Assessing the “Year of Naturalization” Data in the American Community Survey

Characteristics of Naturalized Foreign Born Who Report – and Don’t Report – the Year They Obtained Citizenship

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Introduction

- American Community Survey includes a question asking foreign-born citizens: “Print year of naturalization.”
- Not all foreign born who have naturalized provide the year they became citizens.
- Analysis uses logistic regression to determine the characteristics of those who report – and fail to report – a year of naturalization.
Survey Nonresponse

Two types of nonresponse behavior:

- **Unit nonresponse**
  - When the sample unit does not respond to the request to be surveyed

- **Item nonresponse**
  - Failure to obtain answers to individual survey questions when unit response is obtained

This paper examines item nonresponse by foreign-born citizens to the year of naturalization question.
Results from the Literature

• Literature emphasizes influence of individual characteristics on item nonresponse:
  – Age, sex, education, socioeconomic status

• Household and neighborhood characteristics also considered:
  – Population density, crime rates, household composition, household size, language use, geographic location, culture

• Survey mode also noted:
  – Item nonresponse higher in mail modes when compared with telephone or face-to-face interviewing
Analytical Framework

• The ACS is a survey of the resident population
  – The sample is divided into group quarters and household
  – In the household sample
    • Housing units are selected into sample
    • Data collected on each individual who is part of the household

• Information for most household members provided by proxy through primary respondent
  – Most often, primary respondent is the householder

• How/what information moves through the household from each household member to the householder and then to Census Bureau depends on:
  – Survey mode
  – Social distance from primary respondent
Figure 1. Flow of Information From Household Members to the U.S. Census Bureau
Figure 2. Flow of Information From Household Members to the U.S. Census Bureau, Showing Social Distance From the Primary Respondent

[Diagram showing flow of information from different household member categories to the U.S. Census Bureau through Primary Respondent, Mail-Back Questionnaire, Telephone Interview, and Personal Interview]
Statistical Model

Data
• 2011 American Community Survey

Statistical Method
• Logistic regression analysis

Universe
• Naturalized citizens in the United States aged 18 and over, where citizenship status was not imputed

Dependent Variable
• Dichotomous variable based on year of naturalization
  – Those who reported a year
  – Those who did not report a year
Primary Explanatory Variables

• Survey environment
  – Operationalized using mode
  – 3-category dummy variable
  – Mail (reference), CATI, and CAPI
    • CATI = Computer Assisted Telephone Interview
    • CAPI = Computer Assisted Personal Interview

• Social distance from primary respondent
  – Operationalized using relationship
  – 5-category dummy variable
  – Householder (reference), natal family, extended family, other relative, nonrelative
Figure 3.
Item Nonresponse Rate for Naturalized Citizens Reporting Year of Naturalization by Mode: 2011

- All naturalized citizens
- Naturalized citizens aged 18+

<table>
<thead>
<tr>
<th>Mode</th>
<th>All Naturalized Citizens</th>
<th>Naturalized Citizens Aged 18+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>17.0</td>
<td>12.6</td>
</tr>
<tr>
<td>Mail</td>
<td>12.6</td>
<td>7.8</td>
</tr>
<tr>
<td>CATI</td>
<td>17.8</td>
<td>14.5</td>
</tr>
<tr>
<td>CAPI</td>
<td>22.0</td>
<td>18.4</td>
</tr>
</tbody>
</table>

Figure 4.
Item Nonresponse Rate for Naturalized Citizens Reporting Year of Naturalization by Relationship to Householder: 2011

- All naturalized citizens
- Naturalized citizens aged 18+

Source: U.S. Census Bureau, 2011 American Community Survey.
Statistical Model

Household and Individual Control Variables

• Household Level
  – Characteristics of the household in which naturalized citizen resides
  – Number of adults in household, home ownership, poverty status, region of residency
  – Characteristics of the householder: educational attainment, language spoken at home, and nativity

• Individual Level
  – Characteristics of the naturalized citizen
  – Age, sex, region of birth, period of entry, moved in the last year (internationally or domestically)
Nonresponse Control Variables

- To control for correlation of nonresponse between the dependent and each explanatory variable
  - For example: Are respondents who don’t report year of naturalization also likely not to report year of entry?
- Alternative to excluding cases with some missing data
- Variables included:
  - Relationship, householder’s level of education, householder’s language spoken at home, householder’s nativity status, homeownership, poverty status, age, sex, place of birth, year of entry, and moved in last year
  - No nonresponse control for mode, number of adults in household, or region of residency
Results

Summary

• Both mode and relationship to householder significantly influence the likelihood of reporting a year of naturalization

• Most household and individual control variables behave as predicted
  – Exceptions: householder’s language spoken at home and householder’s nativity

• Nonresponse controls alter likelihoods associated with householder’s education, region of residence, number of adults, age, sex, and period of entry
Figure 5. Likelihood of Reporting Year of Naturalization by Mode

- Without nonresponse controls
- With nonresponse controls

Figure 6. Likelihood of Reporting Year of Naturalization by Relationship to Householder

<table>
<thead>
<tr>
<th>Relationship</th>
<th>Without nonresponse controls</th>
<th>With nonresponse controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Householder</td>
<td>.938</td>
<td>.954</td>
</tr>
<tr>
<td>Natal family</td>
<td>.916</td>
<td>.946</td>
</tr>
<tr>
<td>Extended family</td>
<td>.866</td>
<td>.919</td>
</tr>
<tr>
<td>Other relative</td>
<td>.845</td>
<td>.903</td>
</tr>
<tr>
<td>Nonrelative</td>
<td>.855</td>
<td>.908</td>
</tr>
</tbody>
</table>

Predicted probabilities

Source: U.S. Census Bureau, 2011 American Community Survey.
Figure 7.
Likelihood of Reporting Year of Naturalization by Mode and Relationship to Householder

Note: CATI=Computer Assisted Telephone Interview. CAPI=Computer Assisted Personal Interview.
Source: U.S. Census Bureau, 2011 American Community Survey.
HOUSEHOLD CHARACTERISTICS:
Association with Reporting Year of Naturalization

<table>
<thead>
<tr>
<th>Variable</th>
<th>Without Nonresponse Controls</th>
<th>With Nonresponse Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Householder’s level of education</td>
<td>High school degree or higher education, more likely to report</td>
<td>Not significant</td>
</tr>
<tr>
<td>Householder’s language spoken at home</td>
<td>Speaks only English at home, less likely to report</td>
<td>Speaks only English at home, less likely to report</td>
</tr>
<tr>
<td>Householder’s nativity status</td>
<td>If native, less likely to report</td>
<td>If native, less likely to report</td>
</tr>
<tr>
<td>Region of residence</td>
<td>Compared with West, Midwest then Northeast less likely to report; South not significant</td>
<td>Compared with West, Midwest then Northeast less likely to report; South not significant</td>
</tr>
<tr>
<td>Number of adults aged 18 and older</td>
<td>More adults, less likely to report</td>
<td>More adults, more likely to report</td>
</tr>
<tr>
<td>Homeownership</td>
<td>Own home, more likely to report</td>
<td>Own home, more likely to report</td>
</tr>
<tr>
<td>Poverty status</td>
<td>Not in poverty status, more likely to report</td>
<td>Not in poverty status, more likely to report</td>
</tr>
</tbody>
</table>
## INDIVIDUAL CHARACTERISTICS: Association with Reporting Year of Naturalization

<table>
<thead>
<tr>
<th>Variable</th>
<th>Without Nonresponse Controls</th>
<th>With Nonresponse Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Compared with 60+, 18-29 most likely to report, followed by 30-44 then 45-59</td>
<td>Compared with 60+, 45-59 more likely to report; 18-29 and 30-44 not significant</td>
</tr>
<tr>
<td>Sex</td>
<td>Males less likely than females to report</td>
<td>Males more likely than females to report</td>
</tr>
<tr>
<td>Region of birth</td>
<td>Compared with respondents from Europe, those from other regions, Asia, and Latin America less likely to report, in that order</td>
<td>Compared with respondents from Europe, those from other regions, Latin America, and Asia less likely to report, in that order</td>
</tr>
<tr>
<td>Period of entry</td>
<td>Compared with respondents who entered in 1996 or earlier, those who arrived 1997-2001 and 2002-2006 more likely to report while 2007-2011 less likely</td>
<td>Compared with respondents who entered in 1996 or earlier, those who arrived 1997-2001 and 2002-2006 were more likely to report; 2007-2011 not significant.</td>
</tr>
<tr>
<td>Moved in the last year</td>
<td>Did not move last year, more likely to report</td>
<td>Did not move last year, more likely to report</td>
</tr>
</tbody>
</table>
Figure 8.
Likelihood of Reporting Year of Naturalization by Mode and Year of Entry Imputation Status

- Year of entry not imputed
- Year of entry imputed

Note: CATI=Computer Assisted Telephone Interview. CAPI=Computer Assisted Personal Interview.
Source: U.S. Census Bureau, 2011 American Community Survey.
Figure 9.
Likelihood of Reporting Year of Naturalization by Relationship to Householder and Year of Entry Imputation Status

- Year of entry not imputed
- Year of entry imputed

<table>
<thead>
<tr>
<th>Relationship</th>
<th>Predicted Probabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondent</td>
<td>.954</td>
</tr>
<tr>
<td>Natal Family</td>
<td>.946</td>
</tr>
<tr>
<td>Extended Family</td>
<td>.919</td>
</tr>
<tr>
<td>Other Relative</td>
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</tr>
<tr>
<td>Nonrelative</td>
<td>.908</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau, 2011 American Community Survey.
Figure 10. Likelihood of Reporting Year of Naturalization by Period of Entry

- Without nonresponse controls
- With nonresponse controls

Note: NS = not statistically significant.
Source: U.S. Census Bureau, 2011 American Community Survey.
Conclusion

• Mode and relationship to householder significantly influence year of naturalization reporting
  – Association remains even after inclusion of nonresponse controls, although strength is tempered
• Results of analysis support model of survey environment and social distance from respondent
• Using nonresponse control variables is an alternative to excluding cases with some imputed data
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