10,000 difference), while the average for U.S.-degreed participants was \$54,000, and for foreign-degreed – \$48,000 (\$6,000 difference).

## NSF Grant Reporting Database List Assessment:

### Can grant reporting databases be used for locating and surveying postdocs?

The fields of science and engineering have long relied on the contributions of postdoctoral researchers (“postdocs”). In recent years, the National Science Foundation (NSF) Division of Science Resources Statistics (SRS), who is charged with maintaining a “central clearinghouse for data ... on science and engineering resources”, has observed a rise in the number of individuals in postdoc appointments, particularly non-U.S. residents. The Postdoc Data Project (PDP) strives to gather more information about this trend and the use of postdoc appointments today. SRS currently collects limited data on postdocs through the Survey of Graduate Students and Postdoctorates in Science and Engineering (GSS), the Survey of Earned Doctorates (SED), the Survey of Doctorate Recipients (SDR), and the National Survey of College Graduates (NSCG). In the initial phase of the PDP, SRS determined the need to expand the current coverage of postdocs in their surveys to more fully include (a) postdocs with foreign degrees; (b) postdocs with Ph.D.-equivalent degrees; and (c) postdocs working in nonacademic establishments.

One strategy for expanding the coverage of postdocs was to obtain lists of postdocs from the agencies that provide funding for these positions. Federal agencies maintain administrative data on personnel working on grants that they fund, and may include details on postdoc positions funded through these grants. We obtained such administrative data from the National Science Foundation (NSF) “Fastlane” system. These data were from progress reports of funded grants for fiscal year 2006.

The list assessment of NSF grant reporting database included the following research questions:

- What success can we achieve in obtaining contact information for sample members when limited information about them is available?
- What level of success can we achieve in making contact and obtaining an interview from the sample?
  - How much of an impact does the two-year time difference between 2006 (time reference captured in the database) and 2008 (the time of data collection) affected the usability of the database for postdoc identification?
- How many actual postdocs are in the list?
  - How consistent is the information in the database with the respondents’ answers (i.e., if they were listed as a postdoc, did the individual self-identify as a postdoc)?
- How can we distinguish postdocs from other earlier career scientists? That is, what elements of postdoc definitions emerge as important elements for self-identified postdocs and “potential postdocs”? What position titles were provided for the postdocs and “potential postdocs”?

Secondary research questions were, as follows:

- In what ways did the respondents’ job status change between 2006 (time reference captured in the database) and 2008 (the time of data collection)?

- What were the differences in position titles and salary between U.S.-degreed and non-U.S. degreed postdocs, as well as U.S.-citizens and non-U.S. citizens?
- Can the postdocs provide information about other postdocs – such as their institutional affiliation or professional association affiliation?

## Methodology

The NSF grant reporting database in “Fastlane” maintains separate tables for five employee categories: principal investigators, co-principal investigators, senior personnel, postdocs and graduate students. We focused on the postdoc employee category<sup>1</sup> for fiscal year 2006. We drew a random sample of 314 individuals from the NSF grant reporting database in “Fastlane”. We selected the sample for fiscal year 2006, reporting category for “postdocs”. The database contained first and last names, affiliated institutions, and basic demographics for individuals working on funded NSF grants. Since contact information was not available, we conducted a search for email address, telephone number, and street address.

Our first step was to categorize the institution at which the listed individual was employed as academic or non-academic. We took a random selection of 250 individuals from academic institutions, and took all 64 individuals at non-academic institutions, for a total of 314 individuals. We then attempted to locate contact information (email address, telephone number, and street address) for these individuals through Internet searches, with the goal of finding the most current contact information.

For individuals at academic institutions, our first step was to search for the individual in the academic institution’s online directory. If we could not obtain contact information for the individual in the directory, we used the Google search engine. For individuals at non-academic institutions, we attempted to find an institutional directory, but those were less often available to the general public than directories for academic institutions. More often, we used the Google search engine. On average it took seven minutes per individual to look up the contact information online.

Contact information was identified for 236 individuals or 75% of the sample. Out of those 236, we found at least an email and / or street address for 207 individuals – these individuals were, in turn, invited to the list assessment survey.

The survey instrument was a modified version of the PDP “list assessment instrument”. The instrument contained a section on educational background, current employment status and job characteristics, professional affiliations, connections with other postdocs, and demographic information. We added a section to capture work/research experiences in 2006.

The survey was launched on July 8, 2008 and closed on August 18, 2008, for a 6-week data collection period. The response rate was 63% (AAPOR 2 response rate). The survey protocol involved an advanced contact letter sent through U.S. postal service, followed by an email invitation to participate in the study one week later. Up to three email reminders were sent to non-respondents together with phone reminders for those with phone numbers available (185 of the 207 sample members (89%) had telephone numbers).

---

<sup>1</sup> Initially, we included a list of senior personnel since many postdocs are often titled as “Research Associate” and other similar titles. Based on our search efforts, we obtained contact information for only 25 individuals, which constituted about 13% of senior personnel sample. Taking into account the expected response rate, we decided to drop the senior personnel list and concentrate our efforts only on postdoc list.

## Findings

### *Effectiveness and Costs of Obtaining Contact Information for the Sample through the Internet*

We found two to three modes of contact (e.g., email address, telephone number, street address) for about three-fourths of the 314 individuals in our selected list of “postdocs”. Typically, the contact information we found was for the institution at which they were affiliated in 2006. For 36 respondents, the current affiliation was different from the one recorded in the database. For data collection purposes, we required at least an email and street address—207 sample members fit this criteria. Table 1 shows the outcomes of the search efforts.

Table 1. Results of Contact Information Internet Look-ups

Contact Information Found	Academic		Non-Academic		Total	
	N	%	N	%	N	%
Three contact modes identified:						
Email, telephone, street address	148	59%	22	34%	170	54%
Two modes contact modes identified:						
Email & phone only	4	2%	3	5%	7	2%
Email & street address only	35	14%	2	3%	37	12%
Phone & street address only	2	1%	5	8%	7	2%
Only one mode of contact identified:						
Email only	10	4%	1	2%	11	3%
Phone only	1	0%	0	0%	1	1%
Street address only	3	1%	0	0%	3	1%
<b>Total Found</b>	<b>203</b>	<b>81%</b>	<b>33</b>	<b>52%</b>	<b>236</b>	<b>75%</b>
No contact information found	47	19%	31	48%	78	25%
<i>Total Sample</i>	<i>250</i>	<i>100%</i>	<i>64</i>	<i>100%</i>	<i>314</i>	<i>100%</i>

We had more difficulty finding individuals affiliated with non-academic institutions than academic institutions: we did not find contact information for nearly 20% of the individuals in academic institutions compared to nearly 50% for individuals in non-academic institutions. Additional complications to locating the individuals were:

1. We had limited information to begin our searches to help us verify that we had indeed found the targeted person;
2. Postdocs on occasion had several affiliations, sometimes in different countries;
3. Some institution names and abbreviations were difficult to recognize (e.g. ‘MLP’) or too common to distinguish (e.g., “Museum of Science”) without city or state data available;
4. On occasion, we found that the individuals were not affiliated with the institution that received the grant, but rather were collaborating on the grant.

### ***Verification of Location Efforts***

At the data collection stage, we verified the contact information through several sources:

- Responses to the survey;
- Information on returned mail letters; and
- Telephone contacts with the respondent or with an informed source.

A total of 144 sample members (70%) were verified as “located”. Out of these 144 individuals, 36 people or about 25% were noted to have changed institutions. A sample member was considered “located” if at least one of the contact modes has reached the person. For respondents, we used demographic and educational information collected in the survey to verify that we had reached the individual listed in the sample. We used a telephone contact to verify that the non-responding sample members were at institution we had on file. We talked with both sample members themselves and with informants.

### ***Postdoc Hit Rate***

The NSF grant reporting database categorized individuals working on the grant. As mentioned above, we selected individuals in the postdoc category. One of our primary research questions was to learn what percentage of these individuals were actually postdocs in 2006. We found that 79 (67%) of the respondents self-identified as postdocs in 2006; that is, they answered affirmatively to the question “Were you a postdoc in 2006?”

Interestingly, job titles did not always contain the word “postdoc” and varied substantially across individuals who self-identified as a postdoc. In 2006, the most common title for a postdoc was “Postdoctoral Scholar” (In 2008, the most common title for a postdoc was “Postdoctoral Fellow”, followed by “Research Associate”). Some examples of titles in 2006 included:

Postdoc  
Postdoctoral Associate  
Postdoctoral Fellow  
Postdoctoral Investigator  
Postdoctoral Research Associate  
Postdoctoral Researcher  
Postdoctoral Scholar

Adjunct Assistant Professor  
Faculty Research Associate  
Fixed Term Researcher  
Research Assistant  
Research Assistant Professor  
Research Associate  
Research Scientist  
Senior Research Fellow  
Student  
Visiting Assistant Professor

Table 2. Job Titles<sup>2</sup> for Respondents who Did and Did not Self-Report as a Postdoc in 2006

	Were you a postdoc in 2006?		Total
	Yes	No	
<b>Job Title Categories</b>	<b>n=76*</b>	<b>n=32</b>	<b>n=108</b>
“Postdoc” in the Title	63% (n=48)	6% (n=2)	46% (n=50)
Research Scientist Position	20% (n=15)	31% (n=10)	23% (n=25)
Research Staff	4% (n=3)	9% (n=3)	6% (n=6)
Tenure-Track Faculty Position	0% (n=0)	22% (n=7)	6% (n=7)
Non-Tenured Track Faculty Position	4% (n=3)	0% (n=0)	3% (n=3)
Student	1% (n=1)	25% (n=8)	8% (n=9)
Other	8% (n=6)	6% (n=2)	7% (n=8)

\*3 cases missing information on job title.

### ***Coworkers***

The survey instrument also included questions testing the ability of the respondents to provide the information about other people working in their department or lab. All of these questions received high percentages of “don’t know” responses: 17% chose “don’t know” (or left the item blank) to the question regarding the size of the department or lab in which they worked in 2006. They similarly did not know the postdoc status (31% reported “don’t know” responses), gender (33% reported “don’t know” responses), race (42% reported “don’t know” responses), and citizenship (44% reported “don’t know” responses) among their colleagues in their departments or labs. The respondents were least able to provide the number of postdocs in their lab or department who are active in the Postdoc Association at their institution (78% chose “don’t know” or left the item blank).

### ***Recommendations on Using the List***

Of primary interest was whether at least one-half of the list members were postdocs in 2006. The results of the survey showed that 67% of the respondents to the study were postdocs in 2006.

Sample members were largely cooperative in their response to the study: 63% of the contacted individuals fully or partially completed the on-line survey with minimum survey intervention. The study protocols included one U.S. postal letter, four email contacts, and a brief telephone reminder to the non-responders after 3 weeks in the field.

Despite high cooperation levels, initial efforts to locate the sample members on the list were not so easy. The absence of contact information made it time-consuming (e.g., resource expensive) to use the list – which can have a particularly significant impact on large sample sizes. Only two-thirds of individuals from the initial sample were surveyed due to the absence of contact information.

The problem of outdated data contributed to the difficulty in reaching the study participants. We found that within two years (the amount of time between the date of the database information and time of the survey) many study participants had changed their institutions, complicating the process of making contact. Taking into account cooperativeness of individuals, the number of individuals contacted and

<sup>2</sup> These categories were created by classifying job titles into groups.

interviewed may have been higher if the up-to-date contact information was provided in the database.

### Career Transitions 2006-2008

The NSF grant reporting database survey provided an opportunity to trace career transitions of individuals in the list between the year of 2006 and the year of 2008. Although the sample in the survey was not representative of all postdocs in the U.S., the data helps to provide an idea of the extent, direction, and timing of possible changes in employment for postdocs as a group.

During earlier tasks on the PDP, we observed that the type of funding for postdocs has an influence on whether a postdoc considers him/herself as “working”. To make sure we captured all postdocs whether they considered themselves as working or not, we asked three “employment status” questions: if they were working, conducting research, or in a postdoc position in 2006 and in 2008. An affirmative response to any one of those categories directed the respondents into more detailed series of questions about their “positions”. We saw that approximately the same proportion of respondents was working for pay, conducting research, or in a postdoc position in 2008 as in 2006 (see Table 3).

Table 3. Employment Status in 2006 and 2008

<b>Employment Status Questions</b>	<b>Respondents in 2006 n=118</b>	<b>Respondents in 2008 n=127</b>
Were/Are you working for pay of any kind ...?	86% (n=101)	93% (n=118)
Were/Are you engaged in any research activities ...?	100% (n=118)	97% (n=123)
Were/Are you a postdoc ...?	67% (n=79)	59% (n=75)

Overall, 45% of the respondents (n=130) *changed jobs* between 2006 and 2008. Among self-identified postdocs in 2006, 68% were in a postdoc position two years later, and 32% were in another type of position (see Table 4). At the same time, 47% of participants who were not in a postdoc in 2006 reported being in a postdoc in 2008. The number of self-identified postdocs remained relatively stable between 2006 and 2008 among the participants in the study (79 postdocs in 2006 and 74 in 2008).

Table 4. 2008 Postdoc Status for Postdocs and Non-Postdocs in 2006

	<b>Postdocs in 2006 n=79</b>	<b>Non-postdocs in 2006 n=38</b>
Postdoc in 2008	68% (n=54)	47% (n=18)
Non-postdoc in 2008	32% (n=25)	53% (n=20)

A second interesting observation was the type of positions that the self-identified postdocs in 2006 transitioned to in 2008. Table 5 shows 2008 job titles for 2006 postdocs and non-postdocs who changed positions. The majority (41%) of postdocs in 2006 transferred into tenure-track faculty positions. Twenty-two percent moved to a research position and 14% moved to another postdoc.

Table 5. 2008 Job Titles for Postdocs and Non-Postdocs in 2006 who Changed Jobs by 2008

<b>Job title categories 2008</b>	<b>Postdocs in '06 who changed jobs by '08 n=37</b>	<b>Non-postdocs in '06 who changed jobs by '08 n=21</b>	<b>Total n=58</b>
Postdoc	14% (n=5)	50% (n=11)	27% (n=16)
Researcher	22% (n=8)	32% (n=7)	25% (n=15)
Research staff	3% (n=1)	0% (n=0)	2% (n=1)
Professor	41% (n=15)	5% (n=1)	27% (n=16)
Research/Adjunct/Visiting Prof	11% (n=4)	9% (n=2)	10% (n=6)
Other	11% (n=4)	0% (n=0)	7% (n=4)
Student	0% (n=0)	0% (n=0)	0% (n=0)

### **Postdoc Definitional Elements**

We asked study participants to indicate formal requirements and expectations of a postdoc appointment. This section of the report addresses the question of the relationship of those elements with self-identification as a postdoc. Due to smaller number of cases with missing data<sup>3</sup>, the answers about study participants' positions in 2008 were used to investigate this relationship.

The questionnaire included 12 definitional elements of a postdoc compiled from earlier work on the Postdoc Data Project (PDP). More than one-half of the self-identified postdocs in 2008 endorsed all of these definitional elements as either a formal requirement, or an expectation, or both (see Table 6). Eight out of the 12 definitional elements were selected as a formal requirement, or an expectation, or both for 90% or more of the self-identified postdocs in 2008. The elements that distinguished postdocs from non-postdocs the most were “temporary position”, “position intended to provide training in research skills” and “a position for a defined period of time”.

Table 6. Definitional Elements Selected as a Formal Requirement and/or Expectation among Postdocs and Non-Postdocs in 2008<sup>4</sup>

<b>Definitional Element</b>	<b>% of Postdocs n=72</b>	<b>% of Non Postdocs n=47</b>	<b>% Difference b/w Postdocs &amp; Non-Postdocs</b>
Is temporary	94% (n=68)	26% (n=12)	69%
Is intended to provide training in research skills	96% (n=69)	45% (n=21)	51%
Is for a defined period of time	96% (n=69)	47% (n=22)	49%
Requires that you are mentored by a senior scholar	79% (n=57)	32% (n=15)	47%

<sup>3</sup> In variables related to the year of 2008 there are 11-13 cases with missing data, while in the same variables related to the year of 2006 there are 25-26 cases with missing data.

<sup>4</sup> In variables related to the year of 2008 there are 12 cases with missing data, while in the same variables related to the year of 2006 there are 25 cases with missing data.

<b>Definitional Element</b>	<b>% of Postdocs n=72</b>	<b>% of Non Postdocs n=47</b>	<b>% Difference b/w Postdocs &amp; Non-Postdocs</b>
Requires that you are supervised by a senior scholar	79% (n=57)	36% (n=17)	43%
Is intended to prepare you for an independent career	93% (n=67)	55% (n=26)	38%
Is intended to advance professional skills	93% (n=67)	70% (n=33)	23%
Requires that the doctorate was recently awarded	56% (n=40)	33% (n=15)	23%
Requires a full-time commitment to research	90% (n=65)	68% (n=32)	22%
Requires that you contribute to the program through seminars, lectures, or other teaching responsibilities	60% (n=43)	77% (n=36)	-17%
Requires a PhD or an equivalent degree	100% (n=72)	87% (n=41)	13%
Requires publication of research in scholarly journals	94% (n=68)	83% (n=39)	11%

Two aspects of definitional elements were captured in the questionnaire: if the element was formally required or expected. Table 7 summarizes the results for postdocs and non-postdocs in formally required elements and shows the difference between the two groups. For example, intention to advance professional skills as a formal requirement was not much more common among postdoc positions than among other positions (the difference was only 7%); and the formal publication requirement was even stronger for other types of positions (primarily for faculty). The criterion that best distinguishes postdocs from non-postdocs at the formal level was the temporary status of their position (60% difference).

Table 7. Definitional Elements Selected as a *Formal Requirement*<sup>5</sup> among Postdocs and Non-Postdocs in 2008

<b>Definitional Element</b>	<b>% Postdocs n=72</b>	<b>% Non-Postdocs n=47</b>	<b>% Difference b/w Postdocs and Non-Postdocs</b>
Is temporary	79%	19%	<b>60%</b>
Is for a defined period of time	79%	40%	39%
Is intended to prepare you for an independent career	40%	13%	28%
Requires a full-time commitment to research	74%	49%	25%
Requires a PhD or an equivalent degree	97%	77%	21%
Is intended to provide training in research skills	40%	21%	19%
Is intended to advance professional skills	35%	28%	7%
Requires publication of research in scholarly journals	40%	45%	-4%

<sup>5</sup> This table contains combined results for response options “Both formally stipulated and expected” and “Formally stipulated, but not expected”.

Looking at just “expected aspect of the position” versus formal requirement, we see that temporary status of postdocs remains a strong divider between postdocs and other positions and well as defined term length of the position. Both of these elements converge on the idea that one of the major specifics of a postdoc position was its temporary, transitional nature.

Another significant element, separating postdocs from non-postdocs was an “intention to provide training in research skills”: 86% of postdocs mention it as expected from their position, while only 43% of non-postdocs do so.

Table 8. Definitional Elements Selected as *Expected of the Position*<sup>6</sup> among Postdocs and Non-Postdocs in 2008

<b>Definitional Element</b>	<b>% Postdocs n=72</b>	<b>% Non-postdocs n=47</b>	<b>% Difference b/w Postdocs and Non-Postdocs</b>
Is temporary	85%	21%	<b>63%</b>
Is for a defined period of time	85%	36%	<b>49%</b>
Is intended to provide training in research skills	86%	43%	<b>44%</b>
Is intended to prepare you for an independent career	83%	53%	30%
Is intended to advance professional skills	82%	66%	16%
Requires a full-time commitment to research	83%	68%	15%
Requires a PhD or an equivalent degree	97%	85%	12%
Requires publication of research in scholarly journals	86%	79%	7%

Figure 1 illustrates the difference between postdocs and non-postdocs in formally required and expected elements. In most cases expectations distinguish postdoc positions from non-postdoc ones better than formal requirements (except for full-time commitment to research and PhD degree requirement). Intention to provide training in research skills was much stronger as an expectation than as a formal requirement.

<sup>6</sup> This table contains combined results for response options “Both formally stipulated and expected” and “Expected, but not formally stipulated”.

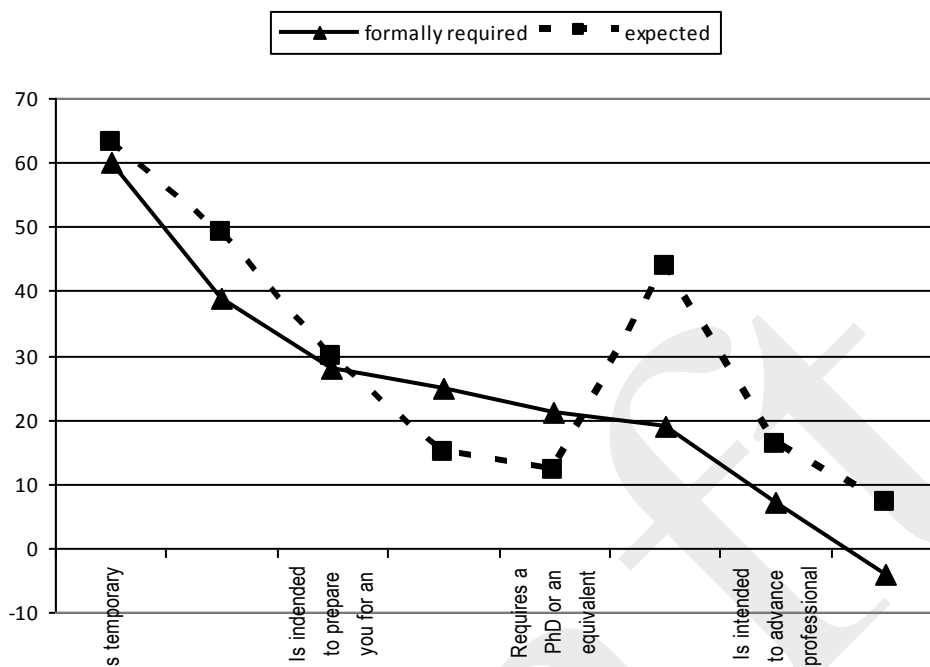


Figure 1. Difference (in %) between postdocs and non-postdocs

### Differences of U.S.-Degreed and Foreign-Degreed Postdocs

The country where a doctoral degree was awarded and the country of citizenship are the two possible criteria for separating foreign nationals and U.S. citizens. Both characteristics may be important as citizenship impacts legal status and permission to work in the U.S. and the country where the doctoral degree was obtained determines exposure to different professional networks and academic traditions. Using both criteria at the same time would potentially give four comparison groups: (a) “U.S.-degreed non-U.S. citizens” (n=27); (b) “foreign-degreed non-U.S. citizens” (n=31); (c) “U.S.-degreed U.S. citizens” (n=44); and (d) “foreign-degreed U.S. citizen” (n=2). Due to the small sample size in the latter group, the comparisons discussed below are limited to three groups.

### Postdoc Self-Identification and Job Titles

Table 9 shows that a greater proportion of respondents with foreign degrees self-identified as a postdoc than U.S. degreed respondents in 2008.

Table 9. Employment status for non-U.S. citizens with foreign and U.S. degrees, and for U.S. degreed U.S. citizens

<b>Job Titles</b>	<b>Foreign-Degreed Non-U.S. citizen n=31</b>	<b>U.S.-Degreed Non-U.S. citizen n=26</b>	<b>U.S.-Degreed U.S. citizen n=44</b>
Working for pay	84% (n=26)	100% (n=27)	100% (n=44)
Engaged in research activities	97% (n=30)	100% (n=27)	95% (n=42)
Self-identifies as a postdoc	81% (n=25)	58% (n=15)	52% (n=23)

While the percent of job titles containing the word “postdoctoral” was almost the same in the Foreign-Degreed Non-U.S. citizen group and the U.S.-Degreed Non-U.S. citizen group (43% and 41%, see Table 9), 81% of foreign-degreed non-U.S. citizens say that they are postdocs, and only 58% of U.S.-degreed non-U.S. citizens do so (see Table 10).

Table 10. Percent of Respondents in Job Title Categories by Citizenship and Degree of Origin

<b>Job Titles</b>	<b>Foreign-Degreed Non-U.S. citizen n=30</b>	<b>U.S.-Degreed Non-U.S. citizen n=27</b>	<b>U.S.-Degreed U.S. citizen n=44</b>
Position title with “Postdoc” in it	43% (n=13)	41% (n=11)	34% (n=15)
Research Scientist Position	30% (n=9)	30% (n=8)	20% (n=9)
Research Staff Position	3% (n=1)	7% (n=2)	5% (n=2)
Tenure Track Faculty Position	10% (n=3)	19% (n=5)	30% (n=13)
Non- Tenure Track Faculty Position	3% (n=1)	4% (n=1)	9% (n=4)
Other	10% (n=3)	0% (n=0)	2% (n=1)

One of the possible explanations of the above observation could be the perception of postdoc status as temporary and transitional. The feeling of temporariness and transition may be stronger for foreign-degreed PhDs, who recently came to the country.

### ***Salary Gaps***

The salary gap appeared to be affected by citizenship more than by the country of degree. T-test<sup>7</sup> showed significant difference (at .05 level) in salary between U.S. citizens and non-U.S. citizens (\$44,368 was a mean salary for non-U.S. citizens and \$49,039 – for U.S. citizens), but not between U.S.-degreed and foreign-degreed groups. Figure 2 shows that U.S. citizens dominated in higher paid groups, while non-U.S. citizens constituted a bigger percentage in lower paid groups.

<sup>7</sup> 13 cases with salaries over \$70,000 were excluded from this analysis as outliers.

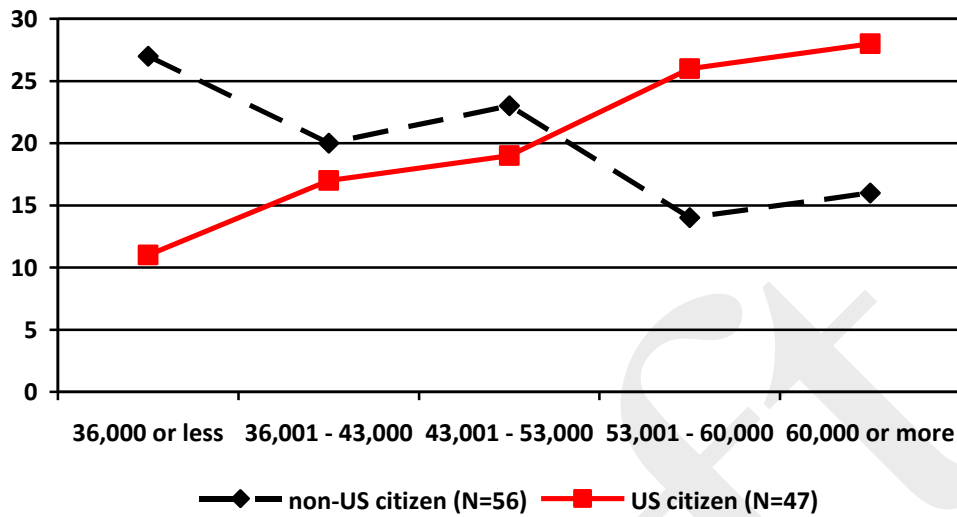


Figure 2. Salary among U.S. citizens and non-U.S. citizens (% within groups, all cases included)

Figure 3 illustrates salary distributions for the foreign-degred non U.S. citizens, U.S.-degred citizens and non citizens. While there is not a statistically significant difference among the groups, the patterns are interesting: U.S.-degred non-U.S. citizens are concentrated in the lowest segments.

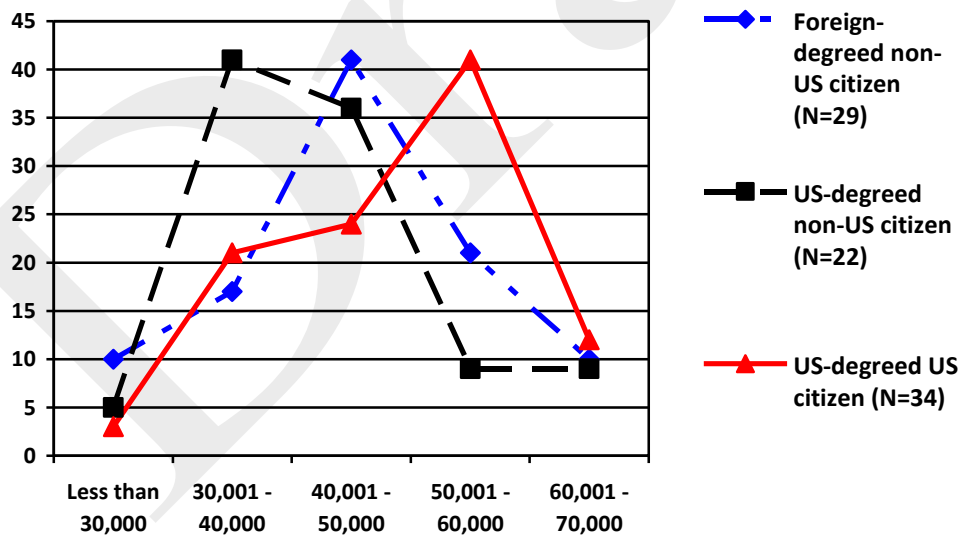


Figure 3. Salary Distributions for Foreign-Degred non-U.S. citizens, U.S. Degred Non-U.S. citizens, and U.S. Degred U.S. citizens (% within groups)

While the difference between U.S. citizens and non-U.S. citizens was not surprising, the fact that among non-U.S. citizens those who have a U.S. degree have lower salaries than those who have a foreign degree seems counterintuitive. If on a bigger sample the same pattern was observed, the possible explanation

may lie in the job search conditions and context. If foreign-degreed postdocs are performing the job search from their home country where their status was stable and where they may have family support, U.S.-degreed postdocs are already in the U.S. at the time of job search and may face the need to maintain their legal status in the country. Because of that they may be more likely to accept the first available position rather than search more carefully for a suitable one.

## **Conclusion**

The primary purpose of the quick turnaround list assessment survey for the NSF grant reporting database was to assess the utility of using information from a funding source (i.e., NSF grant reporting database) as a potential list source of postdocs. Out of the 131 respondents, 79 (67%) self-reported to be postdocs in 2006. Our recommendation is that these sources can be quite useful in identifying postdocs.

Currently, national postdoc-related data shows gaps in coverage of postdocs in non-academic institutions and of postdocs with PhD-equivalent degrees and foreign degrees. The NSF grant reporting database included a higher proportion of individuals in academic institutions. Individuals listed under the category “postdocs” were more likely to have a PhD than PhD-equivalent degree. Foreign-degreed postdocs, however, were nicely captured in the list.

The lack of contact information was a drawback to the list. We limited our search efforts to just Internet searches. Internet searches turned up at least one mode of contact for three-quarters of the sample, and our expectation is that additional search efforts and time could improve on this location rate.

The two-year time lag between the information in the database and the survey field date added complexity in finding good contact information for the sample and in reaching the selected sample members for an interview.

The definitional element, “temporary status” was the single best element to distinguish postdocs from non-postdocs: we observed a 60% difference between postdocs and non-postdocs in reporting “temporary status” as a formal requirement of their position. The definitional element, “intention to provide training in research skills” was a second element that distinguished postdocs from non-postdocs: we observed a 44% difference between postdocs and non-postdocs in reporting “intention to provide training in research skills” as a formal requirement of their position.

Just over two-thirds of the respondents (67%, n=79) self-identified as postdocs in 2006: 17 of the 79 respondents who self-identified as postdocs in 2006 were in the same postdoc in 2008 (22%) and 5 of the 79 respondents who self-identified as postdocs in 2006 were in a different postdoc in 2008 (6%). A small minority (19%, n=15) of the 79 respondents who self-identified as postdocs in 2006 were in a tenured track faculty position in 2008.

Non-U.S. citizens with a foreign degree were more likely than non-U.S. citizens with a U.S. degree to self-identify as postdocs. While the percent of official job titles containing the word “postdoctoral” was almost the same in both groups (43% and 41%), 81% of foreign-degreed non-U.S. citizens reported being a postdoc, and only 58% of U.S.-degreed non-U.S. citizens reported so.

The salary gap was influenced more by citizenship than by the country of degree: the average salary for U.S. citizens was \$57,000, and for non-U.S. citizens – \$47,000 (\$10,000 difference), while the average for U.S.-degreed participants was \$54,000, and for foreign-degreed – \$48,000 (\$6,000 difference).