10 October 2018

United Nations Economic Commission for Europe

Conference of European Statisticians

Work Session on Migration Statistics
Geneva, Switzerland
24-26 October 2018
Item 5 of the provisional agenda
Labour migration

The Measurement of Labor Migration to the United States

Note by the United States Census Bureau*

Abstract

While many migrants to the United States come for family or education-related reasons, international labor migration remains an important impetus for the movement of people, as they move for the specific purpose of gaining employment, or international migrants moving to the country for non-work-related reasons enter the labor force after arrival. This paper investigates the empirical measurement of labor migration to the United States using national data sources, taking into consideration international standards, such as recent guidelines issued by the International Labour Organization (ILO, 2018). The extent to which U.S. data measures labor migration, both in terms of stocks and flows, is determined using both Census Bureau survey based estimates derived from American Community Survey (ACS) and Current Population Survey (CPS) data, as well as from administrative data released by the Office of Immigration Statistics (OIS), such as issuance of work-related visas. The applicability of these international definitions and the potential of using administrative data vis-a-vis survey-based estimates is considered. We also discuss the potential of combining multiple data sources to produce model-based estimates of labor migration.

Measurement of labor migration flows will be difficult to operationalize at an international level, due to various differences in data sources, definitions, and availability of administrative data. This paper shows what can and cannot be measured using U.S. data sources available to the Census Bureau. From a survey perspective, "for work" flow definitions are less practical than "engaged in work" definitions, which would better reflect both data availability and practical policy concerns.

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I. Introduction

1.   From 2014-2017 the United States received an annual net migration flow of over one million international migrants per year (U.S. Census Bureau 2017). While many of these migrants come for family or education-related reasons, international labor migration remains an important impetus for the movement of people to and from the United States, as people move for the specific purpose of gaining employment, or international migrants moving to the country for non-work-related reasons enter the labor force after arrival.

2.   Measurement of the number of these work-related migrants depends on how labor migrants are defined and data sources used. As the Census Bureau tries to improve its measurement of various sub-groups of international migrants, it is important to see how different definitions or data sources yield different results. Previous research in the Net International Migration Branch (NIMB) has examined the measurement of refugees and international students, thus examination of labor migration is a logical extension of this work (Schachter et al. 2016, Schachter and Knapp 2017).

3.   This paper investigates the empirical measurement of labor migration to the United States using national data sources, taking into consideration international standards, such as recent guidelines issued by the International Labour Organization (ILO, 2018). The extent to which U.S. data measures labor migration, both in terms of stocks and flows, will be determined using both Census Bureau survey based estimates derived from American Community Survey (ACS) and Current Population Survey (CPS) data, as well as from administrative data released by the Office of Immigration Statistics (OIS), such as issuance of work-related visas. The applicability of these international definitions and the potential of using administrative data vis-a-vis survey-based estimates will be considered. We will also discuss the potential of combining multiple data sources to produce model-based estimates of labor migration.

II. International framework for defining international labor migration

4.   In 2013, the 19th International Conference of Labour Statisticians (ICLS) adopted a resolution, recommending the creation of a working group to develop guidelines to create international standard definitions and measurement of international labor migration statistics. The United States has been an active participant in the ILO Working Group to develop these new international guidelines. ILO's proposed guidelines offer definitions to measure both the stock and flow of labor migrants, taking into account current international standards on statistics on work (2013 ICLS).   Per ILO's proposed guidelines, international migrant workers are international migrants who are either in the labor force or in the potential labor force or engaged in any form of work. The stock of international migrant workers is defined as the total number of international migrants present in the country at any given point in time. The flow of "for-work" international migrants is the annual number of international migrants entering the destination country to undertake or seek work, and whose intentions to work were documented or declared at the time of entry into the destination country.

5.   The United States tested the viability of these proposed definitions with data available from Census Bureau surveys and administrative data available from the Department of Homeland Security (DHS). One weakness of these proposed definitions is that stocks and flows are measuring different migrants, with the stock (any international migrant working or seeking work) being far more inclusive than the flow (intention to work at time of entry) definition. While the flow definition calls for documented or declared intention to work at time of entry, in practical

terms, "intention to work" can be measured via both legal/objective measures (e.g. type of visa type issued to migrant upon entry to the country) or self-reported/subjective measures (e.g. survey-based responses for reason for moving), which will not necessarily yield the same results. We will discuss the repercussions of these operational differences later in the results section.

III.   U.S. data sources for the measurement of international labor migration

6.   While the U.S. Census Bureau does not produce specific estimates of international labor migration, these migrants are included as part of the total net flow estimated to and from the United States. The primary data source used to produce these net international migration estimates is the American Community Survey (ACS). The ACS is an annual continuous survey of the U.S. population that asks detailed information previously collected on the decennial census long form. Fully implemented in 2005, it currently surveys about 3.5 million households per year. National level estimates for small populations (e.g. the foreign born) are calculated using annual data, while smaller geographic units (e.g. states and counties) are often dependent on 5-year data files.   The ACS includes a number of relevant questions related to the measurement of international migration, such as country of birth, citizenship status, year of entry, and country of residence one year ago.   It also includes detailed labor force, occupation and job activity information, which is critical for identifying the stock of labor migrants per ILO's proposed guidelines. From a data comparability perspective, it is important to note that the ACS reflects the complete resident population, and uses the concept of "current residence," meaning everyone who is in the housing unit on the day of interview who is living or staying there for more than two months, is included in the survey sample.

7.   The other important U.S. Census Bureau source of labor force and international migration information is the Current Population Survey (CPS), which is the primary data source for U.S. labor force statistics.   The CPS first began in the 1940's, and its current sample size is about 60,000 households, which provides national population estimates. It only includes the usually resident civilian non-institutional population (excludes institutional group quarters, such as prisons and nursing homes), so its universe is a bit smaller than the ACS. The CPS asks a number of detailed labor force and migration-related questions, particularly the March Annual Social and Economic Supplement (ASEC), which contains ACS foreign-born items plus additional questions not asked by the ACS like parental place of birth and reason for moving. The reason for move question is important for implementing the proposed ILO definition of labor migration flows and includes a number of work-related response categories, such as a "new job or job transfer," "to look for work or lost job," "retired", or "other job-related reason."   Other response categories include family, housing, education-related, and other reasons. There is no specification about the reason for move at the "time of entry," but it rather asks for the "main reason" for moving to this house. Finally, the CPS uses the concept of "usual residence," meaning it interviews everyone staying at the housing unit at the time of the interview who considers the housing unit as their usual residence or who has no usual residence elsewhere, which is bit different conceptually from the ACS two-month residence criterion.

8.   It should be noted that Census surveys, while representative of the entire resident population, regardless of legal status, have well documented patterns of undercoverage of immigrant populations, especially irregular migrants (Jensen et al. 2015). However, this is of even greater concern with administrative data sources, as many irregular migrants will be entirely missing from administrative sources of legally documented migrants.

9.   Another source of data on labor migration are administrative data from DHS, which are produced by its Office of Immigration Statistics (OIS). Published on an annual basis, these data include information on work-related visas issued during the fiscal year[1], as well as the number of entries by persons entering the United States on these work-related visas (border crossing information). These published administrative sources are well suited for measuring flows of labor migrants, but less useful for stock measurement, since they do not include information on all international migrants currently living in the country. While the U.S. Census Bureau does not currently use administrative data to produce its international migration estimates, we are investigating methods to incorporate these data into our final estimates. However, there are a number of considerations which must be taken into account when using administrative data and attempting to compare or use with survey-based data, including different reference periods for collecting data and reporting migration statistics, the non-individualized nature of administrative data, and timing of the migration event.

10.   While U.S. Census Bureau survey data produces calendar year-based estimates, administrative data are tabulated based on the fiscal year. In general, differences between calendar and fiscal years will be slight, unless there is a sudden increase or decrease of movement during the time period which occurs later in the calendar year. An example of this sort of major event was Hurricane Maria, which struck Puerto Rico on September 20, 2017, and had a dramatic impact on migration patterns from Puerto Rico to the United States in its aftermath (which coincided with Fiscal Year (FY) 2018).

11.   Second, border crossing statistics are typically reported as the number of administrative actions (e.g. total number of entries to the United States by persons with a particular visa type) as opposed to individual migration events, meaning it is possible/likely that the same person is measured several times over the same time period. In order to account for this multiple counting, OIS provided us with estimates of individualized moves from 2012-2015 by visa type, which allows us to adjust published figures to better reflect individualized movement on an annual basis. While this individualized data eliminates multiple moves by individuals over the fiscal year, it still includes movement of persons during the fiscal year who were issued visas in prior years.

12.   A more comparable measure to an annual migration "flow" would be the number of new work-related visas issued outside the United States during the year, which is collected by the U.S. State Department. Again, this is a measure of new visas issued, not the number of people who actually moved to the United States (some people issued visas might not have come to the United States that year). While issued visas cover the fiscal, not calendar, year, it still provides a better approximate to a migration flow. The ideally comparable administrative data source would be individualized border entries of those issued visas during the same year, but this information is not published by OIS.

13.   Another subtle difference between administrative and survey-based migration data is the timing of when the migration event is measured. Both the ACS and CPS measure migration via a retrospective question on if a person lived at an address different from their current address one year ago. This is a post-facto measurement of migration, as the move could have occurred at any time one year prior to being sampled in the survey. Thus, calendar year survey data migration measurement lags the actual migration event by a short period of time (up to one year in the case of the ACS, with a potential two-year gap for individual migrants depending on when they are

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[1] The fiscal year runs from 1 October of the previous calendar year to 30 September of the current calendar year.

sampled[2]). For border crossing information, the migration event is measured when the movement occurs (in real time, if processed electronically). Again, in most cases differences between measurement at the time of move and measurement at time sampled in the survey should not create large comparability problems, unless there has been a sudden (large or small) movement of persons, making flow estimates incomparable.

14.   The United States issues several types of work-related visas, both long-term (one year or more, called "temporary") or short-term (less than one year). In terms of visa types, our analysis primarily focuses on work-related visas with a duration of at least one year. This include 12 visa types, among which H1B (temporary workers in specialty occupations) and L1 (intracompany transferees), are by far the most common.[3]   These visa types are included in the administrative data tabulations seen in the following section.

IV.   Results

15.   Table 1 presents available information on labor migration stocks and flows per ILO recommended definitions and migrant categories, as well as additional tallies based on available information from various data sources. As one can see, results differ greatly by definitions and data sources used.

16.   Both the CPS and ACS are well suited to measure the stock of international labor migrants, defined as foreign-born migrants currently in the labor force, and are able to differentiate between those who have become naturalized citizens and non-citizens. As such, 2016 ACS and CPS estimates of the stock of labor migrants are quite similar, at 27.6 million and 26.7 million respectively. The ACS counts slightly more foreign-born naturalized citizen migrant workers than the CPS, while non-citizens are essentially the same. Again, DHS does not provide published estimates of foreign-born residents currently engaged in the labor force.

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[2] The ACS is a continuous monthly survey, thus for the residence one-year ago question, a person sampled January 1, 2016 could have moved January 1, 2015, while a person sampled December 31, 2016, could have moved December 30, 2016, resulting in a two-year gap between when individual moves occurred during the same survey year.

[3] The twelve work-related visa types include: H1B, H1B1, H1C, O1, O2, P1, P2, P3, Q1, R1, TN, and L1.

Table 1. Estimates of Labor-Related Migration from United States Data Sources: 2016

Migrant category of interest to ILO	CPS		ACS		DHS	
	Stock	Flow[1]	Stock	Flow[2(3)]	Stock	Flow
Total foreign born	26,740,000	227,000	27,630,000	552,000 (380,000)	NA	NA
Margin of Error (90% CI)	*448,000*	*67,000*	*93,000*	*15,000[9]*		
Naturalized migrant	12,480,000	6,000	13,500,000	42,000 (24,000)	NA	NA
Margin of Error (90% CI)	*289,000*	*5,000*	*60,000*	*3,500[9]*		
Non-citizen migrant	14,270,000	221,000	14,130,000	510,000 (355,000)		2,301,500[4]/ 608,284[5]/
Margin of Error (90% CI)	*377,000*	*66,000*	*90,000*	*14,000[9]*		340,059[6]
Return-migrant	NA	NA	NA	NA	NA	NA
Refugee, asylum seeker	NA	NA	NA	NA	NA	54,218[7]
Undocumented	NA	NA	NA	NA	NA	NA
"Short-term" migrant	NA	NA	NA	NA		218,995[8]
Border workers and similar	NA	NA	NA	NA	NA	NA

Notes

NA- Not available

1- CPS labor flows based on residence one-year ago outside the US, and main reason for move work-related

2- ACS labor flows based on residence one-year ago outside the US, and currently in labor force
3- ACS total immigration flow times % of CPS flow moving for work-related reasons (.2548)
4- Number of admissions during fiscal year of people possessing work-related visas (of one-year or longer)

5- Number of individuals with work-related visas (of one-year or longer) entering the US during the fiscal year

6- Number of new work-related visas issued during fiscal year

7- Sum of refugee arrivals and individuals granted asylum, excluding children, as an upper-bound estimate of labor force members
8- Number of H2A and H2B visas issued during year (visas of less than one year duration).
9- Margin of error for ACS currently in labor force only (see note 2).

17.   Figure 1 shows ACS and CPS stock estimates of work-related migrants from 2010-2016. These time series show the ACS estimate as being more stable and consistently higher than the CPS estimate, but both trend in similar directions since 2011.

Figure 1. Stock of International Labor Migrants: 2010-2016
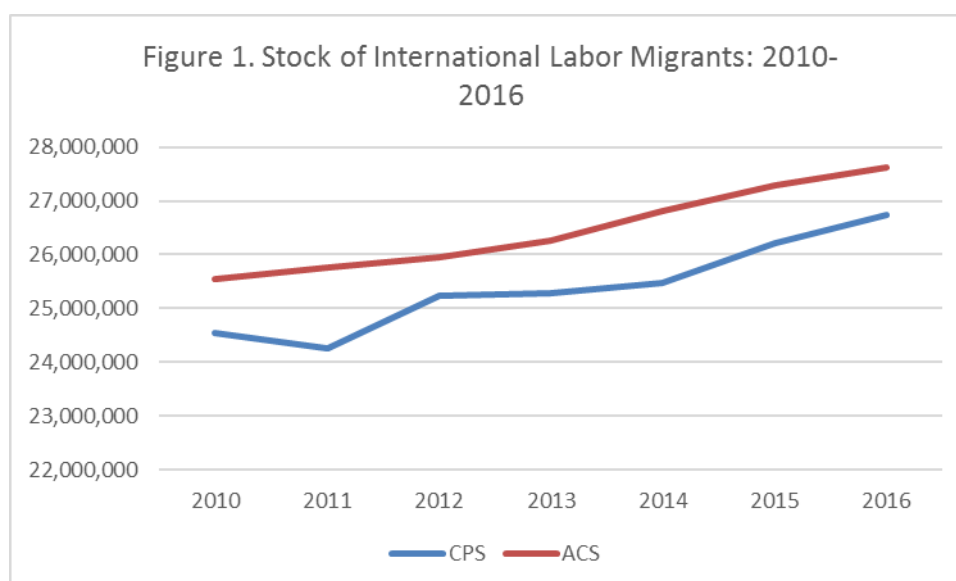
18.   Many international migrants currently in the workforce likely did not arrive on work-related visas, but rather were granted access to the labor market by virtue of other visa statuses, i.e. family-related, refugee status, etc. In terms of measuring the flow of labor migrants, those who entered specifically for work-related reasons, the ACS does not collect this information. However, the CPS does include a question on "main reason for move," which allows us to measure the number moving to the United States from abroad for work-related reasons, though this is not necessarily their legal reason for entry to the United States. As seen in Table 1, based on the CPS question, the annual flow of labor-related international migrants to the United States was 227,000 in 2016, or about 26% of the total foreign-born immigration flow (890,000 per the CPS). As previously stated, the ACS does not include a reason for move question, but if we apply the CPS ratio of work- to non-work-related international movers (.255) to the 2016 total ACS immigration flow of 1.5 million foreign born, we get approximately 380,000 labor-related migrants (value shown in table). Why the ACS total of foreign-born international movers is so much higher than the CPS is unknown at this time, though some difference is attributable to the more inclusive ACS sample, which includes more group quarters and non-usual resident populations (e.g. international students).[4]

19.   While the ACS does not include a question on reason for move, it is possible to measure the flow of international migrants who are currently in the labor force (similar to the ILO stock definition). Utilizing this more inclusive definition yields a figure of 552,000 (of a total foreign-born immigration flow of 1.5 million), which is about double the CPS results, and nearly 50% higher than the derived ACS-equivalent. This is potentially important from both a policy and measurement perspective, as policy makers could be more concerned with international migrants actually entering the workforce, than numbers entering under work-related visas.

20.   Publicly available administrative data sources are only available for flows of non-citizens to the United States, based on the type of visa used to enter the United States or issued outside the United States. From survey-based data, non-citizens make up over 90% of the foreign-born migration flow, so these numbers will be relatively equivalent. For FY 2016, there were 2.3

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[4] The total foreign-born population in 2016 was 43.1 million in the CPS and 43.7 million in the ACS, which are not statistically different from one another.

million movements to the United States by persons with work-related visas. However, if you reduce this by not counting multiple moves by single individuals, this number decreases to 608,000. Since this number will include those who were issued visas earlier than the current fiscal year, it is important to look at the number of new work-related visas issued outside the United States during the fiscal year, which is more equivalent to our concept of a migration flow. The number of work-related visas issued by the State Department was at 340,000 for FY 2016, which is relatively close to our ACS-derived figure of 380,000. If we apply the CPS work-related ratio (.255) to the ACS non-citizen migration flow (1.35 million), this number becomes 355,000, which is even closer to the State Department number.

21.   Figure 2 shows labor-migration flow estimates for foreign-born non-citizens by different data sources from 2010 to 2016. These include estimates for CPS work-related moves, ACS movers in the labor force, individualized DHS border moves, and number of visas issued by the State Department abroad. Differences remain very consistent between the four measurement types, highest for individualized border entry data and lowest for self-reported CPS reason for move data, though as described, each is measuring a slightly different phenomenon.

Figure 2. Non-Citizen Labor-Related Migration Flows: 2010-2016
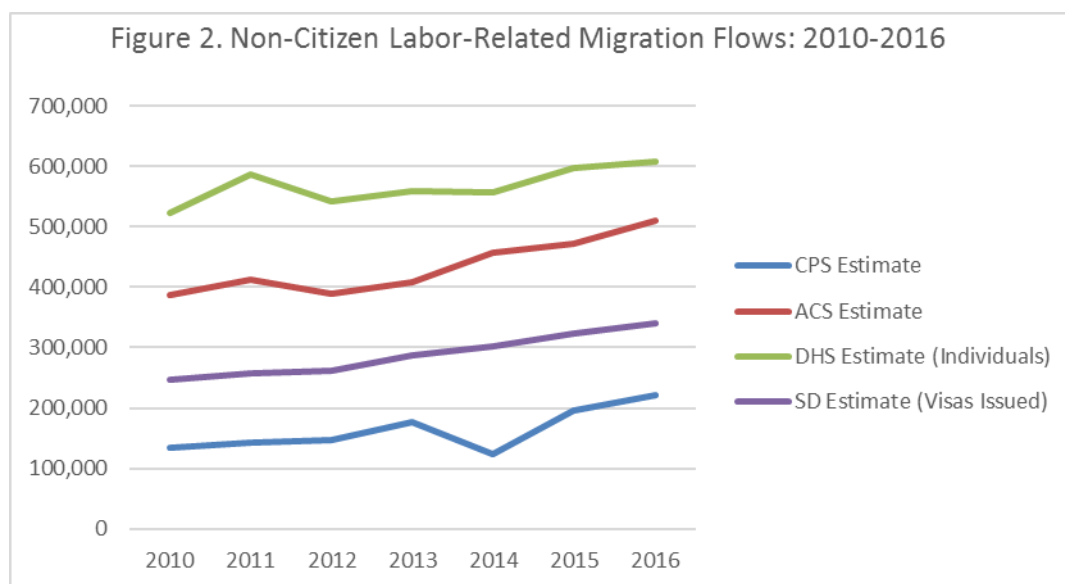
V.   ILO populations of interest

22.   As seen in Table 1, there are several labor migrant subgroups of interest to ILO, including return migrants, refugees/asylum seekers, undocumented migrants, short-term migrants, and border workers. Neither the ACS nor CPS can directly measure any of these groups with their current questionnaires. While the ACS and CPS can identify U.S.-born migrants who lived abroad up to one-year prior to the survey, they do not collect retrospective migration history information. Refugees are eligible to work and apply for Social Security Numbers when resettled to the United States, thus will usually become part of the labor force soon after arrival.[5] The Department of Justice releases numbers on asylum seekers to the United States, while the U.S.

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[5] In the United States, a Social Security number is a nine-digit number issued to U.S. citizens, permanent residents, and temporary (working) residents under section 205(c)(2) of the Social Security Act, codified as 42 U.S.C. § 405(c)(2).

State Department releases statistics on resettled refugees to the United States, which are included in Table 1 and provide upper boundaries for labor estimates.

23.   While the ACS does not identify refugees, the U.S. Census Bureau has begun research looking at ways to use administrative data to estimate possible refugees from the ACS, which would allow us to look at their various characteristics and research socioeconomic integration issues (Bowerman 2018). Similarly, while the ACS does not identify return migrants, we have been looking at using consecutive years of income tax return data to see if we can estimate people living in the United States, who resided abroad one year ago (filed taxes from a foreign address). In addition, by linking tax return data to Social Security data, we can utilize country of birth information, which allows us to distinguish between native and foreign-born tax filers.

24.   The U.S. Census Bureau does not produce estimates of undocumented migration (which are produced by OIS), as they are considered to be included in the ACS and CPS sample universes, so estimates of undocumented migrant workers are not possible, though many are active in the labor force. Finally, Census survey duration of stay information is not nuanced enough to identify short- or long-term labor migrants. Census data sources do not distinguish by duration of stay (actual or intended), thus it is not possible to distinguish between short- and long-term migrants, who might or might not be included in the sample population, depending on the survey criterion used (which differs slightly with the CPS and ACS). Census surveys do collect "year of entry" information, thus we can identify moves made within the same year as the survey, but not the actual month of the move.

25.   In terms of using administrative sources to identify short-term migrants, H2A and H2B work visas are issued for less than 12 months, though stays can be for less than three months. These visas are also eligible for extension, thus without access to micro-level data, it is not possible to know how long these short-term migrants actually remain in the United States. As seen in Table 1, about 220,000 "short-term" visas were issued for FY 2016. It is also not possible to identify cross-border workers with publicly available administrative data, though it is possible U.S. Customs and Border Protection has records of these populations. It should be noted that border workers are not international migrants, even if they are part of ILO's population of interest, since they do not change their country of usual residence.

26.   While Census surveys provide a wealth of information about migrant characteristics, there is still a limit to the amount of information collected on surveys. While the surveys provide good information on sector and occupation and employment status, they still lack information on detailed topics like remittances, migrant worker rights, etc.

VI.   Future work/Modeling

27.   The U.S. Census Bureau's Net International Migration Branch (NIMB) has begun preliminary research to see if we can model international migration estimates by combining different data sources. This "blended" approach has been used with ACS and the Demographic Characteristics File (DCF, a combination of income tax return, Decennial Census, and Social Security Administration data), in an attempt to improve our distribution of subnational estimates of net international migration. We are also investigating how to combine estimates from different data sources via a Bayesian hierarchical model that incorporates the scope and accuracy of each data source we are incorporating (Bryant and Graham 2013).

28.   In this Bayesian framework, the population of interest is split into a demographic account, which contains the components we wish to estimate, cross-classified by characteristics we wish to include in our estimates. In Bryant and Graham's framework (2013), the demographic account

consists of counts of population, births, deaths, and migration, cross-classified by region, sex, age, and time. For our purposes, the demographic account can consist of any components we wish to break up international migration. We may estimate total foreign-born immigration as one component of the demographic account, and labor migrants could be represented as a subset of the total. From a labor migration perspective, this method could be difficult to implement, since each of our data points are measuring something different in terms of labor migration flows.

29.   Another approach would be to use time series estimates from each data source to produce a better statistical "fit" for estimates, but it would still need to be decided which data source best operationalizes labor migration flows to the United States, which are not clear from the current ILO guidelines. Another application of Bayesian models could be to use the CPS to estimate the demographic account component directly related to labor migration, while using the ACS to estimate total foreign-born immigration, and use a separate modeling technique to estimate the number of labor migrants. Finally, social security and income tax return data might provide additional data sources on the stock of legal foreign-born workers, as well as information on new entries into the system (somewhat equivalent to a "flow"). These are all future areas of investigation for NIMB staff.

VII.   Limitations/Conclusions

30.   We are still left with the question of how many labor migrants moved to the United States in 2016, given we have up to six different figures, all which provide different results. All of these numbers are measuring slightly different things, though CPS work-related flows (and ACS flows adjusted for the CPS ratio of work-related moves) and State Department work-visas issued are probably more comparable than other figures, even though CPS is based on self-reported information, and the State Department is a legal accounting of permissions to enter the United States.

31.   These differences have important implications for the proposed ILO definitions of labor migration statistics. The proposed stock definition is stable by data source and should be relatively easy for countries to report, as long as their definitions of labor force engagement match those of ILO. The flow definition is more problematic, and it will prove difficult to obtain internationally comparable numbers, given how widely the guidelines can be operationalized, and the number of different data sources available. Self-reported measures of reason for move are the most effective way to operationalize "for work" migrants on surveys, but this does not necessarily correspond to the number moving to the country on work-related visas.

32.   Administrative data are the source of flow information most compatible with ILO's labor migration guidelines, but they face their own limitations, particularly with regard to what information is publicly available (or available to national statistical agencies). Published numbers are not measuring migration events, but rather administrative transactions. Ideally, one would be able to link individual administrative records across databases, enabling one to look at individual outcomes over time and for specific time periods. At present, the U.S. Census Bureau does not have access to such detailed information from DHS, if it exists at all.

33.   Students are another interesting migrant group, as they come to the country for/on education-related reasons/visas, but often remain after graduation to work. Family members, accompanying work-related migrants, also often enter the workforce, even if their legal entry was not "for work" reasons. One way to better harmonize ILO's stock and flow definitions would be to look at the flow of international migrants who are currently engaged in the labor force. Using this definition would increase the size of the flow of "labor migrants," and make collection of this

information more easily attainable and comparable between countries using survey-based methods.

Measurement of labor migration flows will be difficult to operationalize at an international level, due to various differences in data sources, definitions, and availability of administrative data. This paper shows what can and cannot be measured using U.S. data sources available to the Census Bureau. From a survey perspective, "for work" flow definitions are less practical than "engaged in work" definitions, which would better reflect both data availability and practical policy concerns. The U.S. Census Bureau continues to research ways to improve its estimates of international migration, and better delineation of international migration subcomponents, like labor migration, is part of this effort.

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