Interstate Migration Data in the American Community Survey and Decennial Census: An Exploratory Comparison

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Extended Abstract

Background

The Office of Immigration Statistics (OIS) of the U.S. Department of Homeland Security (DHS) produces annual estimates of the unauthorized immigrant population and legal permanent resident (LPR) population at the state level. The methods used by OIS require estimation of the current size of all or part of the legally resident foreign-born population—naturalized citizens, LPRs, refugees, asylees, and nonimmigrants—by state and assume that the current state of residence is the state of residence at the time of the most recent immigration status change (e.g. when a person becomes a LPR or naturalizes) because the data only report the latter. Thus, state-to-state migration subsequent to a status change is ignored but may still affect the accuracy of the final population estimates (see Hoefer, Rytina, and Baker, 2010; Rytina, 2009). This poster represents a first step towards addressing this issue with the intended goal of incorporating interstate migration rates into the current estimation methods used by OIS.

While no data source fully captures the internal (or domestic) migration experience of foreignborn persons, for the above stated purposes, data from the decennial censuses and American Community Survey (ACS) of the U.S. Census Bureau are the best available.¹ However, using both data sources presents its own methodological problem primarily because they have different migration intervals. With five years of ACS data available since its full implementation in 2005, researchers can now begin to examine the comparability of ACS one-year migration data with decennial census five-year migration data. This poster makes a small attempt to do so (while working towards the above stated goal) by exploring data from the 2005-2009 ACS and the 1990 and 2000 censuses. I answer two research questions: 1) How do patterns of one-year interstate migration rates compare across years? 2) How do patterns of one-year interstate migration rates compare with those of five-year interstate migration rates? I focus on the total foreign-born population and the native-born population (as a comparison group) in five major immigrantreceiving states (California, Florida, Illinois, New York, and Texas) plus the rest of the United States. Future research will cover other states and time periods as well as the legally resident foreign-born population only once a method to identify this group in decennial census and ACS data is developed.

Data and Methods

Beginning with single-year 2005-2009 ACS PUMS data, observations are separated into 1) all native-born persons five years of age and older and 2) all foreign-born persons five years of age

¹ Currently, I am considering the use of census and ACS-derived rates in a cohort-component model to migrate the legally resident foreign-born population forward in time and space from a defined launch year to the present in order to estimate the current population size by state. Details of this approach will appear in forthcoming publications.

and older.² A need to know how interstate migration varies with age and duration of residence in the United States is also anticipated. Therefore, the foreign-born and native-born are subdivided into four broad age groups (5-17 years, 18-39 years, 40-64 years, and 65+ years) and, for the foreign-born, by duration of residence for persons who are long-term residents (in U.S. more than 10 years), recent arrivals (in U.S. 5-10 years), and (for ACS data only) very recent arrivals (in U.S. less than 5 years) (cf. Clark and Patel, 2004; Wilson, 2008).³ For total foreign-born, total native-born, and each age/duration-specific group, I construct estimates of the in-, out- and net migration rates for each migration interval and geographic area. The general formula for the in-, out-, and net migration rates, respectively, are

$$DIrate(A_x) = \frac{DI_x}{POP} *1000,$$

$$DOrate(A_x) = \frac{DO_x}{POP} * 1000,$$

and

$$DNrate(A_x) = \frac{(DI_x - DO_x)}{POP} *1000,$$

where, for state A and migration interval of x years: $DIrate(A_x) = Domestic (interstate) in-migration rate$ $DOrate(A_x) = Domestic (interstate) out-migration rate$ $DNrate(A_x) = Domestic (interstate) net migration rate$ $DI_x = Domestic (interstate) in-migrants$ $DO_x = Domestic (interstate) out-migrants$ $POP = Approximated population^4$

Finally, I construct in-, out-, and net migration rates using 1990 and 2000 PUMS data in the same manner as stated above. For the purposes of statistical testing, 90% confidence intervals are calculated for all rates.

Expected Findings

To reiterate the research questions, the analysis will 1) compare the patterns of one-year interstate migration rates derived from ACS data and 2) compare patterns between the one-year

² Persons under age five are excluded due to lack of comparability with 1990 and 2000 data.

³ The age groups were selected because of their correspondence to populations with different labor force statuses with a further division of the population aged 18-64 years to reflect age-related differences in migration patterns between younger and older adults. Smaller age groups (e.g. five-year groups) would be more preferable, but there are concerns about their sample sizes in the ACS data. Future research will address how best to group data by age. ⁴ The approximated population is the sum of persons who are non-movers and bounded movers within *A* plus

persons who out-migrated from A during x, excluding persons who died or emigrated from the United States during x. This method is similar to the one used by the U.S. Census Bureau to calculate migration rates (see Perry, 2003 for an example). Other base populations could (and perhaps should) be used to calculate migration rates, but in order to calculate a net rate and make all in, out, and net rates comparable, the same denominator must be used. Other scholars (e.g. Pittenger, 1976; Smith, Tayman, and Swanson, 2002) also favor the use of the (survived) beginning population because it is unaffected by migration and as long as it is consistently applied.

rates and five-year interstate migration rates based on 1990 and 2000 census data. Previous studies comparing one-year and five-year migration data within the U.S. context (e.g. Koerber, 2007; Rogers, Raymer, and Newbold, 2003) suggest that migration patterns across time in a geographic area and the spatial structure of migration patterns are relatively stable. Thus, I expect similar patterns of in-, out-, and net migration rates across time as well as relative consistency in the spatial variability of migration rates, whether comparisons are made across years in ACS data only or between ACS one-year rates and decennial census five-year rates. As an example, since southward and westward migration has been an established trend in recent decades, out-migration rates (and net loss) from New York should be higher than those for Florida and Texas for all migration intervals.

However, temporal differences in patterns may still be observed due to sampling variability, differences in reference dates, and/or the presence of a temporary or permanent shift in migration trends unique to a particular state and time period. For example, in the case of the foreign-born in California, a shift from net in-migration to net out-migration is expected as internal migration flows to and from that state began to change in the 1990s (Passel and Zimmermann, 2001). Sampling variability should be more evident in the ACS data due to smaller sample sizes (1% sample in ACS versus 5% sample in 1990 and 2000 PUMS).

Finally, while not specifically addressed by the research questions, I anticipate that results may reveal 1) differences in patterns between the foreign-born and the native-born and 2) a relationship between the one-year and five-year rates that may be (crudely) defined or lead to a possible method of constructing five-year rates from ACS data. Though important, any such findings are left to future research for further exploration.

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