Evaluating Methods for Estimating Foreign-Born Immigration Using the American Community Survey

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Abstract

The Population Estimates Program of the U.S. Census Bureau produces annual estimates of foreign-born immigration using the Residence One Year Ago (ROYA) method. Alternatively, foreign-born immigration can be estimated using the Year of Entry (YOE) method. Both methods use data from the American Community Survey (ACS). Although these methods are similar, they produce different estimates of foreign-born immigration. Furthermore, these differences vary by world region of birth. In this paper, we analyze the demographic, social, and survey-related characteristics of three mutually exclusive groups: the ROYA alone, YOE alone, and Overlap (included in both the ROYA and YOE methods) populations. The findings show that from 2007-2011, immigrants from Latin America were more likely to be in the YOE alone population than the ROYA alone or Overlap populations. Immigrants from Asia were more likely to be in the Overlap population during that same period.

Introduction

The Population Estimates Program of the U.S. Census Bureau produces annual estimates of net international migration. Currently, we use data from the American Community Survey (ACS) and the Residence One Year Ago (ROYA) method to produce the national-level total estimate of foreign-born immigration (Bhaskar et al. 2011). Specifically, the foreign born in the ACS whose response to the residence one year ago question indicated that they were living abroad are considered foreign-born immigrants. Alternatively, the Year of Entry (YOE) method can also be used to develop the national-level estimate of foreign-born immigration. For this method, the foreign-born immigrant population is estimated as the foreign-born population who responded that they came to live in the United States one year prior to the survey year. Both the ROYA and YOE methods produce estimates of foreign-born immigration to the United States over a 12-month time period. Although we use the ROYA method in the Population Estimates Program, data on year of entry from the ACS are used to distribute demographic and geographic characteristics to the ROYA-based national-level estimate. Therefore, understanding the similarities and differences between these two estimation methods is critical to the Population Estimates Program.

Although both methods provide an estimate of immigration, there are significant differences between estimates of foreign-born immigration using the ROYA and YOE methods. The YOE method consistently produces higher estimates of foreign-born immigration at the national level than the ROYA method (Bhaskar et al. 2011). Furthermore, these differences vary by world region of birth. When examining foreign-born immigrants from Mexico, Scopilliti et al. (2011) found YOE method estimates to be 30.4 percent higher than ROYA method estimates. Conversely, ROYA estimates of foreign-born immigrants from Canada tend to be higher than YOE estimates. This discrepancy may be due in part to differences in the reference period because the ROYA question covers the 12 months prior to the survey month while the YOE question covers the entire calendar year prior to the survey year. However, reference period differences should not have a substantial influence on the characteristics of the populations estimated by the two methods.

In this paper, we use data from the 2007-2011 single-year ACS files to analyze differences in the levels and characteristics of estimates of foreign-born immigration using the ROYA and YOE methods. Since part of the reference period for the ROYA method corresponds with part of the reference period for the YOE method, we estimate three mutually exclusive populations. The first population consists of foreign-born immigrants measured only by the ROYA method (ROYA alone). The second population contains foreign-born immigrants measured only by the YOE method (YOE alone). Finally, foreign-born immigrants measured by both the ROYA and YOE methods make up the Overlap population. We then analyze differences in the levels and characteristics of these populations, focusing on differences by world region of birth, as well as variation in demographic, social, and survey-related characteristics.

Background

ROYA and YOE are the two methods generally used to estimate foreign-born immigration to the United States using ACS data. For both methods, the foreign-born population is identified using information on citizenship status where the foreign-born population is defined as those who 1) are naturalized citizens or 2) not U.S. citizens. Identifying the foreign born in this way is preferred to using data on place of birth from the ACS because a person born abroad of U.S. citizen parents could be misclassified as a foreign-born immigrant using place of birth data. For the ROYA method, foreign-born immigration is estimated as the foreign-born population whose residence one year ago was abroad. For the YOE method, the foreign-born population whose year of entry is one year prior to the survey year are considered foreign-born immigrants.

The ROYA and YOE methods both measure annual foreign-born immigration flows over a 12-month time period; however, they do not reflect the same period, even when using the same single-year ACS file. Figure 1 illustrates the temporal inconsistencies between the ROYA and YOE methods and how recent immigrants are measured differently by each method. In this example, three immigrants were all surveyed in July of the survey year and each entered the United States in a different month within either the survey year or the year prior to the survey. If the first respondent (Immigrant 1) entered the United States in May of the year prior to the survey year and was surveyed in July, they would be included in the YOE estimate but not the ROYA estimate because they were living in the United States one year prior to the survey. If Immigrant 2 entered the United States in October of the year prior to the survey and was surveyed in July, they would be included in both the ROYA and YOE estimates. If Immigrant 3 entered the United States in March of the survey year and was surveyed in July of that same

year, they would only be included in the ROYA estimate (Figure 1). While there is clearly a temporal inconsistency between the ROYA and YOE methods, it is unclear how this would affect the levels and characteristics of estimates using the different methods.

The reliability and validity of the survey questions in the ACS used in the ROYA and YOE methods could also cause variation in the estimates of foreign-born immigration to the United States. The year of entry question used by the Census Bureau asks respondents "when did you come to live in the United States?" Some researchers argue that this survey question is ambiguous because it does not specify which event (first or most recent) but rather requires a subjective judgment about when their residence became permanent (Ellis and Wright 1998; Redstone and Massey 2004). In analyzing responses to the year of entry question in the 2008 Current Population Survey Migration Supplement, de la Cruz and Logan (2009) found responses were often inconsistent with responses to the same question in a follow-up survey. In fact, responses to the year of entry questions did not necessarily correspond with either the first year of entry or the most recent year of entry. In an evaluation of the place of birth, citizenship, and year of arrival questions in the ACS, Harris et al. (2007) found that in 32.6 percent of cases, reported year of entry was not consistent with either the first or most recent years of entry. Despite these concerns about year of entry data, researchers regularly use the YOE method to produce estimates of foreign-born immigration (Passel 2007; Vericker, Fortuny, Finegold, and Ozdemir 2010).

That the year of entry question in the ACS is not specific to a particular migration event could partially explain differences by world regions of birth in the estimates produced by the ROYA and YOE methods. Immigrants from Mexico and Latin America are more likely to return to their country-of-origin or to engage in multiple trips (circular migration) to the United States

than immigrants from other regions (Massey and Malone 2002). Circular migrants who entered the United States in the year prior to the survey year but respond to the year of entry question with the date from a previous migration event would not be measured by the YOE method. However, this does not explain why YOE estimates are consistently higher for Mexican immigrants than ROYA estimates.

While the research reviewed above clearly shows that the ROYA and YOE methods produce different estimates of foreign-born immigration, there has not been a systematic study of these differences. The purpose of this paper is to analyze the variation in estimates of foreign-born immigration produced using the ROYA and YOE methods. This research is guided by the following research questions: 1) Why are estimates of foreign-born immigration produced using the ROYA and YOE methods different? 2) What variation exists in the characteristics of estimates produced using the ROYA and YOE methods?

Data and Methods

The data for this analysis come from pooled 2007-2011 single-year ACS files. The ACS is a survey of the U.S. resident population with an annual sample size of approximately 3 million addresses.[1] Implementation of the survey is on a continuous basis, with each month fielding a sample of the resident population. The ACS includes data on demographic, housing, social, and economic characteristics of the U.S. population. Furthermore, the ACS provides immigration-related data such as place of birth, citizenship status, year of entry, and the respondent's residence one year prior to completing the survey (residence one year ago). Specifically, we restrict the analysis to the foreign-born, household population age three and older who were

[1]The ACS data are based on a sample and are subject to sampling variability. For information on confidentiality protection, sampling error, nonsampling error, and definitions see http://www.census.gov/acs.

recent arrivals to the United States.[2] We also omitted cases where the values for the residence one year ago and year of entry variables were imputed.

We create three mutually exclusive groups of foreign-born immigrants—those identified by ROYA method alone, those identified by the YOE method alone, and an "Overlap" group identified by both methods. First, we examine trends in the levels of annual estimates for these populations from 2007-2011. In addition to showing how levels of immigration, as measured using the different methods, vary across different years, we also analyze how estimates vary by month. Next, we focus on differences in demographic, social, and survey-related characteristics across the three groups using descriptive statistics. The demographic characteristics that we focus on are age, sex, family status, and world region of birth. Family status identifies if the respondent lives in a family or nonfamily household. For the world region of birth variable, we collapse the place of birth codes into Europe, Asia, Africa, Latin America, and Other. We purposely omit race and ethnicity from the analysis because it is so highly correlated with world region of birth and information on country of origin is more germane to this analysis. The social characteristics include educational attainment, school enrollment, and employment. Mode of response is included as a survey-operations characteristic.

Finally, we use multinomial logistic regression analysis to model the likelihood of being in the 1) ROYA alone compared to the Overlap population, 2) the YOE alone compared to the Overlap population, and 3) the YOE alone compared to the ROYA alone population. In the multivariate analysis, the primary predictor variable is world region of birth because the sending country is such an important aspect of international migration flows and there is considerable

[2]The ACS universe for the enrollment variable used in the analysis is restricted to the population age three and older. Also, the foreign-born immigration component of the population estimates is restricted to the household population. Therefore, we restricted our analysis to the household population age three and older. The age restriction is only used for research purposes and not in the production of the population estimates.

variation in the descriptive statistics across world regions. In addition, we use demographic, social, and survey-related controls to refine the relationship between the likelihood of being in the different populations and world region of birth.

Results

From 2007 to 2011, the ROYA and YOE methods produce different estimates of foreign-born immigration (Figure 2). In general, the YOE method produces higher estimate of foreign-born immigration than the ROYA method for the period. However, in 2011, it appears that the methods converge. Given there have not been any changes in the ACS questions used in the ROYA and YOE methods, this may imply a change in the characteristics of recent foreign-born immigrants.

Table 1 reports variation in the estimates by month of survey for the three populations. Both the ROYA alone and YOE alone populations are higher in the later months. Conversely, the Overlap population is more prevalent in the earlier months. This matches expectations, as the further in the year the survey is given, the fewer the opportunities to fall into the Overlap population (see Figure 1). The monthly distribution of the YOE alone population is more consistent than the ROYA alone or Overlap, with a range of 4.6 percent in January to 10.6 percent in December. For the ROYA alone population, the monthly distribution ranges from 2.4 percent in January to 13.6 percent in December, a difference of 11.2 percentage points. The Overlap population has the most variation in the monthly distribution with a range of 1.3 percent in December to 16.6 percent in January. This would partly explain why YOE method estimates are higher than ROYA method estimates to the extent that there is seasonality in migration flows to the United States.

Variation in the imputation of missing data for the residence one year ago and year of entry questions also accounts for some of the differences in the ROYA and YOE estimates (Table 2). The imputation rates for both the residence one year ago and year of entry questions are lowest for the Overlap population, 2.2 and 0.6 percent, respectively. The imputation rate for the residence one year ago question is highest for the ROYA alone population, 6.6 percent. Similarly, the imputation rate for the year of entry question is highest for the YOE alone population, 11.6 percent. The high imputation rates for the YOE question are therefore a necessary consideration when comparing methods.

Descriptive Statistics

There are considerable differences in the demographic characteristics of foreign-born immigrants from 2007 to 2011 across the different populations (Table 3). The two largest foreign-born immigrant groups are from Asia and Latin America. Asians make up the largest segment of foreign-born immigrants in both the ROYA alone and Overlap populations, while Latin Americans are more prominent in the YOE alone population. While the percentage Asian is highest in the ROYA alone population, the absolute number of immigrants from Asia in the YOE alone population (1,182 thousand) is higher than the ROYA alone (1,120 thousand) and Overlap (834 thousand) populations. Thus, while the YOE method measures a greater number of Asians than the ROYA method, Asians make up a smaller percentage of the foreign-born immigrant population. Overall, the YOE method produces populations that have higher representations of Latin Americans and Africans, and higher counts of Asians, than the ROYA method. This may partially explain the convergence of ROYA and YOE method estimates of foreign-born immigrants, as immigration from Latin America has decreased over the past few

years and immigrants from Asia are on the rise (Jensen and Arenas-Germosén 2012; Pew Research Center for Social and Demographic Trends 2012).

In general, international migration streams to the United States have a higher proportion of males than females (Table 3). The percent male in the YOE alone population is slightly higher than Overlap populations. The difference between the percent male in the YOE alone and ROYA alone populations is not statistically significant. Foreign-born immigrants in our sample are largely between the ages of 18 and 49, making up more than 60 percent of any of the three populations. The ROYA alone population has an older age structure than either the YOE alone or Overlap populations, with 19.4 percent aged 50 and older compared to 12.8 percent and 13.5 percent for the YOE alone and Overlap populations, respectively. In addition, foreign-born immigrants mainly live in a family household– more than three quarters are in family households in each of the three populations. While the YOE alone population has the largest proportion of respondents who live in families, the ROYA alone and Overlap populations do not differ significantly from each other. These differences in demographic characteristics indicate that the YOE method produces a younger population that is more likely to belong to a family household than the ROYA method.

Table 4 reports the social and survey-related characteristics of foreign-born immigrants from 2007 to 2011. We restrict the sample to ages 25 and above for the analysis of educational attainment and ages 16 and above for the employment analysis. For the ROYA alone, YOE alone, and Overlap populations, educational attainment has a somewhat segmented distribution with the largest percentage of the population having a bachelor's degree and the second largest percentage having less than high school. The YOE alone population is the least educated, having a higher percentage of those with less than a high school diploma and a lower percentage of

those with a bachelor's degree and above than the ROYA alone or Overlap populations. The lower educational attainment for the YOE alone population is consistent with our findings in Table 3 that this population includes more immigrants from Latin America and Mexico who tend to have lower socioeconomic status than immigrants from other regions. Most foreign-born immigrants were not enrolled in school at the time of the survey (Table 4); however, there are differences between the three populations. The ROYA alone population has the smallest percentage of students (24.1 percent), while the Overlap population has the highest (31.4 percent.) While the YOE alone population has the lowest overall level of educational attainment, the percentage enrolled in school (30.3 percent) is higher than the ROYA alone population. This is also consistent with our previous findings that the YOE population is younger than the ROYA or Overlap populations.

There are significant differences in employment between the three populations (Table 4). The YOE alone population has the highest percentage of immigrants that are employed, 51.6 percent compared to the ROYA alone and Overlap populations, 40.1 and 44.3 percent, respectively. Also, the percentage employed for the YOE alone population is higher than both the percentage unemployed and the percentage not in the labor force. In contrast, the percentage not in the labor force was the highest labor force category for the ROYA alone and Overlap populations. Unemployment is lowest for the YOE alone population with 7.8 percent compared to 8.5 percent for the ROYA alone population and 8.9 percent for the Overlap population. It appears that the differences between populations in employment are balanced by those not in the labor force.

The ACS is initially mailed to housing units and respondents are asked to complete the questionnaire and mail it back. Housing units that fail to complete the survey by mail are

followed up. If a phone number is available, they are followed up first by telephone (CATI) and then a sample of nonrespondents is followed up by in-person interview (CAPI). For this analysis, we categorize the mode of the survey as those who responded by mail, and those who responded through CATI /CAPI (Table 4). Recent immigrants are more likely to respond to the ACS through CATI/CAPI than through mail. The YOE alone population has the highest rate of CATI/CAPI response (67.8 percent,) while the Overlap population has the lowest (58.8 percent.) Of note is that foreign-born immigrants surveyed through CATI or CAPI are much more prevalent in the ROYA alone and YOE alone populations than the Overlap population.

Multivariate Analysis

The results of the descriptive analysis indicated that there are differences in the demographic, social, and survey-related characteristics of the ROYA alone, YOE alone, and Overlap populations. These differences are especially pronounced when comparing the estimates by world region of birth; however, there are compositional differences between the world regions that we are not able to measure with bivariate statistics. Multinomial logistic regression is used to assess the relationship between the estimate method and world region of birth using block modeling where we introduce demographic, social, and survey-related controls separately (Table 5). The models express the odds ratio of being in the 1) ROYA alone vs. the Overlap population, 2) the YOE alone vs. the Overlap population, and 3) ROYA alone vs. the YOE alone population. Controls for month and year of survey are present in all models, although specific results are not displayed.

Model 1 focuses on the relationship between world region of birth and the different methods for estimating foreign-born immigration. The reference category is Latin America. Foreign-born immigrants from all regions are significantly more likely than Latin American

immigrants to belong to the Overlap population than either the ROYA alone or YOE alone populations. Furthermore, foreign-born immigrants from all regions, except for Africa, are significantly more likely than Latin American immigrants to belong to the ROYA alone population than the YOE alone population. From these results, it is clear that foreign-born immigrants from Latin America are much more likely than any other region to belong to the YOE alone population than any other population. These findings are consistent with the results of the descriptive analysis presented above.

In Model 2, we focus on world region of birth while controlling for demographic characteristics including age, sex, and family status. Overall, the odds ratios for world region of birth remain significant, with little variation from Model 1. Sex is not statistically significant in this model. Age was categorized into four groups (3-17, 18-29, 30-49, and 50 years and older) with 18-29 as the reference category. Foreign-born immigrants aged 3-17 are more likely than 18-29 year olds to be in the Overlap population than either the ROYA alone or YOE alone populations. Additionally, those aged 50 and older are more likely than 18-29 year olds to be in the ROYA alone population than either the YOE alone or Overlap populations. Household type is also significant. Foreign-born immigrants who live in family households are more likely than those living in nonfamily households to be in the YOE alone population than either the ROYA alone or Overlap populations. These results match the descriptive statistics, which show little difference between males and females and reveal a YOE alone population that is younger than the ROYA alone population. This would indicate that while demographic characteristics are related to the differences between the three mutually exclusive populations, they do not adequately explain the differences between world region of birth.

Model 3 focuses on the relationship between world region of birth and the likelihood of being in the different estimated populations while controlling for social variables. The social variables include educational attainment, school enrollment, and employment. Age is also retained as a control variable. Foreign-born immigrants with some college education are more likely than those with less than a high school diploma (reference category) to be in the ROYA alone population than either the YOE alone or Overlap populations. Foreign-born immigrants with a bachelor's degree or higher are more likely than those with less than a high school diploma to be in either the ROYA alone or Overlap populations than the YOE alone population. Students are more likely to be in the Overlap population than either the ROYA alone or YOE alone populations. Immigrants that are unemployed or not in the labor force are less likely to be in the YOE alone population than the ROYA alone or Overlap populations. The odds ratios for region of birth remain significant in this model, except for immigrants from Asia in the YOE alone vs. ROYA alone comparison. This means that differences between immigrants from Asia and Latin America in their likelihood of being classified in the ROYA alone or YOE alone categories can be explained by the social characteristics of immigrants from those regions .

Model 4 replaces the social variables with the survey-related variable for mode of survey. Foreign-born immigrants who responded by telephone or in person are more likely than those who responded by mail to be in either the ROYA alone or YOE alone populations than the Overlap population. This matches what was portrayed in the descriptive statistics, where those surveyed by CATI or CAPI were least represented in the Overlap population. The odds ratios for region of birth remain significant. Mode of survey explains some, but not all, of the differences between world regions of birth.

Model 5 is a full model which includes all of the controls from the previous models. Even after controlling for demographic, social, and survey-related variables, the odds ratios for region of birth remain significant with relatively large magnitudes. Foreign-born immigrants born in Africa become significantly more likely than Latin Americans to be in the YOE alone population than the ROYA alone population. In this model, sex becomes statistically significant, with males being slightly more likely than females to be in the ROYA alone population than either the YOE alone or Overlap populations. The effects of age are less pronounced than in the model with demographic controls (Model 2) for the ROYA alone vs. Overlap and YOE alone vs. ROYA alone comparisons, especially for immigrants 3-17 years old and 50 years or older. The impact of living in a family household compared to a nonfamily household increases substantially in the full model for the YOE alone compared to the ROYA alone population where immigrants in a family are 42 percent more likely to be in the YOE alone than the ROYA alone category. There were only small changes in the odds ratios for educational attainment and enrollment in the full model; however, the changes were not statistically different from Model 3. In the full model, the effect of not being in the labor force increases for the ROYA alone vs. Overlap and YOE alone vs. ROYA alone comparisons compared to Model 3. Finally, mode of survey becomes statistically significant in the YOE alone and ROYA alone comparison where immigrants who responded by CATI/CAPI are less likely to be in the YOE alone than the ROYA alone category.

Conclusion

Precise measures of foreign-born immigration are essential for producing accurate population estimates. The Population Estimates Program of the U.S. Census Bureau uses the ROYA method to produce a national-level estimate of foreign-born immigration and information

on year of entry to distribute demographic and geographic characteristics to the ROYA-based national-level estimate. However, the YOE method can also be used to produce a national-level estimate of foreign-born immigration over a 12-month period. In this paper, we analyzed differences in estimates of foreign-born immigration between the ROYA and YOE methods focusing on annual and monthly levels of immigration as well as demographic, social, and survey-related characteristics. The findings show that from 2007-2011, there were differences in the estimated levels of foreign-born immigration between the ROYA and YOE methods. There was also considerable variation in the estimated characteristics, including world regions of birth, between the two methods.

In recent years, the world-region-of-birth composition of immigrant flows to the United States has been shifting. Sharp declines in the number of immigrants from Mexico and other Latin American countries have been accompanied by steady increases in the number of immigrants from China and India (Jensen and Arenas-Germosén 2012). That the composition of world region of birth varies between the ROYA and YOE methods has implications for the age, sex, race, and Hispanic origin distributions for the estimates of net international migration used in the population estimates. The population estimated using the ROYA method is older, more Asian, and more White than the population estimated using the YOE method which is younger and more Hispanic. In an effort to produce the most accurate estimates, the Census Bureau continues to research and evaluate methods for estimating foreign-born immigration.

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Table 1. Residence One Year Ago (ROYA) Alone, Year of Entry (YOE) Alone, and Overlap Populations by Month: 2007-2011

	ROYA Alone		YOE Alone		Overlap	
Month	Percent	MOE	Percent	MOE	Percent	MOE
January	2.4	0.2	4.6	0.3	16.6	0.8
February	3.6	0.3	6.0	0.4	16.0	0.7
March	4.7	0.3	6.5	0.4	13.8	0.6
April	5.7	0.3	7.3	0.4	12.4	0.6
May	6.8	0.4	7.7	0.4	10.2	0.6
June	7.4	0.4	8.4	0.5	8.2	0.5
July	8.4	0.4	8.3	0.5	6.8	0.5
August	9.9	0.5	9.1	0.5	5.3	0.5
September	11.9	0.5	10.5	0.5	4.1	0.4
October	12.3	0.5	10.1	0.5	3.0	0.3
November	13.2	0.6	10.8	0.5	2.2	0.3
December	13.6	0.5	10.6	0.4	1.3	0.2
N	2,758,512	49,741	3,133,793	52,065	1,914,353	38,844

Notes: Restricted to household population ages 3 and above, with no imputation for ROYA and YOE questions.
Source: U.S. Census Bureau, 2007-2011 1-year American Community Survey files, special tabulations.

Table 2. Imputation of the Residence One Year Ago and Year of Entry Questions by Residence One Year Ago (ROYA) Alone, Year of Entry (YOE) Alone, and Overlap Populations: 2007-2011

Question and imputation status	ROYA Alone		YOE Alone		Overlap	
	Percent	MOE	Percent	MOE	Percent	MOE
Residence one year ago						
Not imputed	93.4	0.3	96.9	0.2	97.8	0.2
Imputed	6.6	0.3	3.1	0.2	2.2	0.2
Year of entry						
Not imputed	92.5	0.4	88.4	0.4	99.4	0.1
Imputed	7.5	0.4	11.6	0.4	0.6	0.1
N	3,118,709	51,787	3,630,727	54,604	1,964,936	38,992

Notes: Restricted to household population ages 3 and above.
Source: U.S. Census Bureau, 2007-2011 1-year American Community Survey files, special tabulations.

Table 3. Demographic Characteristics of Residence One Year Ago (ROYA) Alone, Year of Entry (YOE) Alone, and Overlap Populations: 2007-2011

Characteristic	ROYA Alone		YOE Alone		Overlap	
	Percent	MOE	Percent	MOE	Percent	MOE
World region of birth						
Latin America	37.4	0.8	44.3	0.8	32.3	0.9
Asia	40.6	0.8	37.7	0.8	43.6	0.8
Europe	12.4	0.4	8.2	0.4	13.2	0.5
Africa	5.7	0.4	6.9	0.4	6.6	0.5
Other	4.0	0.3	2.9	0.2	4.4	0.4
Sex						
Male	51.0	0.6	51.6	0.5	50.3	0.7
Female	49.0	0.6	48.4	0.5	49.7	0.7
Age						
3-17	14.9	0.4	19.0	0.4	18.6	0.6
18-29	33.5	0.6	36.9	0.6	35.7	0.8
30-49	32.1	0.6	31.4	0.5	32.2	0.6
50+	19.4	0.5	12.8	0.4	13.5	0.5
Household type						
Family	78.3	0.6	82.0	0.6	78.4	0.8
Nonfamily	21.7	0.6	18.0	0.6	21.6	0.8
N	2,758,512	49,741	3,133,793	52,065	1,914,353	38,844

Notes: Restricted to household population ages 3 and above, with no imputation for ROYA and YOE questions.
Source: U.S. Census Bureau, 2007-2011 1-year American Community Survey files, special tabulations.

Table 4. Social and Survey-Operation Characteristics of Residence One Year Ago (ROYA) Alone, Year of Entry (YOE) Alone, and Overlap Populations: 2007-2011

Characteristic	ROYA Alone		YOE Alone		Overlap	
	Percent	MOE	Percent	MOE	Percent	MOE
School Enrollment[1]						
Enrolled	24.1	0.6	30.3	0.6	31.4	0.6
Not enrolled	75.9	0.6	69.7	0.6	68.6	0.6
Mode[1]						
CATI[2]/CAPI[3]	65.4	1.0	67.8	0.9	58.8	1.2
Mail	34.6	1.0	32.2	0.9	41.2	1.2
N	2,758,512	49,741	3,133,793	52,065	1,914,353	38,844
Labor force status (Age 16+)						
Employed	40.1	0.6	51.6	0.7	44.3	0.8
Unemployed	8.5	0.4	7.8	0.4	8.9	0.5
Not in labor force	51.4	0.6	40.6	0.7	46.9	0.8
N	2,434,618	43,933	2,641,868	44,802	1,637,500	32,998
Education (Age 25+)						
Less than high school	25.1	0.7	27.6	0.8	21.6	0.9
High school	18.4	0.6	20.1	0.6	17.0	0.7
Some college	13.2	0.5	13.6	0.5	12.3	0.6
Bachelor's degree or above	43.3	0.8	38.7	0.8	49.1	1.0
N	1,841,636	36,937	1,897,225	33,601	1,177,548	24,297

[1]Restricted to household population ages 3 and above, with no imputation for ROYA and YOE questions.
[2]Computer-Assisted Telephone Interview.
[3]Computer-Assisted Personal Interview.
Source: U.S. Census Bureau, 2007-2011 1-year American Community Survey files, special tabulations.

Table 5. Multinomial Logistic Regression Models on Residence One Year Ago (ROYA) Alone, Year of Entry (YOE) Alone, and Overlap Populations: 2007-2011

	Model 1			Model 2			Model 3			Model 4			Model 5		
Characteristic	ROYA Alone vs. Overlap	YOE Alone vs. Overlap	YOE Alone vs. ROYA Alone	ROYA Alone vs. Overlap	YOE Alone vs. Overlap	YOE Alone vs. ROYA Alone	ROYA Alone vs. Overlap	YOE Alone vs. Overlap	YOE Alone vs. ROYA Alone	ROYA Alone vs. Overlap	YOE Alone vs. Overlap	YOE Alone vs. ROYA Alone	ROYA Alone vs. Overlap	YOE Alone vs. Overlap	YOE Alone vs. ROYA Alone
Intercept	0.26 ***	0.71 ***	2.69 ***	0.25 ***	0.62 ***	2.49 ***	0.23 ***	0.88 **	3.75 ***	0.20 ***	0.54 ***	2.73 ***	0.17 ***	0.59 ***	3.43 ***
Region of Birth															
Latin America (ref.)															
Asia	0.66 ***	0.54 ***	0.82 ***	0.64 ***	0.55 ***	0.85 ***	0.68 ***	0.64 ***	0.94	0.72 ***	0.59 ***	0.82 ***	0.72 ***	0.68 ***	0.94 *
Europe	0.68 ***	0.40 ***	0.58 ***	0.67 ***	0.41 ***	0.61 ***	0.71 ***	0.45 ***	0.64 ***	0.76 ***	0.44 ***	0.58 ***	0.78 ***	0.50 ***	0.64 ***
Africa	0.61 ***	0.65 ***	1.07	0.61 ***	0.65 ***	1.06	0.63 ***	0.71 ***	1.12 ***	0.64 ***	0.68 ***	1.07	0.66 ***	0.73 ***	1.10 ***
Other	0.81 ***	0.50 ***	0.61 ***	0.73 ***	0.49 ***	0.68 ***	0.75 ***	0.54 ***	0.72 ***	0.91	0.55 ***	0.61 ***	0.81 **	0.59 ***	0.73 ***
Demographic characteristics															
Male				1.05 *	1.04 *	1.00							1.12 ***	0.97	0.87 ***
Age															
3-17				0.84 ***	0.90 ***	1.07 **	0.88 ***	0.91 ***	1.03				0.95 *	0.89 ***	0.94
18-29 (ref.)															
30-49				1.07 **	0.92 ***	0.86 ***	0.99	0.96	0.97 *				1.05	0.96	0.91 ***
50+				1.82 ***	1.02	0.56 ***	1.45 ***	1.06 *	0.73 ***				1.57 ***	1.08 **	0.69 ***
Family household				0.93 **	1.19 ***	1.28 ***							0.85 ***	1.21 ***	1.42 ***
Social characteristics															
Education															
Less than High School (ref.)															
High School							1.02	0.95 *	0.93 *				1.03	0.96 *	0.92 **
Some College							1.13	0.94 **	0.83 ***				1.16 *	0.97 *	0.84 ***
Bachelor's Degree or Above							0.93 ***	0.66 ***	0.71 ***				0.97	0.71 ***	0.73 ***
School Enrollment							0.65 ***	0.96	1.47 ***				0.63 ***	1.01	1.59 ***
Employment															
Employed (ref.)															
Unemployed							1.12	0.74 ***	0.66 ***				1.18 **	0.72 ***	0.61 ***
Not in Labor Force							1.31 ***	0.80 ***	0.61 ***				1.41 ***	0.78 ***	0.55 ***
Survey characteristics															
Mode															
Mail (ref.)															
CATI/CAPI										1.38 ***	1.36 ***	0.98	1.40 ***	1.34 ***	0.96 **
Likelihood Ratio	1,625 ***			13,037 ***			33,970 ***			3,048 ***			73,902 ***		

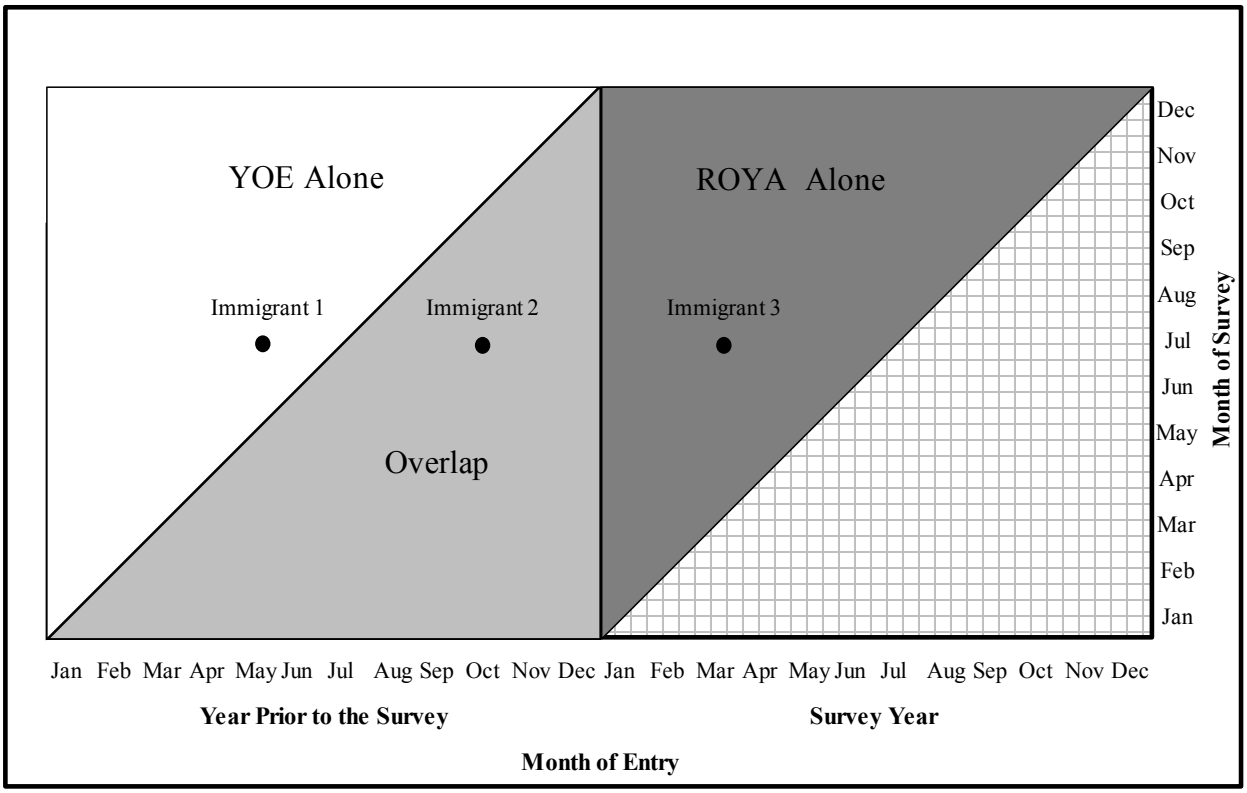
*** p>.001, ** p>.01, * p>.05

n = 83,251

Note: All models controlled for year and month. Restricted to household population ages 3 and above, with no imputation for ROYA and YOE questions.

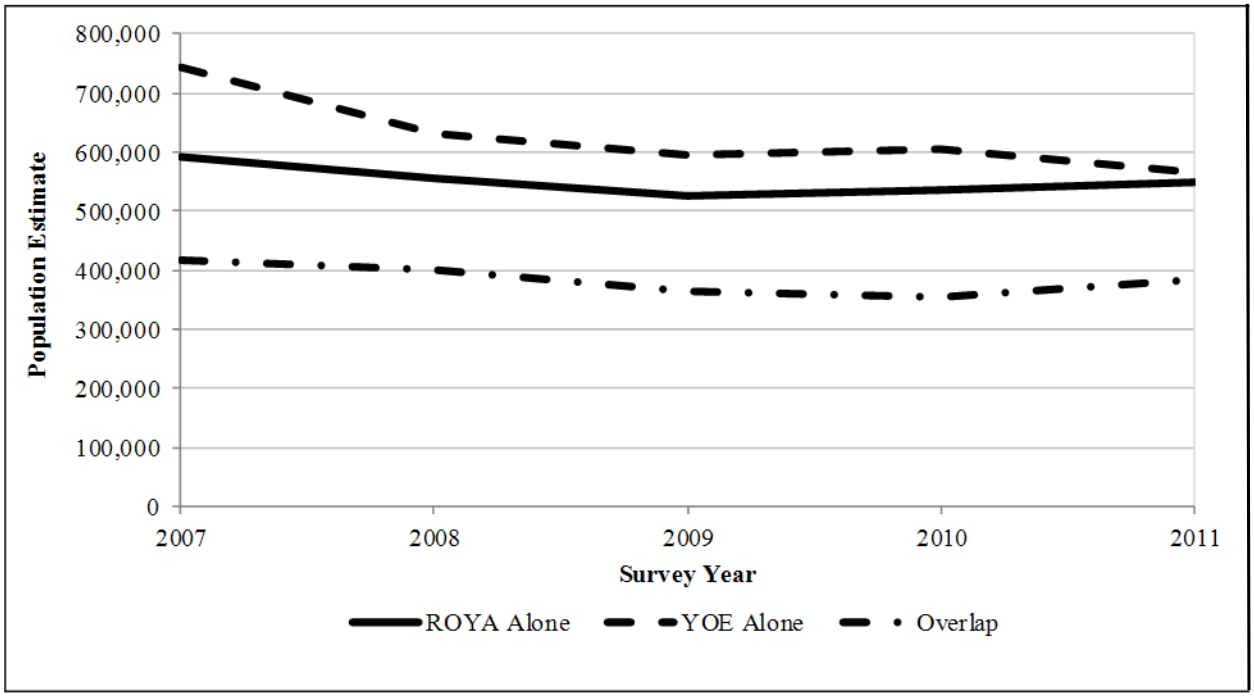
Source: U.S. Census Bureau, 2007-2011 1-year American Community Survey files, special tabulations.

Figure 1.
Temporal Inconsistencies Between the ROYA and YOE Methods for Estimating Foreign-Born Immigration



Source: U.S. Census Bureau, Population Division.

Figure 2. Foreign-born Immigration: 2007-2011



Note: Restricted to household population ages 3 and above, with no imputation for ROYA and YOE question
Source: U.S. Census Bureau, 2007-2011 1-year American Community Survey files, special tabulations.