

Improving Analysis of Immigration and Border Issues

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I want to thank Chairman Carper, Ranking Member Coburn, and the distinguished members of the committee for inviting me to testify today on this very important topic.

The testimony that follows is drawn from research I have been conducting over the past several years with several distinguished colleagues. Edward Alden, John Whitley and I published a Council on Foreign Relations paper last year entitled *Managing Illegal Immigration to the United States: How Effective is Enforcement?* This paper sought to understand longer-run trends in economic and demographic factors influencing levels of illegal immigration to the United States from Mexico and Central American countries, evaluate what is currently known about the degree of border control and effectiveness of enforcement with respect to illegal immigration, and provide recommendations to improve measurement, analysis, and reporting on these issues. Mr. Alden is the author of the 2008 book *The Closing of the American Border*, which examined U.S. efforts to strengthen border security in the aftermath of the 9/11 terrorist attacks, and he was the project director for the 2009 Council on Foreign Relations *Independent Task Force on U.S. Immigration Policy*, which was co-chaired by former White House chief of staff Mack McLarty and former Florida governor Jeb Bush. Dr. Whitley is a senior fellow at the Institute for Defense Analyses, and the former director of the Office of Program Analysis and Evaluation (PA&E) at the Department of Homeland Security (DHS), where he led the resource allocation process and the measurement, reporting, and improvement of performance. I am Senior Economist at Econometrica, Inc. and the former assistant director of Borders and Immigration in the Office of Program Analysis and Evaluation at DHS. My testimony also draws from research work that I have done with colleagues in academia and DHS in recent years, and from the extensive body of scholarly research on immigration issues to which many outstanding scholars and experts have contributed over many years.

I would like to stress that I am here today not as an advocate making particular policy recommendations, but as an analyst whose goal is to help those who must make what are often difficult political decisions by providing them with the most objective and rigorous analysis possible.

I will make four points in my testimony.

First, better data and analysis are an essential element of any strategy to improve immigration policy. Immigration and border issues can be highly complex and controversial, as demonstrated by the recent discussion of the surges in unaccompanied children from Central America. Better data and analysis improve understanding of actual outcomes related to illegal immigration, facilitate more effective decisions on resource allocation and policy design, and

inform public debate. It will be difficult to make progress on reform of immigration policies if there continues to be deep disagreement over the most basic facts and questions pertaining to illegal immigration, border security, and the effectiveness of various policy options. Both the U.S. government and the research community have essential roles to play in achieving that progress.

Second, already available data and analysis provide useful insights into important questions on immigration and border issues. Examples of such questions, the insights that analysis has been able to provide, and outstanding gaps in that analysis include:

- *Has U.S. border enforcement become more effective over time, and has it deterred people from migrating illegally to the United States?* The two core strategic outcome measures for border control with respect to illegal migration are the number of successful illegal entries and the average probability of apprehension, which is the chance that someone attempting illegal entry is caught. Evidence suggests that the probability of apprehension on the southwest border has risen significantly and likely exceeds 50% today, and that the number of successful illegal entries has fallen substantially. However, there are important gaps in our knowledge on these outcomes.
- *To what extent is the fall in illegal migration from Mexico to the United States due to economic developments in those two countries as opposed to the border enforcement buildup?* Rigorous analysis suggests that this has been due in roughly equal measure to the downturn in the U.S. economy, improvement in the Mexican economy, and intensification of border enforcement. The finalization and publication of this research has been prevented through restrictions on access to DHS data.
- *What are the key longer-run factors influencing illegal migration to the United States, and how can they be expected to develop in the future?* Most illegal immigration is driven by economic considerations and key factors include income gaps between sending countries and the United States, the size of the young working age populations in sending countries, and the availability of legal pathways for migration. There is no evidence that the difference in income levels between the United States and Mexico or the Central American countries is falling. However, the population of potential migrants in most of these countries has peaked and will fall in coming decades.
- *What is the best allocation of increased spending on enforcement programs at the border and in the interior?* The very limited available evidence suggests that interior enforcement programs may be more cost effective in producing deterrence than border enforcement programs. Evidence and analysis are also being used in the management of consequence programs. However, insights in this area are very limited, and as a result, it is not clear what returns can be expected on large increases in enforcement resources such as fencing and U.S. Border Patrol agents.
- *What has caused the surges in unaccompanied children to the United States?* Evidence suggests that conditions in Central American countries and U.S. policies towards unaccompanied children from these countries have both played a role in creating the potential for the surges from El Salvador, Guatemala, and Honduras. All three surges began in FY 2012. Change in underlying conditions is not compelling as an explanation for why the surges began when they did, but evaluation of policy hypotheses such as

implementation of the Deferred Action for Child Arrivals (DACA) administrative action in June 2012 is inhibited by lack of necessary data, specifically monthly data on apprehensions of unaccompanied children.

Third, we will only be able to improve our insights into these questions if the Department of Homeland Security shares administrative data related to immigration enforcement and immigration processing with external researchers. DHS should be commended in this regard for the remarkable progress that has been made with respect to the sharing of information on legal flows of people through ports of entry. Similar progress could quickly be made on analysis of immigration enforcement issues if DHS adopted a similar approach with respect to enforcement data.

Finally, Congress could take steps to facilitate further progress. These steps include encouraging and, if necessary, directing the release of data necessary for analysis and research, and conducting hearings with DHS officials with the purpose of informing the public on basic immigration facts.

The Role of Data and Analysis in Informing Policy Design and Public Debate

Data and analysis help decision makers and the public understand two things. First, what key outcomes with respect to illegal immigration and border control have been achieved by current policies and resources? My colleagues and I have argued in our publications and in previous testimony to Congress that the most important outcomes that must be measured with respect to border enforcement are gross inflow and the probability of apprehension. Gross inflow is the number of successful illegal entries that actually occur. The probability of apprehension is the chance that someone will be caught attempting to enter the U.S. illegally. Together, these two measures describe the level of control of the border with respect to illegal immigration. As the probability of apprehension increases, crossing the border becomes more difficult, and deterrence intensifies. Deterrence is further enhanced if those who are caught are subjected to consequences. Gross inflow will fall in response to intensifying deterrence, although it will also be impacted by factors other than enforcement. Generally speaking, a rising probability of apprehension and a falling level of gross inflow indicate that border control is increasing. A “sealed” border is achieved when the probability of apprehension is 100% and gross inflow is zero. Evidence suggests that no state has ever actually achieved a “sealed” border, although some have come close.

Second, analysis is necessary to understand what factors are causing the outcomes that are observed. For example, if the number of successful illegal entries is falling, is it due to deterrence created by intensified border enforcement, or is it due to fewer people making the attempt to illegally enter because they no longer want to come to the U.S. due to worsened economic conditions there, or improved economic conditions in their home country?

Measuring outcomes and carrying out objective analysis to understand what factors are causing them can help advance political debate and dialogue between Congress and the Executive branch. For example, the Department of Defense has established an “analytic agenda” that is an organized program of study that provides a common baseline of fact and evidence for decision making. Important progress has also been made with respect to data and analysis in the area of local law enforcement. As Dr. Whitley notes in a recent report:

“In recent decades the local law enforcement community has been a pioneer in measuring and reporting performance and in using these data to drive strategy development and manage execution. New York City’s CompStat revolution focused commanders on “crime trends with the same hawk-like attention private corporations pa[y to] profits and losses. Crime statistics have become the [police] department’s bottom line, the best indicator of how police are doing precinct by precinct and citywide.” Although scholars are still debating the relative contribution of performance-driven management reform in the dramatic crime rate decline over the last 20 years, these policing reforms have likely played a significant role and have been emulated around the country in areas well beyond law enforcement.

Law enforcement at the federal level, however, has been slower to adopt these reforms, and many areas of federal law enforcement do not systematically collect, use, or report basic data on crime rates within their jurisdictions. One of the most difficult challenges contributing to this lack of outcome-oriented, data-driven management is how to measure the level of many federal crimes.”¹

Measuring key outcomes and understanding what is influencing them are challenging tasks. Measurement and analysis have been able to provide some insight into how and why outcomes have changed with respect to illegal immigration and border control.

What Insights Has Analysis Provided On Questions Related to Illegal Immigration?

Has U.S. border enforcement become more effective over time, and has it deterred people from migrating illegally to the United States?

Evidence on the probability of apprehension and the number of successful illegal entries is available for Mexican nationals attempting illegal entry between the ports on the southwest border. The probability of apprehension can be calculated for this flow using several different datasets and methodologies. The data suggest that the probability of apprehension rose in the 2000s and likely exceeds 50% today. The number of successful illegal entries of this group is also estimated to have fallen significantly. There is, however, significant uncertainty over the values of these two variables, and more investment in data collection and research is required. DHS is currently investing in one particular dataset and methodology (known-flow data and the

¹ Dr. John Whitley, “Five Methods for Measuring Unobserved Events: A Case Study of Federal Law Enforcement,” Improving Performance Series, IBM Center for the Business of Government (2012), p.6.

effectiveness ratio).² We also lack estimates of the probability of apprehension and number of successful illegal entries of non-Mexican nationals between the ports, which is particularly relevant to this hearing. Finally, we have almost no evidence on these outcomes at ports of entry.

To what extent is the fall in illegal migration from Mexico to the United States due to economic developments in those two countries as opposed to the enforcement buildup of the late 2000s?

Recent research suggests that this has been due in roughly equal measure to the downturn in the U.S. economy, improvement in the Mexican economy, and intensification of border enforcement. The Mexican government's household survey permits identification of household members who migrate, and this data is used in conjunction with data on economic variables in the United States and Mexico, U.S. Border Patrol apprehension and staffing data, and data from other surveys to quantify the influence of economic and enforcement factors on the decision to migrate illegally. Findings also suggest that expanded use of the H2 visa programs in the late 2000s contributed to the fall in illegal migration. This research could potentially provide an analytical framework of great use for evaluating questions on illegal immigration, but it has not been finalized, peer-reviewed, and published due to restrictions on access to DHS apprehension data.

What are the key longer-run factors influencing illegal migration to the United States, and how can they be expected to develop in future?

Differences in the levels of economic development and quality of life create incentives for individuals to migrate. It is important to recognize how powerful those incentives are. A conservative estimate is that a typical Mexican worker could triple their wage if they migrated to and worked in the United States, and other estimates suggest significantly larger wage increases. Tripling one's wage produces very large income gains and is a powerful incentive to migrate. When other incentives such as better educational opportunities for one's children and increased levels of security from crime and violence are also factored in, returns to migration become even higher. The gaps between the United States and Central American countries are significantly higher than the gap between the United States and Mexico. A key question for evaluation of future migration trends is whether these gaps are getting smaller over time, so that the Mexican and Central American standards of living are converging to the U.S. standard of living. Available evidence suggests that no such convergence is taking place over time. In the case of Mexico, for example, there is no evidence of convergence with respect to per-person real income levels since 1870.

Although incentives to migrate determine how likely it is that a particular person decides to migrate, the number of actual migrants is also determined by the number of potential

² The recent Congressional interest in using the known flow data and the effectiveness ratio are a positive development, but also risks providing an incomplete picture. The known flow data does not include an estimation of unobserved entry and thus understates inflow and overstates the true probability of apprehensions. Congress should consider a broader range of inflow and apprehension rate estimates.

economic migrants who have to make that decision. The size of the working-age male population in countries of origin is a proxy for the number of potential migrants. Demographic projections suggest that after growing rapidly through 2000, the number of potential migrants in Mexico, El Salvador, and Honduras have peaked and will begin to fall in coming decades. Guatemala is an exception, as its potential migrant population is not projected to stop growing significantly until late this century. Considered together, this evidence suggests that although incentives to migrate at the individual level will continue to be significant, and there may be some increase in illegal migration if the U.S. economic recovery intensifies and leads to more demand for unskilled labor, the very high levels of illegal immigration experienced during 1970-2000 are not likely to recur.

What is the best allocation of increased spending on enforcement programs at the border and in the interior?

There is very limited available evidence on what enforcement programs are most cost effective at deterring illegal immigration. Professor Lawrence Wein of Stanford University led the development of an integrated model of border and interior enforcement that suggested that as of the mid-2000s, interior enforcement programs may have been more cost effective in producing deterrence than border enforcement programs. Analysis of recidivism rates across U.S. Border Patrol consequence programs is also being carried out to identify which programs are more effective than others in creating deterrence. However, insights on immigration enforcement resource allocation issues are quite limited. As a result, it is not clear what deterrence returns can be expected on large increases in enforcement resources such as fencing and Border Patrol agents. Research and analysis could provide insight into these question, but this will require researchers having access to DHS administrative data.

What has caused the surges in unaccompanied children to the United States?

The number of unaccompanied children from El Salvador, Guatemala, and Honduras arriving at the U.S. southwestern border who were apprehended by U.S. law enforcement officers began growing rapidly in FY 2012. An appendix below reviews evidence on these surges and identifies four key characteristics. First, the surges from El Salvador, Guatemala, and Honduras all began in FY 2012. Second, there has been no surge from Mexico. Third, the surge from Honduras has been much larger in percentage terms than those from El Salvador or Guatemala. Finally, the surge in unaccompanied children apprehensions has also been accompanied by a surge in other apprehensions of non-Mexican nationals on the southwest border. Two hypotheses to explain the surges have received much public discussion in recent weeks. One hypothesis is that underlying conditions in these countries, including high levels of crime and violence and low levels of economic opportunity, caused the surges to happen. Another hypothesis is that U.S. policies towards unaccompanied children specifically and illegal immigration generally have caused them. The appendix evaluates these hypotheses through a review of the data and some more formal statistical analysis. It finds that underlying conditions in Central American countries and U.S. policies have both played a role in creating the potential for the surges. Change in underlying conditions is not compelling as an explanation for why the surges all began in FY 2012. The hypothesis that policy changes such as implementation of the Deferred Action for Child Arrivals (DACA) administrative action in June 2012 cannot yet be properly

analyzed due to lack of needed data. These data included monthly apprehensions of unaccompanied children for the period 2008-2014, the release of which Senator Baldwin called for in last week's hearing. We also do not know to what extent the surges in unaccompanied children reflect substitution away from clandestine illegal entry channels, and evaluation of this requires data on monthly apprehensions on the southwest border broken down by nationality, gender, and age for the period 2008-2014.

What Are the Key Obstacles to Improving Our Insights Into These Questions?

Although available analysis and research has been able to provide some useful insights into relevant questions, we will only be able to improve these insights if key obstacles are overcome. One obstacle is establishing or developing the methodologies necessary to measure outcomes and conduct analysis. This is largely the responsibility of the research community, which has the expertise necessary to make progress on methodologies. The other key obstacle is data availability. Necessary data are often obtained through surveys, which are usually carried out with government support and implemented as government programs or through universities. However, a vitally important source of data are the administrative datasets kept by the Department of Homeland Security related to immigration enforcement and processing. DHS has been very reluctant to make this administrative data available to external researchers. When it has made the data available, it has imposed conditions on its use that permits it to prevent publication by researchers of their studies. DHS should be commended for the remarkable progress that has been made with respect to the sharing of information on legal flows of people through ports of entry. Similar progress could quickly be made in the immigration enforcement area.

There are several datasets that need to be shared with researchers. These data need to be made available to the research community, and without any restrictions on the researchers' ability to publish their subsequent studies:

- *Data from individual apprehension records.* When an apprehension is made between the ports or at the ports, an individual apprehension record is created that contains very useful information for research purposes. This information includes variables such as the gender, age, and nationality of the person, location of apprehension, and whether they paid a smuggler and the amount paid. The single most important variable is the fingerprint identification number, which is an arbitrary number that is used to identify apprehension records that are for the same individual. This variable can be used to identify recidivist apprehensions and to thus identify individuals rather than events.
- *Known-flow data.* The U.S. Border Patrol collects data on "turn-backs" and "got-aways", which are estimates of people observed attempting to enter illegally who return to Mexican territory and estimates of the number of successful illegal entries, respectively. Known-flow data are used to construct the effectiveness ratio, which is an approximation to the probability of apprehension and which has been adopted by DHS as an official performance measure. Engaging external researchers in the analysis of

known-flow data to better understand what information can confidently be extracted from it and how to improve its collection and use is essential for making progress.

- *Secondary inspection data.* The Office of Field Operations of the Customs and Border Protection agency conducts randomized secondary inspections at ports of entry. This data, which is collected by the COMPEX program, is essential for assessing the level of successful illegal entries and probability of apprehension at ports of entry, and understanding how unauthorized flows move between different illegal entry channels in response to changes in enforcement activity and other factors.

What Can Congress Do?

Enabling the American people and their representatives in Congress to more effectively debate illegal immigration and border security issues and implement sound policy likely requires stronger agreement on what the facts are. My testimony has argued that greater availability of data and conducting of research and analysis are a key factor for promoting progress in policy debate. Achieving progress requires that actions be taken by the Department of Homeland Security. Congress can take specific actions to assist in making progress. Two suggestions that I have in this regard are:

- *Encourage and, if necessary, direct release of data.* The importance of making data available for research is clear, and specific datasets have been identified. This data must be shared with the research community in ways that protect privacy and law enforcement concerns. However, these concerns should also not be abused to prevent the legitimate sharing of data and the publication of resulting research.
- *Conduct hearings with DHS officials with the purpose of informing the public on basic immigration facts.* These hearings could be held in the context of the Department publishing an annual report on the state of border security. Such hearings could play an important role in transforming dialogue between Congress and the Executive Branch on immigration and border issues, and the broader public debate.

Appendix

Statistical Analysis of Unaccompanied Children Apprehensions During FY 2008-2012

Unaccompanied children are apprehended by the U.S. Border Patrol (USBP) between the ports, and the Office of Field Operations (OFO) at the ports. Both of these agencies are components of the Customs and Border Protection (CBP) agency of the Department of Homeland Security (DHS). Table 1 summarizes all publicly-available data on unaccompanied children apprehensions (UACs) during the period FY 2008-2013 and October 2013-June 2014. Data on USBP UACs have been posted to the CBP website and include these apprehensions broken down by all countries of origin for the period FY 2008-2012 and for El Salvador, Guatemala, Honduras, and Mexico for the period FY 2013 and October 2013-June 2014. Data on OFO UACs have not been posted to the CBP website, but a recent United Nations report published the values reported in Table 1.³ Table 1 also reports USBP UACs per million children aged 0-19 in 2010 for El Salvador, Guatemala, Honduras, and Mexico. Table 2 reports growth rates for UACs during FY 2008-2014.

A review of Tables 1 and 2 suggests the following characteristics of the dimensions and dynamics of unaccompanied child apprehensions:

- Prior to FY 2012, the number of USBP UACs from El Salvador, Guatemala, Honduras, and Mexico were stable, and the number from Mexico significantly exceeded those from the other three countries.⁴
- USBP and OFO UACs from El Salvador, Guatemala, and Honduras grew dramatically in FY 2012 and 2013, and USBP UACs in FY 2014. It is not clear to what degree this represented a shift away from other entry channels (e.g. clandestine entry between or at ports of entry) or an increase in the overall number of attempted entries. USBP UACs from these countries continued to grow at very rapid rates in FY 2013 and 2014.
- In contrast, UACs from Mexico did not grow dramatically in this period.
- The UAC surge has been the largest in the case of Honduras. Growth in the number of UACs from Honduras through FY 2014 has been roughly twice as high as for El Salvador and Guatemala.

³ *Children on the Run*, United Nations High Commissioner for Refugees study, May 2014, p.16. The U.S. Coast Guard may apprehend unaccompanied children in the maritime domain. No data on such apprehensions have been made public.

⁴ There was a sharp increase in UACs from Mexico from 2008 to 2009, but these UACs then stabilized. UACs from Mexico have two important characteristics that should be kept in mind. First, a significant number of them are apprehended while they are working as scouts or guides in the smuggling industry. A recent report by the United Nations interviewed 102 Mexican children who had been apprehended in FY 2012 or later and found that 38% had been working as scouts or guides when apprehended (*Children on the Run*, United Nations High Commissioner for Refugees study, May 2014.) Second, because children are not fingerprinted, it is not possible to determine how many Mexican UACs are of the same individual in a given time period, and some children may have been apprehended more than once. This is likely not a material issue for UACs from other countries, because although these children are also not fingerprinted, they are not returned to their country of origin and thus make no additional attempts to enter the U.S.

- The size of the underlying population of children differs across the three countries. Table 1 shows the number of unaccompanied children divided by the size of the population of 0-19 years of age in FY 2010.
- The total number of unaccompanied children that came to the U.S. border during FY 2008-2014 represents roughly 1% of the child population of El Salvador and Honduras, and 0.5% of Guatemala's child population.

In addition to UACs, it is also important to evaluate dynamics of the overall flow of unauthorized immigrants from Central American countries. No estimates of the gross inflow of unauthorized immigrants from El Salvador, Guatemala, and Honduras are available. The only data available are on apprehensions of all non-Mexican nationals on the southwest border. Figure 1 shows these apprehensions (excluding unaccompanied child apprehensions) in the period FY 2000-2013. The data suggests that there have been two surges in illegal immigration of adults from Central American countries since FY 2000. The first surge took place in FY 2004-2005, and basically ended by FY 2007. No research has been done to understand the causes of this surge and its abatement. The ending of the catch-and-release policy for non-Mexican nationals at that time likely played an important role, and economic factors such as the end of the housing construction boom in 2006-2007 may also have contributed. The second surge in these apprehensions began in FY 2012, at the same time as the surges in UACs from Central American countries.

The key characteristics of the UAC surges can be summarized thusly:

- The surges from El Salvador, Guatemala, and Honduras all began in FY 2012.
- There has been no surge from Mexico.
- The surge from Honduras has been much larger than those from El Salvador or Guatemala.
- The surge in unaccompanied children apprehensions has also been accompanied by a surge in other apprehensions of non-Mexican nationals on the southwest border.

Hypotheses to Explain Unaccompanied Children Apprehension Surges

Two hypotheses have been advanced to explain the surges in UACs from Central American countries. The *crime-push* hypothesis argues that the surges are due to the high rates of crime and violence in these countries. Poor economic conditions and poverty have also sometimes been included in this explanation. The *policy-pull* hypothesis argues that change in U.S. policies on illegal immigration has encouraged immigrants to send or bring their children to the U.S. Change in policies that have been cited as encouraging the surges include legislation passed in 2002 and 2008 that requires unaccompanied children from countries other than Mexico and Canada ("non-contiguous countries") to be placed into care with the Department of Health and Human Services and united with their families or a sponsor in the U.S. prior to determining their final disposition, and the Deferred Action for Child Arrivals (DACA) administrative action that was implemented in June 2012.

Rates of Crime in Central American Countries

To evaluate the crime-push hypothesis, it is necessary to have data on rates of crime and violence in these countries. A comprehensive picture of crime and violence in a country would take into consideration the rate of murder, kidnapping, rape, extortion, and other violent crimes. The only indicator that consistently defined and made available across time and countries is the official murder rate (intentional homicides per 100,000 population). Table 1 gives murder rates for the Central American countries and Mexico during 2008-2013.⁵ These countries have had very high murder rates for many years. During 2000-2008, Honduras, El Salvador, and Guatemala had the 1st, 4th, and 7th highest average murder rates in the world. In Honduras, the murder rate almost doubled during 2008-2011 from an already very high level of 46 to 91. In 2012, Honduras had by far the highest murder rate in the world, 68% higher than the next country (Venezuela). This extraordinary increase has been attributed to impacts associated with the attempted coup in Honduras in 2009 and the campaign against drug traffickers in Mexico.⁶ In El Salvador, the murder rate hovered around a very high level of roughly 63 during 2005-2011, but then fell to a level of roughly 40 in 2012 and 2013. This fall has been attributed to the implementation of a government-facilitated truce between the two largest gangs in El Salvador in mid-2012.⁷ In Guatemala, after rising significantly in the early 2000s, the murder rate has been fairly stable at roughly 43 since 2005, and fell somewhat from 47 in 2009 to 40 in 2013.

Data on other types of violent crime is available for Honduras during 2005-2013.⁸ Consistent with the extraordinary rise in its murder rate, Honduras has experienced dramatic increases in other types of violent crime since 2008. Reported assaults and sexual crimes increased by 44% and 144% from 2008 to 2011, and were then stable at high levels through 2013. Most of the victims of reported sexual crimes are children: in 2013, 60% were under the age of 15, and 88% were under the age of 20.

Crime and Unaccompanied Children Apprehensions

There are actually two distinct questions that should be addressed in analysis of crime and UACs. First, are the *levels* of crime and UACs correlated across countries, so that everything else

⁵ To put these murder rates in perspective, the rate for the U.S. in 2012 was 5.

⁶ See <http://www.ibtimes.com/honduras-bloodiest-nation-world-705532>.

⁷ There has been some controversy over the degree that this data represents a true fall in the murder rate, as gangs may be going to greater efforts to try to conceal the bodies of their victims. There is consensus among analysts, however, that the true murder rate did fall significantly after the truce. For a thorough review of these issues, see <http://www.insightcrime.org/news-analysis/the-murky-question-of-disappearances-in-el-salvador-an-el-faro-investigation>. The murder rate in El Salvador began to rise in the second half of 2013. Assuming that the daily number of murders of 9.48 for January-May 2014 holds for the rest of the year, the murder rate for 2014 would be 54. However, the daily number of murders in May was much higher than in previous months in 2014 and similar to the daily number in 2011. See <http://www.insightcrime.org/news-analysis/el-salvador-government-dismantles-truce-homicides-reach-30-in-one-day>.

⁸ See "Observatorio de la Violencia", UNAH-IUDPHS, issues for 2005-2013 available at <http://iudpas.org/boletines/boletines-nacionales>.

equal, the higher the level of crime, the more UACs arrive at U.S. borders? Second, is *growth* in crime correlated with *growth* in UACs across countries? Surges in UACs began at a specific time, at some point in FY 2012. To explain the surges in UACs, one would expect to see a significant increase in crime around the time that they began.

Level-on-Level Analysis

To evaluate correlation between levels of crime and UACs across countries, I evaluate this relationship for USBP UACs for the period FY 2008-2012 across Western hemisphere countries which was the origin of at least one UAC in every year in that period.⁹ Table 3 shows the number of UACs for these countries. Distribution of UACs across source country is unusual, as there is one group with large levels (El Salvador, Guatemala, Honduras, and Mexico) and another groups whose levels are almost (but not quite) equal to zero. Murder rates do vary significantly across these countries, but not in such a bimodal way.¹⁰

In addition to the murder rate, other variables might affect the level of UACs across countries. The level of economic development is included in analysis by including per-capita national income (GDP) levels. The number of UACs from a country may also be influenced by the size of the population of immigrants from that country who are resident in the U.S. A larger immigrant population potentially includes more parents seeking to reunite with their children, or can provide greater support to arriving unaccompanied children in other ways. Finally, the role of time in explaining levels of UACs across countries is captured by including dummy variables for the years 2009, 2010, 2011, and 2012. These dummy variables explain levels in UACs across countries that are associated with a particular year but independent of the other explanatory variables (murder rate, per capita income, foreign born population in U.S.)

Table 4 gives results of level-on-level analysis.¹¹ The results of these regressions show that the size of the foreign born population resident in the U.S. plays a very significant role in explaining UAC levels across countries.¹² The murder rate also plays a statistically significant role in

⁹ Cuba is excluded because of unusual characteristics of Cuban and U.S. government policies related to migration from Cuba to the U.S.

¹⁰ It should be noted that the Caribbean-Central American region is generally characterized by high levels of crime and violence. Venezuela, Belize, Jamaica, and Colombia had the 4th, 7th, and 12th highest murder rates in the world in 2012, for example. This should caution one against making strong inferences about the relationship between the murder rate and UACs based on casual inspection of the data, because essentially no UACs are made of children from these countries

¹¹ Regressions are estimated using panel-data OLS algorithms.

¹² In the regression model estimated here, a country's foreign born population in the United States in 2012 is included as an explanatory variable. The advantage of this specification is that it allows direct examination of the relationship between the size of the foreign born population and the number of UACs from each country. The disadvantage is that exact multicollinearity precludes the use of country fixed effects or other variables that differ across countries but are constant through time, and it is not possible to control for unobservable country differences or other potentially important observable country specific variables such as distance to the United States. An alternative approach would be to transform the dependent variable into a rate by dividing it by the foreign born population variable. Each approach has advantages and disadvantages.

explaining variation in UACs, but per capita income does not. Results for estimated coefficients on dummy variables suggest that in comparison with previous years, in 2012, the level of UACs was systematically higher due to factors other than the included explanatory variables. (This result is driven by the rise in UACs from Central America.)

Difference on Difference Analysis

To evaluate correlation between growth in crime and growth in UACs across countries, I estimate the same regressions but replace levels of UACs, the murder rate, and per capita income with first differences in their values. The level (not first difference) of foreign born populations is included in most specifications to control for fact that the size of the first difference in UACs may be correlated with the level of the foreign population variable. The results of these regressions suggest that change in UACs is significantly correlated with the level of the foreign born population, and that change in per capita income significantly impacts change in UACs. However, change in the murder rate is not statistically significant in explaining change in UACs.¹³ Results for estimated coefficients on dummy variables suggest that in comparison with previous years, in 2012, growth in UACs was systematically higher due to factors other than the included explanatory variables. (This result is driven by the rise in UACs from Central America.)

Some Tentative Findings on Explanations of the UAC Surges from Central America

Review of the data in Tables 1 and 2, and results of the statistical estimations summarized in Tables 4 and 5, do suggest some tentative findings on explanations of the rapid growth in UACs during FY 2012-2014. It should be emphasized that these findings are based on very recent research that has not been subject to informal or formal peer review, and they should be regarded as provisional until they receive more rigorous scrutiny:

- The level of UACs is correlated with the level of the murder rate across countries. This suggests that the more intense the level of crime and violence in a country is, the higher the expected number of UACs from that country.
- However, the crime-push hypothesis cannot explain why the surges from El Salvador, Guatemala, and Honduras began when they did. All three surges began in 2012, but there was no change in murder rates in 2012 that can explain why UACs began to dramatically increase in that year. In El Salvador, the murder rate fell significantly in 2012. In Guatemala, there was no change in the murder rate. In Honduras, crime and violence had risen substantially well before 2012. Results of the difference-on-difference analysis also suggest that there is no correlation between change in UACs and change in murder rates, and that there was significant growth in UACs in 2012 that is not associated with change in the murder rate. This suggests that some other cause must be the reason for the initiation of the surges.

¹³ The sign of the coefficient on the murder rate is in fact negative, which would imply that an increase in the murder rate reduces the number of UACs.

- The fact that no surge has occurred in Mexican UACs must also be explained:
 - The policy-pull hypothesis explains this as a result of the 2002 and 2008 legislation, which created very different treatment of Mexican and non-Mexican unaccompanied children arriving at U.S. borders. This explanation is necessary but not sufficient, however, because the surges began several years after the legislation was passed. The policy-pull hypothesis seeks to provide sufficiency by arguing that the implementation of DACA in June 2012 caused the surges to begin when they did.
 - The crime-push hypothesis would explain this as a result of significantly lower levels of crime and violence in Mexico than in El Salvador, Guatemala, and Honduras.¹⁴ However, this hypothesis cannot explain why there has been a surge in the latter countries but not in Mexico, because the murder rate in those countries did not diverge from the murder rate in Mexico in 2012, and that would be required to explain the different dynamics in UAC levels.
- Analysis of the data thus suggests that high levels of crime and violence contributed to creating underlying conditions that motivate movement of UACs to the U.S., but that the policy-pull hypothesis is a more plausible explanation of why a surge did not occur for Mexico. It is also clear that the surges began in FY 2012, that some specific event (or set of events) likely triggered them to happen, and that the crime-push hypothesis does not provide that trigger.
- The policy-pull hypothesis argues that implementation of DACA is that trigger. The plausibility of this argument cannot yet be properly evaluated due to lack of required data. Proper evaluation will require analysis of monthly data on UACs by country of origin, and also monthly data on non-UAC apprehensions by country of origin, for the period 2007-2014.¹⁵ It should also be noted that none of the children coming to the U.S. after June 2012 would be eligible for DACA under the rules as they now stand, so that families either did not understand DACA rules or believed that it somehow signals that changes in rules will take place in the future.
- The sizes of the UAC surges from the three countries differ significantly, with the surge from Honduras being twice the size in percentage growth terms than the surges from El Salvador and Guatemala. The crime-push hypothesis plausibly explains this difference. Honduras has experienced a very large increase in crime and violence prior to 2012, whereas Guatemala has seen no change in its murder rate, and El Salvador has seen a fall in its murder rate in 2012-2013. There is no obvious policy-pull explanation that can rationalize this difference in the magnitude of the surges across the three countries.

¹⁴ The hypothesis might also include the fact that per capita income in Mexico is significantly higher than in those countries.

¹⁵ It should be noted that DACA was implemented in June 2012, which is quite late in the fiscal year and seemingly reduces the chances that FY 2012 UACs increased only after its implementation. It is possible that intensive discussion of DACA in the media prior to its implementation could have influenced decisions. Without proper analysis of monthly data, it will not be possible to move beyond speculation.

TABLE 1

	2008	2009	2010	2011	2012	2013	2014 ^A	2014 (proj) ^B
<i>U.S. Border Patrol unaccompanied children apprehensions (fiscal year)</i>								
El Salvador	1,391	1,221	1,910	1,394	3,314	5,990	11,436	15,248
Guatemala	1,388	1,115	1,517	1,565	3,835	8,068	12,670	16,893
Honduras	1,578	968	1,017	974	2,997	6,747	15,027	20,036
Mexico	3,369	16,114	13,724	11,768	13,974	17,240	12,146	16,195
All other countries	315	250	466	355	361	NA	NA	NA
Total	8,041	19,668	18,634	16,056	24,481	38,395^C	51,629^C	68,722^C
<i>Office of Field Operations unaccompanied children apprehensions (fiscal year)</i>								
El Salvador				58	123	230		
Guatemala				43	80	194		
Honduras				25	94	308		
Mexico				1,232	1,735	1,514		
All other countries				361	540	811		
Total				1,719	2,572	3,057		
<i>Total unaccompanied children apprehensions (fiscal year)</i>								
El Salvador				1,452	3,437	6,220		
Guatemala				1,608	3,915	8,262		
Honduras				999	3,091	7,055		
Mexico				13,000	15,709	18,754		
All other countries				716	901	NA		
Total				17,775	27,053	41,452^C		
<i>Number of unaccompanied children apprehended by U.S. Border Patrol per million population aged 0-19</i>								
El Salvador	514	452	706	516	1,226	2,215		5,639
Guatemala	184	147	201	207	507	1,067		2,235
Honduras	432	265	278	267	820	1,846		5,483
Mexico	77	367	312	268	318	392		369
<i>Murder rate (homicides per 100,000 population, calendar year)</i>								
El Salvador	52	71	64	70	41	40		
Guatemala	46	47	42	39	40	40		
Honduras	46	71	82	91	90	87		
Mexico	12	17	22	23	22	NA		

A: First three quarters of FY 2014.

B: Assuming that fourth quarter FY 2014 equals average level of first three quarters of 2014.

C: Includes average value for "all other countries" during 2008-2012 equal to 350.

Sources: U.S. Border Patrol unaccompanied children apprehensions from Customs and Border Protection agency website; Office of Field Operations unaccompanied children apprehensions from *Children on the Run*, study of the United Nations High Commissioner for Refugees, May 2014; population aged 0-19 from United Nations population database; murder rates for 2008-2012 from World Development Indicators database; murder rates for 2013 derived using data

from <http://centralamericanpolitics.bogspot.com/2014/01/central-american-murder-rates-remain.html>

TABLE 2

	2009	2010	2011	2012	2013	2104 ^A	2011 to 2014 ^A
<i>U.S. Border Patrol apprehensions of unaccompanied children</i>							
El Salvador	-12%	56%	-27%	138%	81%	155%	994%
Guatemala	-20%	36%	3%	145%	110%	109%	979%
Honduras	-39%	5%	-4%	208%	125%	197%	1957%
Mexico	378%	-15%	-14%	19%	23%	-6%	38%
All other countries	-21%	86%	-24%	2%	NA	NA	NA
Total	145%	-5%	-14%	52%	57%	79%	328%
<i>Office of Field Operations unaccompanied children apprehensions</i>							
El Salvador				112%	87%		
Guatemala				86%	143%		
Honduras				276%	228%		
Mexico				41%	-13%		
All other countries				50%	50%		
Total				50%	19%		
<i>Total unaccompanied children apprehensions</i>							
El Salvador				137%	81%		
Guatemala				143%	111%		
Honduras				209%	128%		
Mexico				21%	19%		
All other countries				26%	NA		
Total				52%	53%		

A: Based on projected values for FY 2014.

FIGURE 1

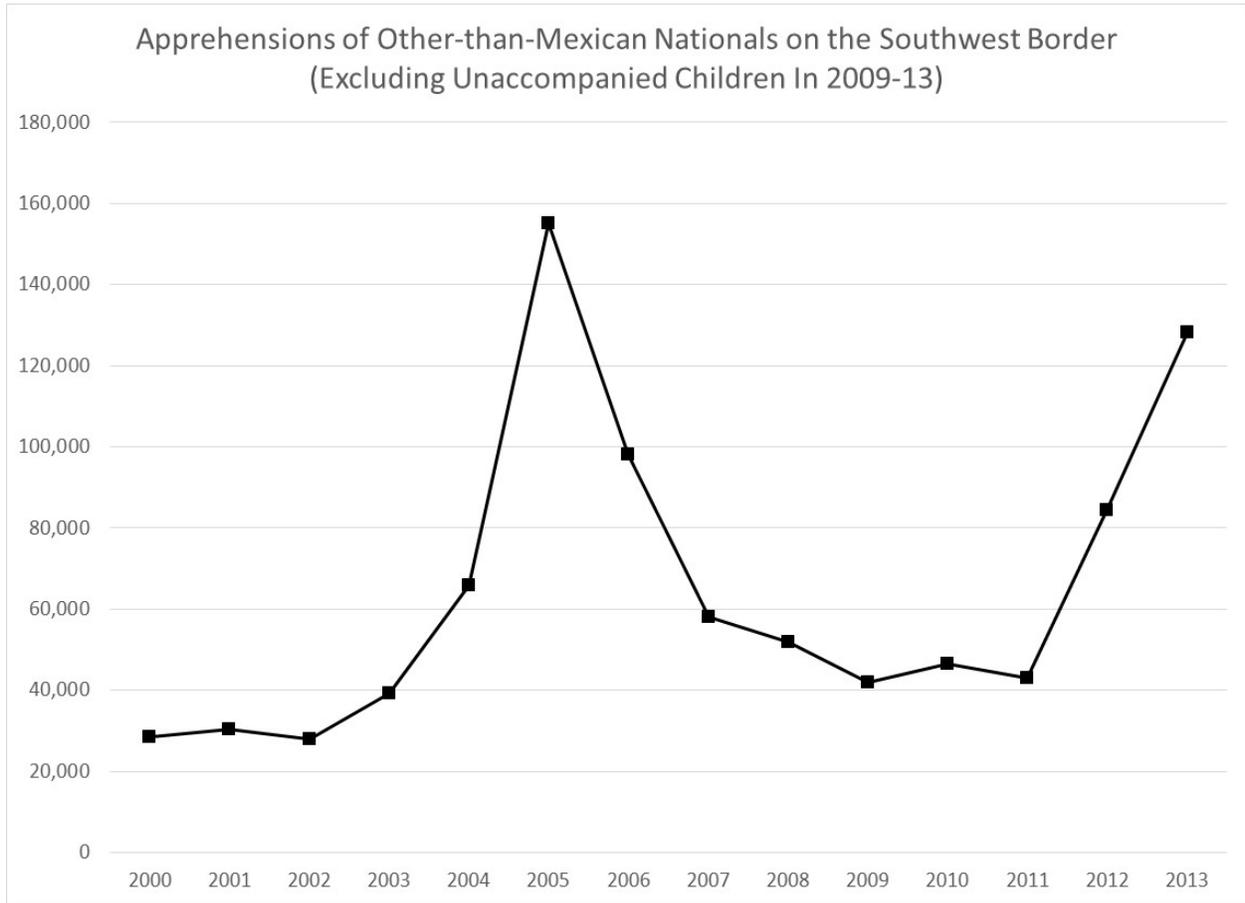


TABLE 3
Number of U.S. Border Patrol Unaccompanied Children Apprehensions:
Countries Included in Statistical Analysis

	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012
Belize	7	2	1	3	4
Brazil	24	14	18	1	5
Colombia	4	9	3	2	2
Costa Rica	4	2	2	1	5
Dominican Republic	10	5	16	3	7
Ecuador	168	123	218	117	200
El Salvador	1,391	1,221	1,910	1,394	3,314
Guatemala	1,388	1,115	1,517	1,565	3,835
Haiti	5	3	5	3	2
Honduras	1,578	968	1,017	974	2,997
Mexico	3,369	16,114	13,724	11,768	13,974
Nicaragua	44	18	35	14	43
Peru	9	7	20	13	15

Note: One or more children from 45 other countries were apprehended during FY 2008-2012, but these countries were not included based on criteria described in the text.

TABLE 4
Levels-on-Levels Regressions

Dependent variable: Number of unaccompanied children				
Included time periods (years): 5				
Included cross sections (countries): 13				
Total panel (balanced) observations: 65				
Constant		-721.56** (-2.34)	-457.43 (-0.90)	-1375.38*** (-3.09)
Murder rate	17.13 (0.48)	20.55** (2.52)	19.38** (2.31)	20.10** (2.49)
U.S. foreign born population ^A		0.001*** (17.94)	0.001*** (14.24)	0.001*** (18.18)
Per capita income ^B			-0.08 (-0.66)	
2009 dummy				844.22 (1.58)
2010 dummy				741.13 (1.38)
2011 dummy				521.19 (0.97)
2012 dummy				1228.76** (2.30)
Country fixed effects included?	Yes	No ^C	No ^C	No ^C
Adj. R ²	-0.01	0.83	0.83	0.84
Prob(F-stat)	0.71	0.00	0.00	0.00

T-statistics in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

A : Data on foreign born populations resident in the U.S. obtained from Anna Brown and Eileen Patten, "Statistical Portrait of the Foreign-Born Population in the United States, 2012," Pew Hispanic Center report, April 2014.

B : Per capita GDP in international 2005 U.S. dollars. Per capita GDP in PPP 2005 dollars was also used but was less significant. Data on per capita income levels are obtained from the World Development Indicators database.

C : The level of the U.S. foreign population variable is included on the right-hand side. Because it does not vary across time, it replaces fixed effects in the estimation.

TABLE 5
Difference-on-Difference Regressions

Dependent variable: First difference of number of unaccompanied children				
Included differences: 4				
Included cross sections (countries): 13				
Total panel (balanced) observations: 52				
Constant		-1.63 (-0.01)	527.35** (2.31)	-138.22 (-0.33)
Murder rate (first difference)	-35.43 (-0.68)	-28.00 (-0.67)	-59.02* (-1.82)	-45.28 (-1.36)
U.S. foreign born population (level) ^B		0.0002*** (2.77)	0.0002*** (3.75)	0.0002*** (3.79)
Per capita income (first difference) ^A			-8.82*** (-6.04)	-10.64*** (-5.99)
2009-2010 dummy				1049.40 (1.65)
2010-2011 dummy				763.52 (1.23)
2011-2012 dummy				1271.37** (2.05)
Country fixed effects included?	Yes	No ^B	No ^B	No ^B
Adj. R ²	-0.14	0.10	0.48	0.50
Prob(F-stat)	0.90	0.03	0.00	0.00

T-statistics in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

A : Per capita GDP in international 2005 U.S. dollars. Per capita GDP in PPP 2005 dollars was also used but was less significant.

B : The level of the U.S. foreign population variable is included on the right-hand side. Because it does not vary across time, it replaces fixed effects in the estimation.